COOS ESTUARY LAND USE ANALYSIS

South Slough National Estuarine Research Reserve

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COOS ESTUARY
LAND USE ANALYSIS

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EXECUTIVE SUMMARY

Modern management of Oregon's estuaries and surrounding shorelands is based on the economic and social drivers of the 1970's era when local land use plans were developed. How do we modernize land use planning for an Oregon estuary in a way that balances responsible economic development, social interests, and the protection of natural resources? The Partnership for Coastal Watersheds (PCW), a diverse group of local stakeholders, in partnership with South Slough National Estuarine Research Reserve (South Slough NERR) and Coos County Planning Department are collaborating to answer this question for the Coos estuary.

The Coos estuary is the sixth largest estuary on the West Coast and one of Oregon's most important estuaries for abundance, diversity, and quality of its ecological resources, as well as for economic opportunities and cultural values. The Coos Bay Estuary Management Plan (CBEMP) was created to manage conservation and development conditions that existed in the late 1970's and early 1980's. However, the economics and demographics of the many communities along the Coos estuary have changed since then. For example, ownerships and land uses that once served primarily timber and commercial fishing industries have changed to include non-industrial purposes such as tourism and recreational fishing. Meanwhile, environmental and resource conservation practices have evolved, and permitting processes have become more complex.

The community and land use planners agree that the CBEMP is in dire need of revision; however, the process to complete a revision is unclear. While an initial process occurred in the 70's and 80's to develop and adopt estuary management plans for all Oregon estuaries, there have been no comprehensive updates of estuary plans in Oregon. Therefore, no models for a large-scale modernization effort of the type envisioned for the CBEMP exist. As with any element of a comprehensive plan, the process for arriving at proposed amendments to the plan must be locally developed and initiated, and that process will vary based on local circumstances. The Coos Estuary Land Use Analysis is intended to provide a locally vetted framework for that process as applied to the CBEMP.

The Partnership for Coastal Watersheds (PCW), a local group of civic-minded community members representing county and city planners, natural resource managers, and development and conservation interests, has been instrumental in assisting Coos County Planning Department as they prepare to revise their plan.

The PCW has worked with Coos County to create multiple products that are needed for a plan update:

1) An audit/assessment of the current CBEMP;
2) The Communities, Lands & Waterways: Data Source, a compilation of current socio-economic and environmental status and trends;
3) The Coos Estuary Map Atlas, a series of maps and tables analyzing current natural resource, natural hazard and socio-economic data within the CBEMP boundaries;
4) Findings from three focus groups (economic development; socio-cultural interests; and natural resource protection and restoration) that evaluated key issues based on the needs of the estuary; and
5) Alternative management options for Coos County to consider as they look to revise the CBEMP, including cost and technical feasibility analyses.
6) A framework that can be used to incorporate new data into a revised CBEMP

The CBEMP audit evaluated the current plan, focusing on areas where the legal framework has changed, implications of legal decisions that have occurred since the 1980's plan adoption, and general plan usability. The results of this assessment have prioritized key areas that the county should focus on during a plan revision. This includes using GIS mapping technology; using simple language for goals, policies, ordinances, and criteria; recognizing outside agency permitting and review procedures; and improving document structure (including digitizing the plan).

The Communities, Lands & Waterways Data Source and ***Coos Estuary Map Atlas*** are two products that can be used to update the Resource Inventories portion of the CBEMP. The Resource Inventories include maps and data on which all land use decisions are based. Inventory maps also identify resources designated for protection (e.g.,

habitats, natural hazards, historical and archaeological sites, and other features).

Focus group findings provide the county with additional input on content within the plan that needs revision or augmentation, based on modern estuary and community needs. Some of these recommendations will need further research or assessment to see exactly how incorporating them into the CBEMP will impact the community or local economy (e.g., flexible development options), while some are quite easy to implement (e.g., including links within the document to other resources).

The management options provide county officials with a way to weigh decisions related to how, when and how much of a revision to the CBEMP is possible. The three options detailed in this report are: a full CBEMP revision, a partial plan revision, and a no-change option (which includes making the existing plan easier to use, by digitizing it for example).

Finally, a framework has been developed to provide officials with a roadmap to incorporate data and map products from this project as well as future data into the CBEMP and related plan documents for each of the local jurisdictions (Cities of Coos Bay and North Bend). This describes strategies to integrate data, a work program outline, an assessment of existing CBEMP policies with the new data, and steps required to amend the plan.

Based on the information products and feedback from the broader community described below, the PCW firmly recommends a full plan revision. The most expensive option, a full plan revision can be implemented in steps to help alleviate costs. In the long term, continuing to implement the current plan has costs that impact current and future opportunities, including real costs on property owners, users, the county and cities that result from its complexity and out-of-date inventories. Representatives from all relevant governments (Coos County, the cities of Coos Bay and North Bend, the International Port of Coos Bay, the Coquille Indian Tribe, and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians) participated on the PCW and focus groups and provided their guidance toward the recommendations. A full plan revision is both publicly and politically supported and is vital to bringing estuary land use decision-making into the 21st century.

INTRODUCTION

PROBLEM: CBEMP is Outdated:

Industrial waterfront identified in the current plan was set aside for resource extraction industries. Current industries have diversified (e.g., tourism) and are not being supported by the plan.

Extents of many natural resources mapped in the plan have changed yet those maps are what control decisions.

Maps in plan are static and hand-drawn, not utilizing modern-day technologies such as GIS

PROBLEM: CBEMP is Difficult to Use

Much of the 1,000+ page plan is not digitized.

The large number of management units creates a high level of complexity (some are very small yet have very specific criteria). Projects often cross management units making it very challenging and costly for permittees without necessarily increasing resource protection.

The CBEMP is organized from a legal perspective making it easier to determine policy compliance; however, legal language is inaccessible for end users.

Ambiguous allowed uses make it challenging to determine if a proposed use truly fits, causing both sides of a development proposal to feel they are right.

PURPOSE AND PROJECT OVERVIEW

The Coos Bay Estuary Management Plan (CBEMP) (Volume II of the Coos County Comprehensive Plan) is a written plan with maps and data that provides the regulatory basis for estuarine resource conservation and development decisions in the Coos estuary. Coos County Planning Department recognizes that much has changed during the three decades since the existing CBEMP was adopted, both in the nature of the local community and its economy, as well as in the availability of information resources for the estuary. For example, since the adoption of the CBEMP the City of Eastside has been annexed into the City of Coos Bay. Technology has also changed since the early 1980's. With the advent of global information system (GIS) for public use, mapping technology is much more accurate and easier to use than the hand drawn maps of the late 1970's (which planning departments use in decision-making processes to this day).

Periodic review of the CBEMP was done in Coos County in the late 1990's. However, those updates only focused on required language changes to comply with state law - the content of the plan was not updated. Since that time, the periodic review requirements were amended and the mechanism to require the County and the Cities to update the CBEMP together have been removed. Meanwhile, Coos County, and the Cities of Coos Bay and North Bend have each drafted their own zoning and land development ordinance measures that implemented the adopted CBEMP. This is important as each of these local jurisdictions have authority over land use in the Coos estuary.

Some parts of the CBEMP have not been updated in nearly 40 years, including the hand drawn inventory maps county planners are still using to base their land use decisions. While an initial process occurred in the 70's and 80's to develop and adopt estuary management plans for all Oregon estuaries, a revision process for these outdated plans has not been developed. As such, there is no model to draw on as Coos County looks to be the first local government in Oregon to revise its estuary management plan. With the help of the Partnership for Coastal Watersheds (PCW), Coos County Planning has begun taking initial steps to prepare for a CBEMP revision by taking into account today's economic and social drivers while being proactive in considering environmental changes and the protection of valuable natural resources.

The intent of the Coos Estuary Land Use Analysis is to assist the Coos County Planning Department to update environmental and community data related to the Coos Bay Estuary Management Plan. To that end, this project comprises three main pieces: ***The Coos Estuary Map Atlas,*** Focus Group Recommendations, and Scenario Options.

The Coos Estuary Map Atlas and the Communities, Lands & Waterways: Data Source (see sidebar) are two information products that will help the

Coos Estuary Map Atlas (Map Atlas):

A series of maps and tables analyzing current natural resource, natural hazard and socio-economic data within the CBEMP boundaries, described in full detail in the Coos Estuary Map Atlas section below and in Appendix E

Communities, Lands & Waterways: Data Source (Data Source):

A status and trends report assessing environmental and socio-economic conditions in the Coos estuary described below.

County move forward with updating its resource inventories. Both reveal current and potential development and conservation areas within the boundaries of the CBEMP and reflect current and likely future conditions in the estuary. Taken together, these products will help Coos County modernize the inventories portion of the CBEMP.

The PCW has engaged a broad cross-section of the community to discuss how a revised CBEMP can address current estuary needs, primarily through focus group workshops. Recommendations developed by workshop participants (described in the "Focus Group Recommendations" portion of this document) provide suggestions for key CBEMP refinements based on a balance of stakeholder needs and those of the estuary and its surrounding communities. In addition, the PCW solicited feedback on those recommendations from the broader community through a survey and public open house (described in the "Public Survey" section).

The final piece of this project is a detailed description of three potential options the county can use to guide an update to the CBEMP. The options are a full plan revision, a partial plan revision, or a no-change option. Each option has associated benefits and trade-offs, which are described in the "Scenario Options" section of this document. Based on these options, methods on how to incorporate new data into the existing CBEMP has been developed and is described in the "Framework to Incorporate Data into the CBEMP".

As Coos County is the first local government in Oregon to make large strides in a full estuary management plan revision, a Lessons Learned Guide is included as Appendix A to help other coastal communities learn from our process. This provides detail on beginning steps, best practices, and overview of benefits, costs and other considerations for the process described here.

This report describes the primary components of the Coos Estuary Land Use Analysis. It has been technically reviewed by regional experts in socio-cultural interests, natural resource protection, economic development, and Oregon planning goals. All comments were incorporated into this document as appropriate. Those comments unable to be included are valuable for officials to consider during the revision process and so are included as Appendix B.

PARTNERSHIP FOR COASTAL WATERSHEDS AND PROJECT HISTORY

The Partnership for Coastal Watersheds (PCW) is a local group of civic-minded community members representing county and city planners, natural resource managers, and development and conservation interests. The PCW was formed in 2009, with funding ($216,000) by the Cooperative Institute for Coastal & Estuarine Environmental Technology, in order to bring science, management, and the community together to address land use and climate change issues through ecosystem management. This provided funding to form a PCW steering committee, which then created a community vision for the South Slough watershed and nearby coastal sub-basins (project area), an action plan to begin to achieve that vision, and a status and trends document assessing conditions in the project area.

Through the initial process, PCW members realized an important focus was to assist Coos County in revising the CBEMP, to ensure an updated plan reflects current economic, environmental, and socio-cultural needs of the broader community. Since 2012, this collaborative group has developed multiple projects with the central purpose of supporting the Coos County Planning Department as they begin the process of updating the CBEMP.

The PCW has been able to support project work through various funding sources. In 2012, the South Slough NERR received funding to partner with Coos Watershed Association and the PCW to develop a status and trends inventory for the Coos estuary. The grantors (National Estuarine Research Reserve System Science Collaborative) awarded nearly $550,000 to complete the project, which culminated in the Communities, Lands & Waterways: Data Source (Data Source; Cornu and Souder, 2015). The Data Source is an encyclopedic compilation of all available data describing the socioeconomic and environmental conditions in the Coos Bay area, including the Coos estuary and lower Coos watershed. The Data Source provides in-depth status and trends information about the project area's environmental attributes (e.g. water quality, oysters, eelgrass) and evaluates our community's social and economic attributes (e.g., demographics, schools) for comparison with other communities. It also describes the likely effects of climate change on each attribute. Finally, it highlights significant data gaps in our knowledge of the estuary, lower watersheds, and surrounding communities. See Appendix C for a one pager describing this project. The full version can be found on the PCW website at: http://www.partnershipforcoastalwatersheds.org/lands-waterways-data-source/

In 2016, the Coos County Planning Department was able to allocate $9,000 to develop an assessment (i.e., audit) of the current CBEMP to highlight areas in need of improvement. The CBEMP assessment was produced by the University of Oregon Institute for Policy Research and Engagement and guided by the PCW. It is a technical review of the current CBEMP to evaluate its functionality in terms of legal framework, usability, and structure. The focus of the assessment was to review the land use inventory portion of the plan, review legal compliance, and identify gaps where local regulations lack clarity or are inefficient. See Appendix D for the full assessment report. The assessment guided the areas the PCW could focus on as it moved to solicit community feedback for an updated plan.

Also in 2016, the South Slough NERR on behalf of the PCW again received funding ($246,000) from the National Estuarine Research Reserve System Science Collaborative, this time to help Coos County develop the technical information and community feedback it needs as it considers updating the CBEMP. PCW members have contributed a combined estimated 900 hours volunteering their time to steer or provide outreach for this project. Additionally, South Slough NERR has contributed an estimated $42,000 of in-kind match to develop this project.

PROJECT AREA

The yellow area in Figure 1 is the current adopted boundary of the Coos Bay Estuary Management Plan. For this project, the study area boundary was expanded beyond that to: (1) provide context for lands that are potentially at risk of flooding due to sea level rise and/or tsunamic inundation, and (2) allow a detailed review of potentially impacting land uses on adjacent lands.

To address the first concern, the Oregon Department of Geology and Mineral Industries tsunamic inundation scenario for the Coos estuary was used (ODOGAMI 2017). The XXL scenario, which reflects the largest modeled tsunami impact, was combined with the current CBEMP boundary resulting in a maximum combined extent (brown area in Figure 1).

To allow for analysis of adjacent lands, tax parcels that fell within the combined CBEMP boundary/XXL extent were identified. Tax parcels were excluded from the project area if they had the following criteria:

- Tax parcels with ≤3% area inside the CBEMP/XXL extent;
- Tax parcels ≥ 200 acres with ≤ 10% area inside the CBEMP/XXL extent

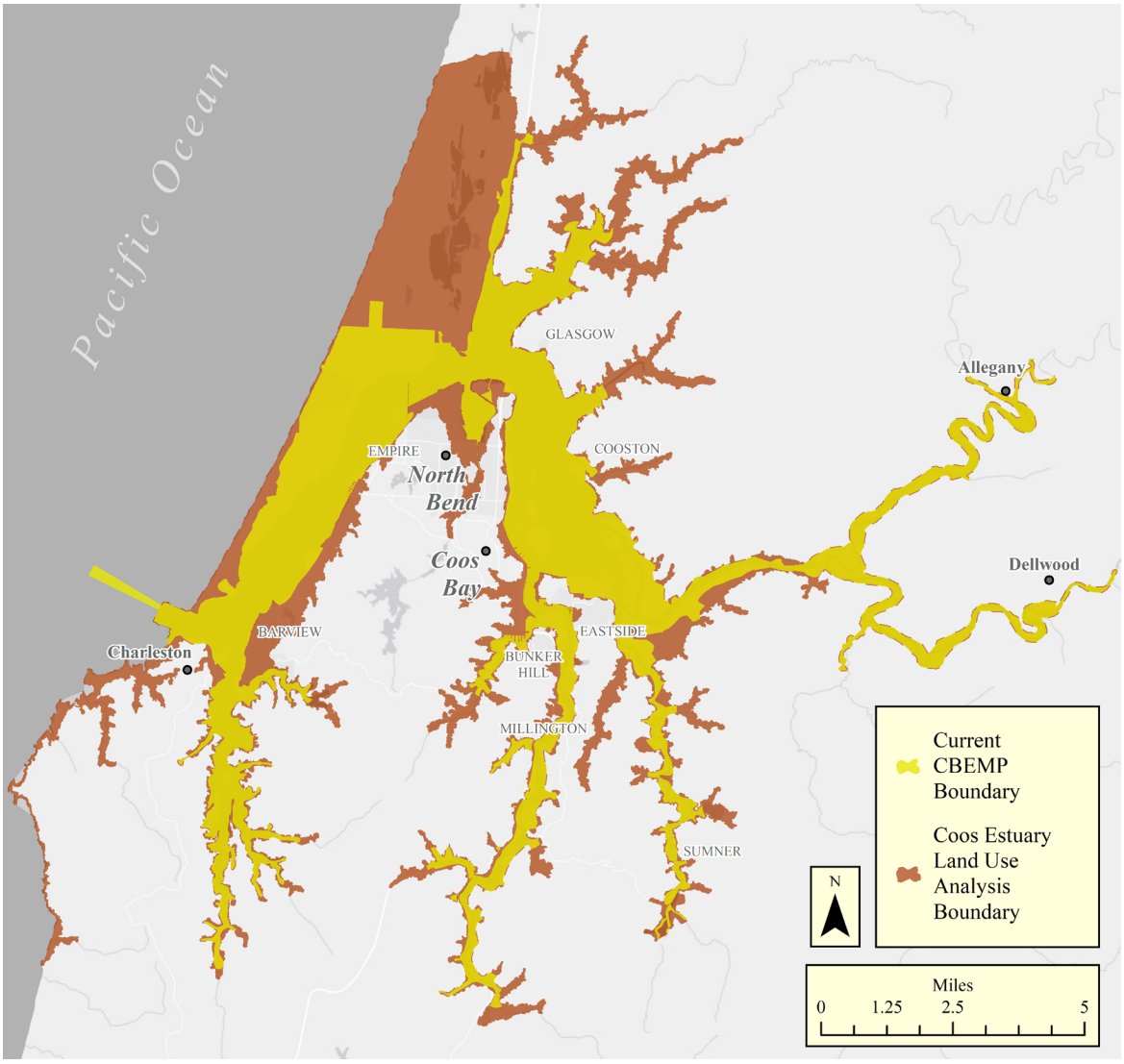


Figure 1: *CBEMP Boundary and project boundary.*

COOS ESTUARY MAP ATLAS

The University of Oregon's Institute for Policy Research and Engagement (IPRE) was contracted to work with the PCW and Coos County Planning Department to portray and describe current locations of physical, biological and socio-economic resources within the project area. The focus of the Coos Estuary Map Atlas (Map Atlas) was to identify: important resources that impact future development, estuary features with ecological importance, and areas of socio-cultural importance. The intent is for the Map Atlas to be used to update the inventories portion of the CBEMP.

Methodology and level of specificity for estuarine land use inventories are not standardized across the state. As such, there is no officially recognized methodology for completing a land use inventory for the Coos estuary. Detailed methods used by the IPRE are described in the Map Atlas. In short, the IPRE calculated an acreage and percent number for each topic listed above using tax parcel level, management unit level, and jurisdiction (i.e., Coos County, Coos Bay urban growth boundary, and North Bend urban growth boundary) information.

The Map Atlas can be seen in full in Appendix E. The Map Atlas includes detailed methodology, an overview of the study area, and the Land Inventory, which is divided into four main sections:

1) Zoning and Land Use
2) Economics, Ownership, and Improvement Status
3) Physical Features
4) Focus Areas

Within each section are brief written summaries, tabular analyses, and maps, which describe various topics. The Zoning and Land Use section covers county and city zoning, property use classifications, and management unit designations.

The Economics, Ownership, and Improvement Status section uses tax parcel information to discern improved/unimproved lands, portray improvement value ratios, public ownership, active and inactive diking districts, fire districts, school districts, water boards districts, and employment density.

The Physical Features section includes the following topic areas: snowy plover habitat, eelgrass habitat, oyster and clam beds, flood zones, landslide susceptibility, slope, National Wetland Inventory, Local Wetland Inventory, sea level rise, tsunami inundation, estuary features (which includes boat launches and parks), and Coastal Marine and Estuarine Classification Standard maps.

The Focus Areas section refers to topics that specifically respond to recommendations and findings from focus groups (see Focus Group Recommendations, below). Focus Areas topics include marsh landward migration zone priority areas, updated recommendations to mitigation sites, economic areas (i.e., Enterprise zones and urban renewal districts), and dredge material sites.

Final Map Atlas products include a .pdf version of the Map Atlas including each map at a 1:40,000 scale, a shareable geodatabase that includes all the shapefiles informing the Map Atlas, and an online viewer (can be found on Coos County Planning's website beginning Fall 2019).

FOCUS GROUP RECOMMENDATIONS

PURPOSE AND METHODS:

Today the range of "stakeholders" who will be affected by an update of the estuary plan is inevitably different from the stakeholders who were present thirty years ago when the current plan was adopted. As such, the PCW wanted to conduct a stakeholder analysis to provide insight to the County regarding current key issues and needs of the estuary and surrounding community.

The *role* of these groups was to act as representatives of the broader community of stakeholders who have an interest in the future land use designations of the estuary. These groups made the initial effort to ensure that an updated plan reflects the present day economic, environmental, and socio-cultural needs of the broader community and region.

Workshop development occurred iteratively between the project team, workshop facilitator and the PCW. The group wanted experts from three different realms (socio-cultural, natural resource protection, and economic development) to come together over the course of three workshops and identify estuarine priorities related to the CBEMP. It was decided that each workshop would feed off the previous one, to respond to conversations and to formulate feedback. Findings from each workshop were compiled and sent to participants prior to the next workshop. The final findings were compiled shortly following the final workshop and sent out to workshop participants for comment to ensure recommendations and suggestions were captured accurately. The Coos County Planning Director was on hand for all workshops, which was invaluable for providing relevancy between recommendations and an updated estuary management plan.

All workshops were held October 2017 and details on participant selection and each workshop are below. After the final workshop, the PCW and project team compiled the findings. This included merging similar recommendations that came from different focus groups. The compiled findings were presented to a re-convening of workshop participants in January 2018 to ensure the intent was captured correctly. Changes were made accordingly, and recommendations were then finalized (See Appendix F for final recommendations).

Participant Selection

Each focus group was to be small (10-15 individuals) and composed of experts who could collaborate well. Potential workshop participants were initially identified by PCW members. Suggested participants who had expertise in one of the three focus areas (natural resource protection and restoration, economic development, and socio-cultural interests) and worked well in a collaborative setting were prioritized for invitation. The PCW decided that participants would be required to attend all three workshops and those who could not, would be excluded from participating on a focus group (and encouraged to participate at a later public open house). This was because the workshops were meant to be additive with the work of each workshop building upon previous effort. After initial approach by PCW members, the project team followed-up with each of the identified participants and by the end of the selection process, each focus group had 10-13 confirmed individuals.

Focus groups were composed of citizens at large and people associated with or currently/previously employed by the following organizations/industries:

- 7 Devils Brewing
- Agriculture industry
- City of Coos Bay
- Confederated Tribes of the Coos, Lower Umpqua & Siuslaw Indians
- Coos Bay/North Bend water board
- Coos Bay Planning Commission
- Coos Bay School District
- Coos Curry Housing
- Coos Watershed Association
- Coquille Indian Tribe
- Fishing Industry
- Oregon International Port Coos Bay
- Roseburg Forest Products
- Shoji Planning
- Sol Coast Consulting and Design
- South Coast Development Council

Southwestern Oregon Community College
South Slough NERR
Stunzner Engineering
Surfrider
Timber industry
Oregon Department of Environmental Quality
Oregon Department of Fish & Wildlife
Oregon Department of State Lands
U.S. Fish and Wildlife Service
U.S. Representative for Oregon, aide

The opinions and feedback provided by participants did not represent the organizations listed above. Rather, this list helps portray the diversity of background and knowledge base that participants were able to draw upon while informing this process.

Focus group participants' responsibilities were to: 1) attend all meetings; 2) review materials before/between meetings; and 3) reach out and communicate with other members of their respective networks between meetings, to keep the broader public apprised of the process and to solicit input and suggestions.

First workshop

The first workshop was a full day meeting where participants from all focus groups gathered together to receive context and background information, share input about land use planning and status of the current plan, and begin to identify priorities and outcomes. The first part of the meeting consisted of presentations by state and local officials to set the context and clarify what types of recommendations focus groups were able to give and what parts of the CBEMP were not flexible. Other presentations were given by the project team to share informational tools participants could use (including the Map Atlas and the Data Source). For the remainder of the meeting, participants divided into two groups to rotate through four different breakout sessions. Breakout groups were composed of a mix of participants from each focus group, in order for them to gain an understanding on different perspectives and a greater span of issues. The four breakout sessions were titled: natural resources, regulatory, economics, and socio-cultural. Each of the breakout sessions had a facilitator, scribe, and theme expert. The meeting ended with a plenary session where the major themes of the day were presented to participants to ensure it accurately captured their ideas.

Second workshop

The second round of workshops was developed based on major findings from the first full-day meeting. Focus groups met separately during half-day meetings to build on a suite of themes and issues that were identified during the first full-day meeting. Focus themes varied between groups.

The economic development group was asked to discuss five key concepts: maintenance, rehabilitation and expansion of the transportation system; the connection between the health of the estuary and the health of the economy; how to create, retain, and attract a qualified work force and jobs; connections between economic development and the simplification of bureaucratic processes; and areas that need to be highlighted for change in management uses or allowed uses. The following discussion points and questions were used to facilitate discussion of these concepts.

- *Participants [at the first workshop] emphasized that maintenance of natural resources is important for economic development— including the health of the water in the estuary. Participants emphasized that economics in the region are water-based, whether they are industrial, commercial, or recreational, making clean water key to the health of the local economy. Discussion.*
- *Participants [at the first workshop] emphasized the need to plan for resiliency as a result of rising ocean levels when thinking about the transportation system. Infrastructure that is crucial to economic development, such as roads, railroads, bridges, sidewalks, boardwalks, and the airport are all shoreline dependent. Therefore, the maintenance, rehabilitation, and expansion of that system are imperative. Discussion. What does that mean for a future estuary management plan?*
- *Participants [at the first workshop] agreed on a need for the community to focus on a variety of industries, not just import/export, not just fishing, not*

just recreation, as part of a broader conversation of diversification, adaptability, resiliency, connectivity, and flexibility. Participants emphasized that interweaving the region's economy, natural resources, community, and built infrastructure is part of this diversification and adaptability. Does this still make sense, and if so, how can an updated estuary management plan address this?

- *Participants [at the first workshop] suggested that educational resources are needed to help the community make the connection that the health of the estuary directly correlates with the health of the economy. They noted that an environmental impact assessment for new development could help the community understand the rippling effects of economic development on every aspect of the estuary. Does this make sense now? How can that be addressed in an updated estuary plan?*
- *Participants [at the first workshop] expressed fear that the estuary community is losing its competitive edge economically and that creating, retaining, and attracting a qualified workforce and the requisite jobs are important. The Coos Bay estuary region has not adapted to the changing economy in the way that other coastal communities have (a noted example was Astoria). What are the implications of this trend for an updated estuary management plan?*

Members of the socio-cultural group discussed five different concepts: improved connections and links to the estuary; creating a sense of place; creating a healthy balance between socio-cultural resources, natural resources and economic needs of the community; incorporating socio-cultural elements into a new estuary plan (something that was not actively thought about when the original plan was created); and areas that need to be highlighted for change in management uses or allowed uses. The following discussion points and questions were used to facilitate the conversation.

- *Participants [at the first workshop] suggested that educational and outreach initiatives should enhance a sense of place in the community for members to underscore the importance of quality of life in attracting, and retaining, community members. Learning centers, research centers, museums, parks, and events (festivals, etc.) were cited as examples of how to accomplish this. Discussion.*
- *Participants [at the first workshop] suggested that a new plan should identify, protect, and rehabilitate historic districts and buildings, places of cultural and historical significance (both pre-and post-European settlement), and include linkages to: green space, active transportation paths, land and water transportation corridors, and to the estuary itself. Discussion.*
- *Participants [at the first workshop] identified the need for a new plan to maintain the community's cultural and historical connections with the estuary. Discussion. How would this be accomplished?*
- *Participants considered that preserving the community's connection to the water is an aspect of preserving past, present, and future cultural and historical connections. Thoughts?*
- *Participants [at the first workshop] stated that the vision or narrative of the new plan should emphasize, rather than ignore, the importance of the estuary to the community both culturally and historically. The new plan should strive to maintain that importance and the current plan does not include socio-cultural values.*
  - *Some suggestions for inclusion in the plan were: tribal culture and history, education programs to celebrate the history of the estuary, and public outreach through better connection with locals and visitors (plaques, boards, and cultural identifiers around the estuary)*
  - *Discussion*
- *Participants [at the first workshop] expressed a desire for the new plan to be holistic, dynamic, and publicly accessible and to address all aspects of the estuary: socio-cultural, archaeological, historical, natural resource use and preservation, economic development, and hazard mitigation. Discussion.*

Natural resource protection participants were asked to drill down on issues related to: long-term planning for the loss or protection of natural resources; impacts of development on the estuary including mitigation; connections between human activity and the natural environment; unique natural aspects of the Coos estuary; and making regulatory processes smoother for the new plan); and areas that need to be highlighted for change in management uses or allowed uses. The discussion points below were used for facilitating the conversation.

- *Participants [at the first workshop] suggested that regulation of the built environment should be addressed in any future plan, requiring that any new development engage in a thorough environmental impact review. In addition, participants thought there is a need to rehabilitate and mitigate for the past and future negative effects of development activities on the Coos Bay Estuary. Agreement? Discussion.*
- *Should the updated plan link existing amenities such as boardwalks, main streets, boat launches, docks, etc. with access to the estuary? How should that occur?*
- *Participants [at the first workshop] cited a lack of focus on data for policy, plan review, and permitting, allowing for projects to go forward that have not undergone an assessment of their full environmental impacts. Participants emphasized that regulations and guidelines in a new plan must be based on real science and data, to ensure that gaps in the mitigation efforts are addressed meaningfully. Do you agree? Discussion.*
- *Participants [at the first workshop] suggested creating inventories of existing natural resources, such as wildlife habitats and wetlands, and prioritizing their long-term protection as part of long-term planning in order to address the loss (and protection of) natural resources. Discussion.*
- *Participants [at the first workshop] agreed that a new plan should develop a historical context for the estuary that demonstrates the loss of currently existing wetlands in the estuary—and their potential rehabilitation—as part of a need to recognize the connection between human activity and the natural environment. Discussion*
- *Participants [at the first workshop] expressed views that the current estuary management plan does not adequately protect the natural resources of the estuary. Suggestions included having the new plan include clearer language and a more streamlined process for permitting that will allow for protection of natural resources and appropriate development. Participants also suggested involving experts to identify areas and ways to improve on the existing plan.*

In addition, each focus group was asked these same series of questions:

- *Participants at the [first] workshop noted that an updated plan should modify existing regulations to make them consistent between federal, state and local agencies. Do you agree?*
- *Should a review of existing plan resources, inclusion of estuary data, and modification of existing regulations to make the regulations more consistent be part of the estuary plan update, as suggested at the [first] workshop?*
- *What do participants think about increasing access to the estuary by creating requirements for new development to include educational information on the historical, cultural and scientific significance of areas within the estuary?*
- *Should the new plan include a long-term infrastructure redevelopment component to move or improve existing infrastructure as a way to plan for resiliency from natural hazards and future climate-related changes?*
- *Should the new plan change existing zoning so that it supports a mix of industrial, commercial, residential and recreational rather than a primary focus on water-dependent industrial zoning?*

Based on discussion topics and questions, and with support from the Coos County Planning Director, each focus group identified and articulated initial recommendations for guiding an updated management plan.

Third workshop

Focus groups again met separately for the third and final series of workshops. Participants reviewed recommendations from the second workshop to make sure they were captured accurately. Each recommendation was discussed and adjusted according to further group discussion. Each group then did several mapping exercises based on topics specific to each group in order to identify major areas in the estuary where that group's priorities could be translated to the landscape.

The socio-cultural members identified areas around the shoreline currently lacking good access to the estuary; areas where green infrastructure could be implemented; important shorelines related to historical or cultural places; and areas where historical/cultural signage could be implemented.

Natural resource protection participants were asked to point out areas around the estuary important for restoration or mitigation; areas important for access; dredge material areas; and areas where green infrastructure could be implemented.

Economic development participants were asked to identify important industrial areas (in particular deep-draft and shallow-draft areas); areas important for access and tourism; important areas for future development when considering tsunami inundation or sea level rise; and dredge areas.

Relevant portions of this mapping exercise were included in the "Focus Areas" chapter of the Map Atlas. Each focus group ended their final workshop by participants' ranking recommendations for their importance and impact.

Reconvening of participants

Recommendations that emerged from the series of workshops were compiled, wordsmithed, and integrated by the project team and the PCW. The group took them from discrete recommendations made by each focus group and turned them into one document combining all recommendations by topic. This was possible to do since no recommendations from any one focus group contradicted those from a different group, while many recommendations and topic areas were similar across the different focus groups. After integrating the recommendations together, the PCW hosted a reconvening of all focus group participants in January 2018 in order to ensure the changes and new organization of the recommendations still conveyed original intent. Participants were also interested in seeing the types of recommendations provided by the other focus groups. Feedback from that reconvening was incorporated, resulting in final workshop recommendations. See Appendix F for full recommendations.

PUBLIC SURVEY

The PCW was interested in soliciting feedback on the focus group recommendations and the Coos Estuary Land Use Analysis project as a whole from the broader community. To accomplish this, we hosted a community-wide public open house in April 2018. A public survey was distributed at the open house (see Appendix G for full survey and accompanying glossary). The primary purpose of the survey was to find more about the broader community's needs, desires and concerns for the future management of the Coos estuary. The survey questions closely mirrored the final focus group recommendations to see how they resonated with the greater community. Additional questions were included to gauge participants' knowledge of the CBEMP and the interest category they were mostly aligned with (e.g., economic development, natural resource protection, or socio-cultural matters). Space for comments was also provided.

PCW members gave presentations to participants in order to provide context prior to them taking the survey. The first presentation (by PCW founder, Craig Cornu) introduced the PCW, and its history and role in helping the county update their Coos Bay Estuary Management Plan, including past and current projects. That was followed by presentations from Matt Spangler (Dept. Land Conservation and Development) describing Oregon Statewide Planning Goals, and Jill Rolfe (Coos County Planning Director) on the current status of the CBEMP and county expectations moving forward.

A gallery-style open house followed the presentations. Four information stations were set up for participants to visit, ask questions, provide comments and interact with PCW members. Information stations consisted of the following:

- *Communities, Lands & Waterways Data Source:* A status and trends report assessing environmental and socio-economic conditions in the lower Coos watershed and surrounding communities. Displays included a two-volume bound copy, several computers to browse through the report electronically and a one-pager for participants to take home.
- *Coos Estuary Map Atlas:* A series of maps and tables analyzing current natural resource, natural hazard and socio-economic data within the CBEMP boundaries. Displays included select printouts of map sets, poster-sized versions of select maps, and several computers to browse through the atlas electronically, along with a one-pager for participants to keep.
- *Coos Bay Estuary Management Plan (CBEMP) audit:* An assessment of the current CBEMP, highlighting its limitations and areas needing improvement. Display included the bound version of the CBEMP and mylar maps that are currently used in decision-making, several bound copies of the audit, and a one-pager for participants to keep.
- *Coos Estuary Land Use Analysis Recommendations:* Suggested areas of improvement to the current CBEMP for Coos County to take into consideration upon a plan update, based on community stakeholder suggestions. Full recommendations from the focus groups along with a glossary of terms were displayed poster-sized at this station.

The presentations and information stations were crucial for providing context as participants filled out the survey. In total, 70 surveys were returned; results are shown below, and all comments submitted as part of the survey can be found in Appendix H.

SURVEY RESPONSES

The survey asked respondents a series of questions related to their experience using the CBEMP (if any), whether they thought it should be updated, and what interest category they were most closely aligned with. A third of respondents had no experience using the CBEMP and another third had only minimal experience using it (Figure 2). Only 8% of respondents had considerable experience using the plan. Figure 3 demonstrates that many respondents (43%) who used the plan did so through multiple jurisdictions. Of those using the CBEMP solely through one jurisdiction, the county's plan was the highest with 36%. Of those who had used the plan, the majority (86%) thought that the plan should be updated (Figure 4). This despite the fact that the majority (67%) had a neutral experience using the plan. However, 15% had a negative experience using the plan. Respondents were fairly distributed in the interest category they most closely identified with (Figure 5). Those identifying most closely with natural resource protection had the

highest representation (41%). Those identifying solely with economic development interests had the lowest representation with only 15%.

The survey asked respondents to determine how well they agreed with statements that mirrored the final focus group recommendations. These statements are abbreviated on the x-axis of Figure 6. For example, "Other Land Use B" refers to statement B in the Other Land Use Requirements section of the survey: "Allow non-dependent, non-related, and temporary uses that allow flexibility for future uses." (again, refer to Appendix G). Since not all respondents answered every question, the highest possible score varied by question. Scores were generated by giving 3 points for each "agree" response, 2 points for each "neutral" response, and 1 point for each "disagree" response. Blank responses and responses of "don't know" were not counted in the total score.

Results shown in Figure 6 demonstrate a high degree of agreement for all recommendations. The lowest scoring statement was to "Allow non-dependent, non-related, and temporary uses that allow flexibility for future uses." This was abbreviated from the full recommendation: "Provide for non-dependent, non-related uses which retain flexibility of future use and do not prematurely or inalterably commit shorelands to more intensive uses". Forty-nine people responded to this survey statement; seven disagreed with it, 28 agreed with it, and 14 were neutral. Even though the majority of people who responded to this question agreed with it, it might be a concept that the county considers more closely to see how it would impact the

SURVEY RESULTS AS OF MAY 8, 2018: 70 TOTAL SURVEYS

Figure 2: Amount respondents used the CBEMP

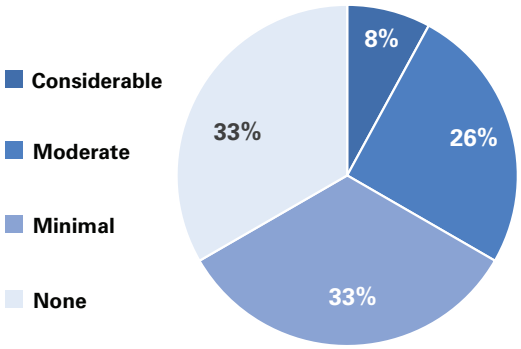


Figure 3: Jurisdiction respondents used the CBEMP

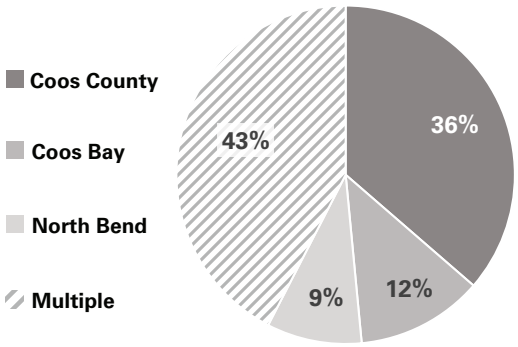


Figure 4: Should CBEMP be updated?

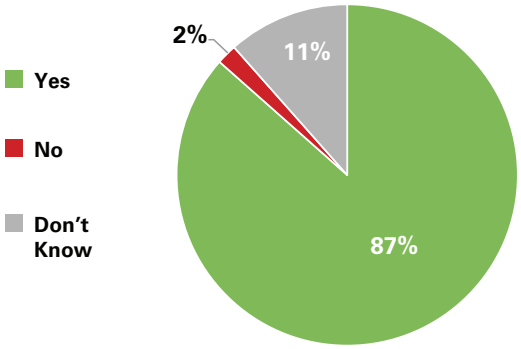
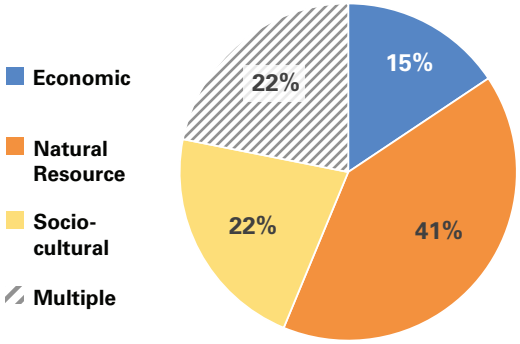


Figure 5: Interest Category



community and local economy if it were adopted into a revised CBEMP.

n contrast, there was overwhelming agreement that natural hazards should be taking into consideration in planning processes. Natural Hazard statements A, B, and C, which all pertained to natural hazards each had about 60 respondents agree and only one disagree. Slightly lower scoring, Natural Hazard D (pertaining to sea level rise in particular) had 59 agree and four disagree. These responses indicate a high degree of favorability for thinking about natural hazards and sea level rise during a plan revision. In general, all of the focus recommendations had high support with the broader community, signifying that focus group participants succeeded in representing current interests and issues of the project area.

SCORE AS % OF HIGHEST POSSIBLE SCORE

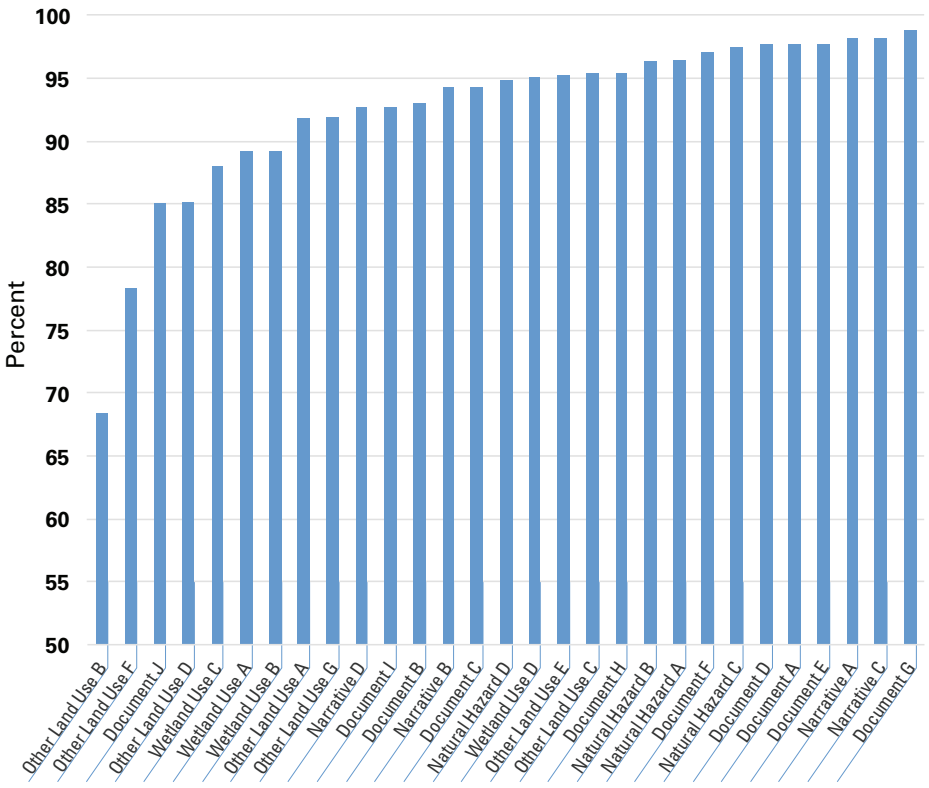


Figure 6: *Chart of survey response agreement to focus group recommendations as a percentage of highest possible score. Since not all respondents answered every question, highest score varied depending on number of responses.*

SCENARIO OPTIONS

Based on the information above, we provide three scenarios that Coos County can consider in their process to modernize the CBEMP. Below is a preliminary evaluation completed by the University of Oregon's Institute for Policy Research and Engagement of the alternative scenarios for Coos County to consider when deciding if, or to what extent, to update the Goal 16 and 17 elements of the County's land use plan (i.e., CBEMP). The evaluation is structured around a set of criteria commonly used for policy analysis: technical feasibility, economic and financial possibility, political viability, and administrative ease.

The three scenarios are ranked below (where activities of Options 2 and 3 are assumed to occur within Option 1).

1) **Full Revision:** : The Board of Commissioners (BOC) hires a consultant to fully update the plan (including resource inventories) using the Coos Estuary Map Atlas; Communities, Lands & Waterways Data Source (Data Source); and some or all of the focus group recommendations. In this option a consultant would likely be needed to revise the plan, and it is possible (though discouraged) that they may not use any PCW products.
2) **Partial Revision:** The BOC adopts only minimal amendments to the existing CBEMP. Amendments may include updating inventory maps using the Coos Estuary Map Atlas, appending the current inventory with the Data Source, applying easier-to-implement recommendations from focus groups, and creating a guide on how the plan works.
3) **No-Change:** The BOC does not update the CBEMP. However, the plan is digitized (Part 1 is already digitized, Part 2 (land inventory) may be updated later, Part 3 should be digitized) to make it searchable, easier to navigate, etc. per a recommendation from the "2016 Audit".

The evaluation criteria have been outlined as follows:

- **Technical feasibility:** Looking at effectiveness (whether the option will have its intended effect both long-term and short-term) and adequacy (whether the option will fully meet the County's stated objectives).
- **Economic and financial possibility:** Including a costs/benefits analysis to measure whether anticipated costs outweigh the benefits of the option.
- **Political viability:** Identifying if the option is acceptable to the end-users, appropriate, responsive to their needs, legal, and equitable.
- **Administrative operability:** Determining option success based on authority, end-user commitment, capability, and organization support and capacity.
- **Efficacy:** Describes how well the option addresses recommendations for improvement based on CBEMP audit report (Table 1; Appendix D). Recommendations partitioned into three categories: Legal Framework, Usability, and Document Structure.

With the exception of cost (economic and financial possibility), it is not possible to quantify the difference between each option for each criterion. Thus, we focus on qualitative differences between the options for each criterion. Ultimately, the determination of which option to pursue will be a normative determination that works to balance responsible economic development, social interests, and the protection of natural resources.

The matrix on Table 2 below summarizes the evaluation and is followed by more descriptive text that includes a set of management solutions, including analyses of the trade-offs (e.g., costs, timing, staff time, etc.) associated with each option and technical guidance for implementation.

AUDIT CATEGORY		RECOMMENDATION
Legal Framework	1	Cross reference allowed uses in each management unit with the underlying county or local zoning.
	2	Update the management units based on current zoning and land use demand
	3	Align management unit boundaries to tax lots, paying attention to ownership and zoning.
	4	Clearly distinguish between policies, ordinances, goals, and criteria.
	5	Clearly distinguish between management unit requirements and estuary-wide requirements.
	6	Review management unit geographic designations in light of current economic conditions and land uses.
	7	Consider suitability of developing and designating mitigation banks.
Usability	8	onsider developing a user guide to accompany the CBEMP that includes introductory remarks explaining section headings, a more robust definitions sections, and legal understanding. - Describe and diagram paths to all required permits for a development to be approved.
	9	Conduct digital GIS based mapping of land cover and land uses. - Create maps at a scale suitable to guide development siting within management units. - Include mapping of natural resources and areas of cultural significance
	10	Acknowledge the outside agencies, regulations, and types of permitting process that exist in addition to the CBEMP regulations and permit
	11	Although Policy 18 is very specific on how to incorporate comments from the tribes it should be reviewed since there are conflicts with Statutory timelines.
	12	Review existing practice for mapping natural resources and areas of cultural significance. Currently the County relies upon the Coquille Indian Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians to map areas of cultural significance. Development options need to consider potential impacts upon these areas.
	13	Use simple language to avoid misunderstandings and to make the plan more accessible to the average user.
Document Structure	14	Digitize and hyperlink the CBEMP.
	15	Include a glossary of terms.
	16	Use clear headers to explain the purpose and need for document sections.
	17	Cross-reference plan policies and regulations both in text and with tables or matrices (consider the use of a separate policy volume).
	18	Make more explicit the document hierarchy of policies, ordinances, goals, and criteria.

Table 1: *Main recommendations for improving the CBEMP, divided into three primary categories: legal framework, usability, and document structure. See Appendix D for full audit assessment.*

CRITERIA	FULL REVISION	PARTIAL REVISION	NO-CHANGE
Technical Feasibility	Hiring a consultant to update the CBEMP would require additional staff time to manage but would provide a much greater degree of expertise to ensure local, state, and federal objectives are met. Any hired consultant would benefit from utilizing the existing PCW products, including recommendations generated during the public processes.	Incorporating the *Map Atlas, Data Source,* and incorporating the easier to implement recommendations into the CBEMP is possible with the existing information available.	The CBEMP has been implemented since 1984. Technically and legally the plan is still goal compliant (it is adopted and acknowledged). Digitizing the plan would make it searchable and easier to navigate.
Cost (Economic and Financial Possibility)	High cost ($100k to $400k or more if existing PCW products are not used)	Moderate cost ($20k to $50k)	Low cost ($5k to $10k or more)
Political Viability	The 2016 Audit as well as the support from focus group and public open house participants provides a great deal of viability for many of these sub-options. Additionally, the 2014 DLCD *Assessment of Oregon's Regulatory Framework for Managing Estuaries* provides additional support. Any hired consultant should heed the recommendations to maintain public and political support.	General support for this option from members of all focus groups, the public, and the County and cities.	Very little need for political support toward this option, however, this option does not adequately meet the needs of the community.
Administrative Ease	Capabilities exist with the County and cities to move these recommendations forward. Time and resources would need to be allocated. Outside consultants would likely be needed. This option would involve the most time and resources.	Capabilities exists at the County and cities to move these recommendations forward. Time and resources would need to be allocated. Outside consultants would likely be needed.	Process of digitization would include hiring an outside professional and staff time.
Efficacy (Numbers reference Table 1)	Plan rectified according to all audit recommendations (1-18)	Usability: 8, 9, 10 Document Structure: 14, 15,	Document Structure:14

Table 2: *Decision-making matrix weighing each option by evaluation criteria*

OPTION 1: FULL REVISION

Technical Feasibility:

Hiring a consultant to update the CBEMP would require staff time to manage, but considerably less time than if staff revised the CBEMP on its own and would provide a greater degree of expertise to ensure local, state, and federal objectives are met. Project management can be performed by staff, who can also perform core competencies to assist with the technical aspects of the update. Any consultant would benefit from using the existing recommendations generated during the public processes.

This option would involve an amendment to the comprehensive plan, which would involve public notice and process, board of commissioners' hearings, and concurrence by Department of Land Conservation and Development (DLCD). It is likely that a technical advisory committee would be needed for this option.

Cost:

The costs of implementing the full update option would range from moderate-high to high depending on if parts of Options 2 and 3 are completed prior to a full update. To that end, costs could be somewhat alleviated if the full revision was taken in steps (e.g., revise the resource inventories first; then amend land uses; then digitize plan and provide a user guide). Developing accurate cost estimates for this work is very difficult without a specific scope of work. The update will be a complex project involving considerable technical analysis, detailed code review, a robust public process, hearings with affected local governments. Review and comment by DLCD will take place during local review and hearing processes.

Approximate cost: $100,000 to $400,000 or more if existing PCW products are not used.

Funding options: Coos County, and possibly the cities of Coos Bay and North Bend; DLCD Technical Assistance Grant; potential for other.

Political Considerations:

The 2016 Audit (see Appendix D) as well as the support from focus group and public open house participants provides a great deal of viability for many of these sub-options. Additionally, the 2014 DLCD Assessment of Oregon's Regulatory Framework for Managing Estuaries provides additional support. Representatives from all relevant governments (Coos County, the cities of Coos Bay and North Bend, the International Port of Coos Bay, the Coquille Indian Tribe, and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians) participated on the PCW, and focus groups, and provided their guidance toward the recommendations of this option. Any hired consultant should heed the recommendations to maintain public and political support.

Administrative Operability:

Representatives from Coos County and the cities of Coos Bay and North Bend participated on the PCW, and focus groups, and provided their guidance toward the recommendations of this option. The County and cities maintain the administrative capability to bring forward the necessary amendments as well as to maintain the digital maps and inventory.

Approximate time to implement: 18 to 36 months

Efficacy:

A full revision would address all of the recommendations from the CBEMP audit report (see Table 1).

OPTION 2: PARTIAL REVISION

Technical Feasibility:

The partial revision of the CBEMP would allow: (a) inventory maps (Part 2) to be updated, (b) the Data Source to be included as an appendix to the resource inventory, (c) a guide on how the plan works, and (d) incorporation of the following "easier to implement" recommendations from stakeholders in the fields of natural resource protection, economic development, and socio-cultural interests (i.e., focus group recommendations).

Easier to implement recommendations include:
Note: *Several of the recommendations listed below will trigger a Measure 56 notification for all land owners within the affected areas (CBEMP boundary).*

1) **Land Use Requirements**
   - Make research an allowed use throughout all estuary management units.
   - The County should amend all inventories to include the most updated data available for cultural resource inventories (historical and archaeological) and habitat protection including wetlands. If new data becomes available prior to a routine plan update there should be a process to introduce relevant habitat data. A process will need to be developed to ensure the data is acceptable.

2) **Document logistics, formatting and links to other resources**
   - Create a supplemental reference guide for how to use the CBEMP and ordinance.
     - Include a flowchart with all permitting agency information included. Include links to other agencies and resources that would be helpful when buying or developing property. This could also be used as an educational tool.
     - Include a link to the Oregon Department of Environmental Quality (DEQ) Facility Profiler-Lite Interactive Viewer for industrial sites.
     - Include links to other local sources such as chamber of commerce, tribes, parks department, watershed councils, etc.
     - Include links in ordinance/code to the plan to help users of the document to understand social-historical context.
   - Format the document in a way that makes it easier to update on regular intervals (See goal/priority section). Part 1 of the CBEMP is already digitized, Part 2 is the land inventory and will be updated at some later date, Part 3 will need to be digitized.
   - Any defined terms should be bold, highlighted or linked (hyperlinked) in some way to ensure they stand out and allow the reader to easily reference the definition.
   - Update Part 2 of the Comprehensive Plan with the new Coos Estuary Map Atlas and Data Source. Leave maps for Dredged Material Disposal, mitigation /restoration and policy #18 in place. Policy #18 can be updated if information is available from tribe.

Incorporating the inventory maps *(i.e., Coos Estuary Map Atlas)*, the Data Source, and incorporating the easier to implement recommendations into the CBEMP would involve an amendment to the comprehensive plan which would involve public notice and process (including review by DLCD) and a board of commissioners hearing. Changes in allowed use or policies would likely trigger Ballot Measure 56 notification requirements. That would involve noticing all property owners within the affected areas (approximately 10,000 parcels).

Updating the land use inventory and data would resolve a major challenge with the existing CBEMP as outlined in the 2016 Audit (see Appendix D) through providing updated information to more fully describe the estuary from a natural resource, socio-cultural, and economic perspective. Including this updated information is generally supported by the focus groups, PCW, and members of the public that participated in the workshops.

Incorporating this updated information would provide current and relevant updates to inform policies and land use decisions related to the estuary and shorelands.

Digitizing the CBEMP and organizing the structure to enhance usability along with other easier to implement recommendations will significantly increase the ability of the user's experience and has general support from the focus groups, public, and PCW.

Cost:

The costs of implementing the partial update option is moderate compared to the benefits that it would provide to the community be providing accurate and updated information to inform policy decisions.

Approximate cost: $20,000 to $50,000

Funding options: Coos County, and possibly the cities of Coos Bay and North Bend; DLCD Technical Assistance Grant

Political Considerations:

The 2016 Audit as well as the support from focus group and public open house participants provides a great deal of viability for this option. Representatives from all relevant governments (Coos County, the cities of Coos Bay and North Bend, the International Port of Coos Bay, the Coquille Indian Tribe, and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians) participated on the PCW, and focus groups, and provided their guidance toward the recommendations of this option. Additionally, the 2014 DLCD Assessment of Oregon's Regulatory Framework for Managing Estuaries provides support for this option in as much as it outlines a need to digitize estuary plans, incorporate digital maps, update inventories, and structure plans to increase their effectiveness.

Administrative Operability:

Representatives from Coos County and the cities of Coos Bay and North Bend participated on the PCW, and focus groups, and provided their guidance toward the recommendations of this option. The County and cities also maintain the administrative capability to bring forward the necessary amendments as well as to maintain the digital maps and inventory.

Approximate time to implement: 12 months

Efficacy:

This option would improve Usability and Document Structure by incorporating current GIS data and mapping, digitizing and hyperlinking the plan, and updating the glossary of terms. Additionally, a user guide to accompany the CBEMP would be developed and include explaining section headings, a more robust definitions sections, and legal understanding.

OPTION 3: NO-CHANGE

Technical Feasibility:

The existing CBEMP has been implemented since 1986, technically, and legally the plan is still goal compliant (it is adopted and acknowledged). However, as detailed in the 2016 Audit (see Appendix D) it is out of date and does not reflect the economic, social, and environmental needs of today. Digitizing the plan would make it searchable and easier to navigate, however, it would not change the effectiveness of the plan. Part 1 of the CBEMP is already digitized, Part 2 is the land inventory and will be updated at some later date, Part 3 will need to be digitized.

Cost:

This option does not involve a revision of the plan as such there is less cost, however, we estimate that digitizing the plan will cost between $5,000 – $10,000+ (how the process is implemented will determine the final cost).

In the long term, continuing to implement the current plan has opportunity costs that impact current and future users that will not be solved with this option. The existing plan has real costs on property owners, users, and county and cities that result from its complexity and out-of-date inventory.

Cost: $5,000 – $10,000 or more

Funding options: Coos County, and possible the cities of Coos Bay and North Bend

Political Considerations:

There is no (or very little) need for political support for this option since there is no policy change with this option. However, community members from the economic, social, and environmental sectors have voiced a desire through the focus groups and public meeting to update the plan to reflect current circumstances. As such, the no-change option would not adequately meet the needs of the community and could conceivably generate push-back from groups that want the plan updated.

As noted previously the existing CBEMP is adopted and acknowledged and therefore legal and goal compliant.

Administrative Operability:

The existing CBEMP is already in effect, this option would not affect its administration. The digitization process would have a cost and involve some staff time.

Approximate time to implement: 1-3 months

Efficacy:

This option would only affect the Document Structure recommendation to "Digitize and hyperlink the CBEMP".

FRAMEWORK TO INCORPORATE DATA INTO **CBEMP**

This section outlines necessary steps to update the CBEMP and local implementing ordinances for Coos County, and the cities of Coos Bay and North Bend. The framework is organized into three sections:

1) Document Structure
2) Plan Usability
3) Land Use/Legal Framework

For each section, an assessment and series of action items for completion is provided. A summary of the framework components is provided as a table at the end of each section.

DOCUMENT STRUCTURE

This section includes recommendations for improving CBEMP document organization and structure, and improving clarity of policies, ordinances and goals. It is organized to reflect the order actions should be completed.

Document Organization & Logic

Document organization and logic is crucial to improving the CBEMP's document structure. This step must be completed first because it will facilitate the work outlined in the remaining sections.

Digitize and hyperlink the CBEMP

The first, and perhaps, easiest recommendation to implement is to digitize and hyperlink the CBEMP. By digitizing and hyperlinking, the plan will become "searchable" and connect to cross-referenced information. Digitizing and hyperlinking the CBEMP requires minimal effort and yields a disproportionately large improvement to document structure.

STEPS:

1. Format the document in a way that makes it easier to update on regular intervals (See "Improve Clarity of Policies, Ordinances, Goals, and Criteria" below). Part 1 of the CBEMP is already digitized, Part 2 is the land inventory and will be updated at some later date with modern information, Part 3 will need to be digitized.
2. Compile a list of links to add and hyperlink, for example:
    a. Link to Oregon Department of Environmental Quality (DEQ) Facility Profiler-Lite Interactive Viewer for industrial sites.
    b. Links to other local sources such as chamber of commerce, tribes, parks department, watershed councils, etc.
    c. Links in ordinance/code to the plan to help users of the document to understand social-historical context.
    d. Links to terms found in new glossary (see "Include glossary of terms" below).
3. Insert hyperlinks in Word and convert to PDF.
4. Present the draft document to a working group for review and testing.
5. Revise and refine digitization.

RESPONSIBLE PARTY: This recommendation was implemented and completed by University of Oregon's Institute for Policy Research and Engagement (IPRE)

TIMELINE: Completed June 2019. Additional links may be desired as plan proceeds through adoption process.

Include glossary of terms

A glossary of terms is needed to clearly understand the CBEMP and mitigate the negative effect planner jargon typically has on public usability.

STEPS:

1. Assess terms needing to be defined and included in the glossary.
    a. Conduct a content analysis of CBEMP to identify current and potential terms defined (begin with the Glossary found in "Appendix F: Focus Group Recommendations and Glossary of Terms").
2. Create first draft of definitions of terms.
3. Present terms to working group and PCW for feedback
4. Coordinate with CBEMP digitization process.
    a. Identify location for glossary to be included in digitized CBEMP.
    b. Any defined terms should be bolded or

highlighted (possibly with underline, different color text, etc.) to ensure they stand out and allow the reader to easily reference the definition.

c. Insert hyperlinks for glossary terms throughout the document (see "Digitize and hyperlink the CBEMP" above).

RESPONSIBLE PARTY: This recommendation was initiated and completed by IPRE.

TIMELINE: Completed June 2019.

Use clear headers to explain the purpose and need for document sections

Implementing clear headers with context statements will make the plan flow better. Without a strong connection and reasoning for the organization, the CBEMP is difficult to navigate.

STEPS:

1. Identify an exemplar document for use of headers and descriptors.
   a. Metro Vancouver 2040 Regional Growth Strategy: http://www.metrovancouver.org/services/regional-planning/metro-vancouver-2040/Pages/default.aspx
2. Present example to working group and confirm direction.
3. Coordinate with digitization process to include headers and descriptors.

RESPONSIBLE PARTY: This recommendation was initiated and completed by IPRE.

TIMELINE: Completed June 2019.

Improve Clarity of Policies, Ordinances, Goals, and Criteria

The estuary-wide implementation of the CBEMP makes it inherently complex. This recommendation describes cross-referencing plan policies and regulations while using figures and tables to explain process and policies.

Cross-referencing Plan Policies and Regulations

Prior to visualizing the plan policies and regulations, it is necessary to document and organize all data. Currently, CBEMP's policies, regulations, and connections to other jurisdictional processes are outlined in the document in an unwieldy way.

STEPS:

1. Compile and document all plan policies and regulations into matrices (content analysis).
2. Review accuracy with stakeholder group

RESPONSIBLE PARTY: This recommendation was initiated and completed by IPRE.

TIMELINE: Completed June 2019.

Using Figures and Tables to Explain Process and Policies

Updating the CBEMP with modernized tables and figures will enhance usability.

STEPS:

3. Cross-reference plan policies and regulations both in text and with tables or matrices
   a. Consider the use of a separate policy volume.
4. Create a supplemental reference/user guide (see "User Guide" under Plan Usability, below) for how to use the CBEMP and ordinance.
5. Include a flowchart with all permitting agency information included.
   a. Include links to other agencies and resources that would be helpful when buying or developing property.
6. Present draft to working group and PCW for feedback.

RESPONSIBLE PARTY: Draft user guide was created by IPRE. Jurisdictions should amend with additional content and finalize draft.

TIMELINE: Draft user guide was completed June 2019. Final version should be completed prior to plan revision.

DOCUMENT STRUCTURE FRAMEWORK				
Priority	**Recommendation**	**Steps**	**Responsible Party**	**Timeline**
1	**Digitize and hyperlink CBEMP**	1. Format the document in a way that makes it easier to update on regular intervals	IPRE	June 2019 (ongoing)
		2. Compile a list of links to add and hyperlink		
		3. Insert hyperlinks in Word and convert to PDF.		
		4. Present the draft document to a working group for review and testing.		
		5. Revise and refine digitization.		
2	**Include a glossary of terms**	1. Assess terms needing to be defined and included in the glossary.	Partners/IPRE	Final - June (Ongoing)
		2. Create first draft of definitions of terms.		
		3. Present terms to working group and PCW for feedback		
		4. Coordinate with CBEMP digitization process.		
3	**Use clear headers to explain the purpose and need for document sections**	1. Identify an exemplar document for use of headers and descriptors.	IPRE	Completed June 2019
		2. Present example to stakeholders and confirm direction.		
		3. Coordinate with digitization process to include headers and descriptors		
4	**Cross-referencing Plan Policies and Regulations**	1. Compile and document all plan policies and regulations into matrices	IPRE	Draft- May
		2. Review accuracy with stakeholder group		Completed June 2019
5	**Use Figures and Tables to Explain Process and Policies**	1. Cross-reference plan policies and regulations both in text and with tables or matrices	Partners/IPRE	Draft - May
		2. Create a supplemental reference guide for how to use the CBEMP and ordinance.		Completed June 2019
		3. Include a flowchart with all permitting agency information included		
		4. Present draft to working group and PCW for feedback.		

Table 3: *Summary table explaining main components and major steps of the Document Structure framework recommendations.*

PLAN USABILITY

This section includes recommendations for creating a user guide, integrating the Coos Estuary Map Atlas, and Data Source into the CBEMP, and distinguishing words within document that are linked to the glossary of terms for easy reference. It is organized to reflect the order recommendations should be completed.

User Guide

Create a user guide that would include a process flowchart with links to pertinent state agencies, local stakeholders, and sections of code. A user guide would increase the public's understanding of the CBEMP and assist applicants with successfully navigating the permit process.

STEPS:

1. Coordinate meeting between all CBEMP jurisdictions to determine what their collective estuary development permitting process currently is and how these approaches can be represented together.
2. Use Coos County flowchart as an example to develop charts for the user guide.
3. Make user guide publicly available on jurisdiction websites and offices.
4. Include the role and processes of the Tribes in estuary management.
5. Detail which management units belong to which jurisdiction to expedite the planning process.

RESPONSIBLE PARTY: Draft user guide was created by IPRE. Jurisdictions should amend with additional content and finalize draft, with Coos County as lead.

TIMELINE: Draft user guide was completed June 2019. Ongoing effort through Fall 2019

Integrate Updated Inventories into CBEMP

An updated inventory using the Coos Estuary Map Atlas and its accompanying geodatabase and the Communities, Lands & Waterways: Data Source (Data Source) has been created and should be incorporated into a revised CBEMP.

STEPS:

1. Confirm all appropriate maps are included in the Coos Estuary Map Atlas.
2. Coordinate with DLCD to identify appropriate adoption process for print and digital resources.
   a. Formally adopt Map Atlas at scale and as a static map, but also provide a non-adopted version of the Map Atlas on a separate website for informational purposes only.
   b. Create connections (hyperlink) between both maps and clearly differentiate between the two.
3. Update Part 2 of the Comprehensive Plan with the new Coos Estuary Map Atlas and Data Source.
   a. Leave maps for Dredged Material Disposal, Mitigation /restoration and policy #18 in place. Policy #18 can be updated if information is available from tribe.
4. Digitize the following CBEMP maps:
   1. Plan Map Showing Aquatic and Shoreland Management Segments
   15. Shoreland Values Requiring Mandatory Protection
   16. Beaches and Dunes
   17. Beaches and Dunes: Development Potential (Suitability Map)
   27. Selected Dredged Material Disposal Sites
   28. Selected Mitigation and Restoration Sites
   33. Wet Meadows
5. Amend all inventories to include the most updated data available for cultural resource inventories (historical and archaeological) and habitat protection including wetlands.
6. Develop a process to ensure any new data is acceptable, as new data becomes available prior to a routine plan update, in particular relevant habitat data.

RESPONSIBLE PARTY: Final draft created by IPRE and partners. Amendments will be responsibility of local jurisdictions.

TIMELINE: Final draft complete June 2019 (Steps 1-4); Step 5 is ongoing; completion date to be determined.

Highlight Glossary Terms Throughout Document

Review CBEMP terms and jurisdictional ordinance terms to hyperlink to glossary of terms. Note: *See Document Structure above for more detail.*

PLAN USABILITY FRAMEWORK				
Priority	**Recommendation**	**Steps**	**Responsible Party**	**Timeline**
1	**User Guide**	1. Coordinate meeting between all CBEMP jurisdictions to determine what their collective estuary development permitting process currently is and how these approaches can be represented together.	IPRE and Partners; Local jurisdictions for ongoing work	Draft - May
		2. Use Coos County flowchart as an example to develop charts for the user guide.		
		3. Make publicly available on jurisdiction websites and offices.		
		4. Include the role and processes of the Tribes in estuary management.		Final - June 2019
		5. Detail which management units belong to which jurisdiction to expedite the planning process		
2	**Develop and integrate GIS/Map Atlas and Data Source into CBEMP**	1. Confirm all appropriate maps are included in the Coos Estuary Map Atlas.	IPRE and Partners	Draft - May
		2. Coordinate with DLCD to identify appropriate adoption process for print and digital resources.		
		3. Update Part 2 of the Comprehensive Plan with the new Coos Estuary Map Atlas and Data Source.		Completed June 2019
		4. Digitize select CBEMP maps		
		5. Amend all inventories to include the most updated data available for cultural resource inventories (historical and archaeological) and habitat protection including wetlands.	Local Jurisdictions	Ongoing
		6. Develop a process to ensure any new data is acceptable, as new data becomes available prior to a routine plan update, in particular relevant habitat data.		
3	**Highlight glossary terms throughout document to connect to entire glossary**	1. Review CBEMP terms and jurisdictional ordinance terms to hyperlink to glossary of terms.	Partners	Completed June 2019

Table 4: *Summary table explaining main components and steps of the Plan Usability framework recommendations.*

LAND USE AND LEGAL FRAMEWORK

This section includes recommendations for distinguishing between policies, ordinances, goals, and criteria; distinguishing between management unit requirement and estuary-wide requirements; tribal government considerations; suitability of developing and designating mitigation banks; realignment of shoreland management units to tax lots; and updating management units based on current zoning and land use demand. It is organized to reflect the order recommendations should be completed.

Clearly Distinguish Between Policies, Ordinances, Goals, and Criteria.

This recommendation is to clearly distinguish between policies, ordinances, goals and criteria. For implementation of this recommendation, it would be advisable to describe the difference between the terms within the "how to use" section of the CBEMP. Placing this at the beginning of the document would assist guiding users through the document.

STEPS:

1. Develop language to describe and distinguish the role and purpose of policies, ordinances, goals, and criteria.
2. Incorporate language as a "How-to" guide at the beginning of CBEMP.
3. Integrate "how-to" guide into CBEMP at in coordination with ordinance and CBEMP update.

RESPONSIBLE PARTY: IPRE; Local jurisdictions

TIMELINE: Draft completed June 2019 (Steps 2 and 3); Step 1 has not been developed.

Distinguish Between Management Unit and Estuary-Wide Requirements

This recommendation is a very important distinction that should be pressing in the CBEMP update: Clearly distinguish between management unit requirements and estuary-wide requirements. It may be helpful to increase the clarity to a reader by placing a section called "conditions applicable to all management units" at the beginning of the current list of policies.

STEPS:

1. Develop language to clarify the definitions and regulatory authority of each term.
2. Coordinate CBEMP update process to include new language in the document.
3. Include "research" as an allowed use throughout all estuary management units – pending coordination with tribal cultural site locations.

RESPONSIBLE PARTY: Local jurisdictions

TIMELINE: To be determined.

Tribal Government Considerations

Provide information on how the CBEMP update may impact tribal governments on fee and trust land including how the tribes may choose to use the Coos Estuary Land Use Analysis in their plans and planning process. Include identifying trigger points with respect to how tribal lands would need to be reconciled. Modifying how comments are collected from the local tribes, specifically making sure the statute of limitations on these comments are appropriate in length. Ensure that tribal culturally significant areas are adequately mapped and considered in the development process.

STEPS:

1. Use cultural resource inventory (historical and archaeological) maps to inform the development process.
2. Meet with local tribes to discuss the current information sharing and commenting procedures and identify areas where these could be improved
3. Include a policy in CBEMP for increasing communication and collaboration regarding the use of the cultural resource inventory map.

RESPONSIBLE PARTY: Local jurisdictions

TIMELINE: To be determined (possibly engage with tribal governments in Fall 2019)

Consider suitability of developing and designating mitigation banks

Local jurisdictions should work with the Oregon Department of State Lands (DSL) to develop a mitigation bank or areas appropriate for mitigation in order not to duplicate or contradict other jurisdictional regulation and to help developers mitigate when necessary. This will help retain local credits to be used to promote economic development.

As noted by the recommendation, the way to move forward on this item would be to begin a discussion with DSL. It would also be ideal to conduct a study of jurisdictions that have developed mitigation banked areas to determine the best practices involved in their development, regulation, and structure.

STEPS:

1. Begin dialogue with DSL regarding recommendation to assess feasibility.
2. Tentatively conduct a case study analysis to identify best practices.

RESPONSIBLE PARTY: Local jurisdictions/ Partners

TIMELINE: To be determined

Realign Shoreland Management Units to tax lots

Shoreland management units currently do not fit squarely within Tax Lots. Realigning these Management Units would require an analysis of each management unit, input from all stakeholders and intensive staff time.

STEPS:

1. Analyze Shoreland Management Units to identify which ones need to be realigned using the GIS files contained in Map Atlas.
2. Revise maps to reflect realigned Management Units
3. Follow procedures outlined under the Post Acknowledgement Plan Amendment (PAPA) process.

RESPONSIBLE PARTY: Local jurisdictions/consultants

TIMELINE: To be determined.

Update Management Units based on current zoning and land use demand

Due to the intense nature of this recommendation, we recommend, as a first step, creating a Management Unit Matrix as a tool. The Management Unit Matrix is a chart that includes every management unit, the allowed uses, and general and specific policies. After it is assembled, the Management Unit Matrix will: (1) serve as a centralized, searchable location for CBEMP MUs and (2) assist in the analysis and simplifying and condensing of Management Units.

Updating the management unit boundaries will be a more extensive process.

STEPS:

1. Compile and document Management Units into a matrix to search and analyze.
2. Analyze Management Units with a focus on identifying commonalities.
3. Identify Management Units with similar uses, activities, and policies that may be combined and condensed in order to simplify.
4. Document simplification of Management Units to incorporate into Ordinance update.
5. Distribute Management Unit Framework to CBEMP jurisdictions to facilitate further updates and revisions, as necessary.

RESPONSIBLE PARTY: IPRE, Local jurisdictions/consultants

TIMELINE: IPRE completed Framework Matrix (Step 1) June 2019. Items 2-5 Ongoing.

LAND USE/LEGAL FRAMEWORK				
Priority	**Recommendation**	**Steps**	**Responsible Party**	**Timeline**
1	**Clearly distinguish between policies, ordinances, goals, and criteria.**	1) Develop language to describe and distinguish the role and purpose of policies, ordinances, goals, and criteria.	Local jurisdictions	TBD
		2) Incorporate language as a "How-to" guide at the beginning of CBEMP.	IPRE; Local jurisdictions	Completed June 2019
		3) Integrate "how-to" guide into CBEMP at in coordination with ordinance and CBEMP update.		
2	**Distinguish between management unit and estuary specific requirements**	1) Develop language to clarify the definitions and regulatory authority of each term.	Local jurisdictions	Draft - May 2019
		2) Coordinate CBEMP update process to include new language in the document		Completed June 2019
		3) Include "research" as an allowed use throughout all estuary management units – pending coordination with tribal cultural site locations.		
3	**Tribal Government Considerations**	1) Use cultural resource inventory maps to inform the development process.	Local jurisdictions	TBD
		2) Meet with local tribes to discuss the current information sharing and commenting procedures and identify areas where these could be improved		
		3) Include a policy in CBEMP for increasing communication and collaboration regarding the use of the cultural resource inventory map.		
4	**Consider suitability of developing and designating mitigation banks**	1) Begin dialogue with Department of State Lands regarding recommendation to assess feasibility.	Local jurisdictions/ Partners	TBD
		2) Tentatively conduct a case study analysis to identify best practices.		
5	**Realign Shoreland Management Units to tax lots**	1) Analyze Management Units to identify which ones need to be realigned using the GIS files contained in Map Atlas.	Local jurisdictions/ Consultants	TBD
		2) Revise maps to reflect realigned Management Units		
		3) Follow procedures outlined under the Post Acknowledgement Plan Amendment process.		

LAND USE/LEGAL FRAMEWORK				
Priority	**Recommendation**	**Steps**	**Responsible Party**	**Timeline**
6	**Update Management Units based on current zoning and land use demand**	1) Compile and document Management Units into a matrix to search and analyze.	IPRE	Completed June 2019
		2) Analyze Management Units with a focus on identifying commonalities.	IPRE/ Local jurisdictions/ Consultants	Draft -June 2019; Ongoing
		3) Identify Management Units with similar uses, activities, and policies that may be combined and condensed in order to simplify		
		4) Document simplification of Management Units to incorporate into Ordinance update		
		5) Distribute Management Unit Framework to CBEMP jurisdictions to facilitate further updates and revisions		

Table 5: *Summary table explaining main components and steps of the land use and legal framework recommendations*

REFERENCES

C. E. Cornu and J. Souder (eds). 2015. *"Communities, Lands & Waterways Data Source."* Partnership for Coastal Watersheds, South Slough National Estuarine Research Reserve, and Coos Watershed Association. Coos Bay, OR. 1,096 pp. Available online at: http://www.partnershipforcoastalwatersheds.org/lands-waterways-data-source/

Department of Land Conservation and Development (DLCD) 2014. Assessmnet of Oregon's Regulatory Framework for Managing Estuaries. 27 pp. Accessed June 2018: https://www.oregon.gov/LCD/OCMP/docs/Publications/RegulatoryAssessment.pdf

Oregon Department of Geology and Mineral Industries (ODOGAMI) 2017. "Oregon Tsunami Clearinghouse/Resource Library." Accessed 16 August 2017: http://www.oregongeology.org/tsuclearinghouse/pubs.htm

APPENDICES

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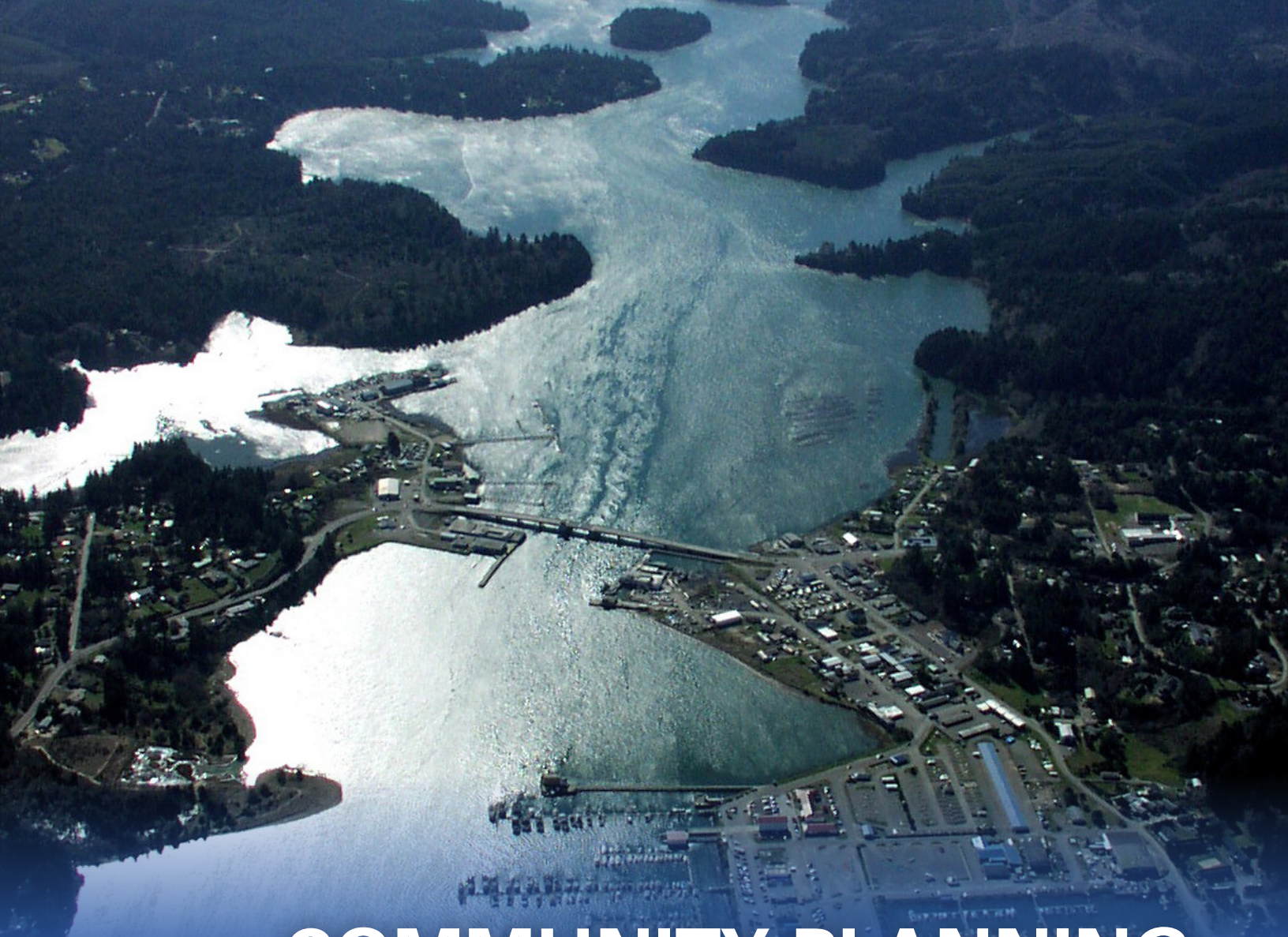
APPENDIX A:

COMMUNITY PLANNING: A LESSONS LEARNED GUIDE TO REVISING LAND USE PLANS

South Slough Reserve and Coos County Planning Department | June 2019



COMMUNITY PLANNING:

A LESSONS LEARNED GUIDE TO REVISING LAND USE PLANS

South Slough Reserve | Coos County Planning Department | 2019

COMMUNITY PLANNING: A LESSONS LEARNED GUIDE TO REVISING LAND USE PLANS

FEBRUARY 2019

Prepared for:
Department of Land Conservation and Development by the South Slough National Estuarine Research Reserve and the Coos County Planning Department, under direction from the Partnership for Coastal Watersheds steering committee.

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Schmitt, J. and J. Rolfe. 2019. Community Planning: A Lessons Learned Guide to Revising Land Use Plans. Report prepared for Department of Land Conservation and Development and the Partnership for Coastal Watersheds. South Slough National Estuarine Research Reserve and Coos County Planning Department, Charleston, OR.

This work was sponsored by the National Estuarine Research Reserve System Science Collaborative, which supports collaborative research that addresses coastal management problems important to the reserves. The Science Collaborative is funded by the National Oceanic and Atmospheric Administration and managed by the University of Michigan Water Center (NAI4NOS4190145).

Cover photos:
South Slough NERR

Partnership for COASTAL Watersheds

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PURPOSE

Coos County, City of Coos Bay and City of North Bend co-manage the Coos Bay Estuary Management Plan (CBEMP) where Coos County is considered the lead agency for updates to the plan. A revision process for the CBEMP was initiated through a desire from the Partnership for Coastal Watersheds (PCW) to modernize the local estuary management plan and provide information to the local governments to facilitate an update. The PCW is a group of civic-minded community members representing land use planners, coastal managers, business interests, tribal interests, conservation interests and community interests.

As the first community in Oregon to make large strides in fully revising an estuary management plan, this Lessons Guide has been developed so that other communities can examine and learn from our process. While our focus is the estuary management plan, this guide has value for community planning and land use plan updates in general. This guide is split into five main sections:

1. **Background** - A brief overview of Oregon land use plan and update processes.
2. **Beginning Steps** – This section delineates considerations to contemplate prior to beginning a planning process or update, as well as first tasks to undertake.
3. **The PCW Process** – This is broken into discrete but cumulative segments that can be used as distinct phases. Each segment provides a brief overview and includes breakdowns of benefits, costs and other considerations. Please be mindful that the Coos estuary is the largest in Oregon and costs shown reflect the size and complexity of its management plan.
4. **General Considerations** – This section describes general best practices as well as circumstances to be careful of.
5. **Resources** – The final section lists PCW products described in this document, contact information, subcontractor names and grant funding options.

BACKGROUND

Oregon State law requires each city and county to have a local comprehensive plan along with zoning and land-division ordinances to put the plan into effect (ORS 197.175). Comprehensive plans must follow the guidelines and rules of the statewide planning goals and acknowledged plans become the controlling document for land use in the areas they cover.

Comprehensive plans have three main elements:

- Inventory of uses and resources of local lands;
- Goal and policy statements that indicate local objectives over a specific period and guidance on how to achieve them; and
- Detailed maps to show desired uses for each property throughout the plan area.

Comprehensive plans guide officials in land use decisions, such as whether to allow a zone change or grant a conditional use permit. Because comprehensive plans are so vital in major land use decisions, the law requires an open, transparent process to create or amend them, including citizen and stakeholder input.

Comprehensive plans are meant to be flexible enough to change as community needs, goals and resources change. In fact, state rules encourage the periodic review and update of local comp plans. However, most of the counties and cities that are not mandated to go through periodic review will choose to update portions of their plans when funding and time permit.

Developed in the late 1970's and early 1980's, most estuary plans in Oregon are in dire need of being updated. The Coos Estuary Land Use Analysis assisted the cities and county in updating the Coos Bay Estuary Management Plan, which is the portion of the comprehensive plan that focuses on the Coastal Goals: Goal 16 Estuaries, Goal 17 Coastal Shorelands, and Goal 18 Beaches and Dunes.

BEGINNING STEPS

Plan ahead: We found that this is not a quick one-year process. A full update will likely take two to three years to complete, or more depending on the available data and size of the estuary. Outline a scope of work to help conceptualize a rough timeline, both of which will be useful to share with potential team members.

Do your research: It is helpful to understand how the comprehensive plan and implementing ordinances and codes were originally developed. Often you can learn what worked best for your jurisdiction during original plan development to understand why certain processes were done. It is also important to understand both historical and current contentious issues and projects.

Budget accordingly: A full plan revision will take money so budget planning is a major consideration. The scope, desired timeline, and budget should be developed concurrently to successfully prepare for expected costs. To help alleviate budgetary pressures, the revision can be done in phases (see PCW Process below) to allow incremental and successive steps as funding allows. You can also find cost-saving measures by hosting meetings in house or finding conference rooms free to community groups on a first come, first served basis (e.g., libraries, fire stations, or visitor's centers).

Assemble a team: There are many components to a full plan revision and we recommend the formation of a team to provide necessary ancillary support. Team members who are not vested in one outcome should be selected; they should be impartial and understand this is a community-wide project. Team members can be staff or stakeholders and members can cover more than one position. Roles include:

- Organizer – responsible for coordinating the effort including organizing and facilitating project team and stakeholder meetings, and may include grant writing and soliciting technical review.
- Fiscal agent – responsible for budget tracking, paying invoices and assisting in securing contracts
- Administrative manager – in charge of report writing, keeping track of deliverables and timeline, subcontract development, and disseminating meeting minutes.

- Technical assistance team
  - Department of Land Conservation and Development (DLCD) staff (coastal representative or other) to ensure consistency with Oregon Statewide Planning Goals and identify any other goals that need to be considered within the update
  - Local planning director and/or staff (county and/or city)
  - Consultant (optional)
- Stakeholder steering committee or advisory committee (see below)

Involve stakeholders: Stakeholders need to be involved at every level. Depending on the component, this requires commitment to the project in terms of volunteer hours for meetings and review. Stakeholders can include members of citizen advisory committees or planning commissions, but they should not be the sole stakeholder representation, as a diversity of backgrounds and interests will provide a necessary depth to the feedback. Not everyone is well-versed in estuary policies or land use process, but they still need to inform revisions to those policies and processes.

When identifying stakeholders, make sure industries for your area are represented proportionate to your area's economic make-up (e.g., Tillamook might have higher agriculture representation than say Gold Beach).

Stakeholders are a crucial part of the planning process, in part by allowing community buy-in while obtaining a more comprehensive understanding of local perspectives. A second benefit is receiving technical expertise and product review that is free of cost. Use of stakeholders can vary from a full steering committee, such as the PCW, to periodic discussions with an advisory group.

Develop a process: Once a project team has been assembled (including stakeholders), develop a mission statement, goals and desired outcomes. This is helpful during times when conversations begin to deviate. For example, if conversations veer into discussions on specific divisive projects, it will provide an avenue to maintain focus on the broader goal of a plan update. This is also the time to clarify duties of individual team members, including stakeholders. Review the timeline with the project team and amend it accordingly, then schedule regular meeting dates and times. Project meetings should be documented, and it is helpful to email or post online written minutes following meetings.

STAKEHOLDER REPRESENTATIVES TO CONSIDER:

- State agencies (including permitting agencies)
- Ports
- Tribes
- Community interest groups and non-profits (e.g., watershed associations, parks, museums, service clubs, Surfrider)
- Land use organizations (e.g., planners, attorneys, architects, engineers, geologists)
- Development and industry interests (e.g., Building association, agriculture, forestry, commercial fishing)
- Education districts (e.g., community college or K-12 school boards)
- Business community (e.g., visitor bureaus, realty agencies, local small businesses)
- Recreational interests (e.g., recreational fishing, water sports)

Maintain transparency: Land use planning can evoke strong feelings and maintaining transparency so that project efforts and products are not misconstrued can be difficult. Communicating to the public from the outset is crucial in order to maintain clarity regarding intentions and objectives, and to reaffirm the revision is not about any specific project. While public comment is part of the official process of plan adoption, having early conversations with the community helps secure buy-in, foster trust, and prevent agenda-driven arguments and political posturing. In addition, discovering concerns about the project early in the process will help you address hurdles.

It is helpful to develop a communication strategy to detail audience and messaging. Include the general public as well as officials of local affected jurisdictions as audiences. Keep in mind planning commissions, citizen advisory boards, and local community groups that are involved in planning processes. Communication can take several forms including presentations to targeted groups, one-pagers, media releases, website postings, or public meetings or open houses. Part of the messaging should include the fact that estuary management plans are regulated by state laws and goals.

ASSESSING AREAS FOR IMPROVEMENT

Coos County used a technical assistance grant to hire University of Oregon's Institute for Policy Research and Engagement (IPRE) to provide a qualitative analysis of the estuary plan based on current state regulatory framework, implications of any legal decisions that occurred since the plan was adopted and a general evaluation of plan usability from an end-user perspective. Recommendations from this assessment determined the suitability of current estuary management to meet existing and future needs and included suggestions for consideration for a plan update. Final product was a 29-page report called the Coos Bay Goal 16 Estuary Management Plan Assessment (see Resources for link to report).

Benefits

Recommendations from this sort of analysis provides insight for the project work team by highlighting limitations or areas where the plan could benefit from improvement. This can be a way to help frame and guide participant interest and is a low-cost measurable initial milestone. Finally, analysis results are a helpful tool when talking with local decision-makers and provide justification when applying for grants.

Costs

- Subcontractor: $10,000 for IPRE subcontract to conduct interviews with users of the plan and develop the assessment report.
- Other costs: $100 for meeting supplies
- Stakeholder volunteer hours: On average four hours per person, including meetings, interviews with several stakeholders, and draft product review.
- Project team members' time: On average 60 hours per team member; for coordinating project, organizing stakeholder meetings, reviewing draft report, etc.

Time

Nine months from funding award to completion.

Considerations

Not all plans will require this level of analysis.

TOPICS INCLUDED IN COMMUNITIES, LANDS & WATERWAYS: DATA SOURCE REPORT:

- Cultural History
- Community Evaluation
- Communities and Neighborhoods
- Community Demographics
- Zoning and Land Use
- Jobs and Employment
- Schools and Education
- Physical Description (Geographic Features, Meteorology, Human Infrastructure, Hydrology, Geology, Land Cover)
- Water Quality (Physical Factors, Nutrients, Bacteria, Other Pollutants)
- Sediment Quality (Contaminants, Composition)
- Stream and Riparian Habitat
- Vegetation (Rare and Endangered Species, Seagrasses and Algae, Tidal Wetlands, Terrestrial)
- Fish (Salmon, Lamprey, Sturgeon, Other Fishes)
- Clams and Native Oysters
- Crabs (Dungeness, Red Rock, Other Crabs)
- Birds (Terrestrial, Aquatic, Species of Concern)
- Mammals
- Invasive Species (Vegetation, Vertebrates, Terrestrial and Aquatic Invertebrates)

AMASSING CURRENT INFORMATION

Data supporting the existing plan inventories were collected in the 1970's and 1980's and technologies and status of resources described in the inventories have drastically changed since that era. To remedy this, the PCW obtained two grants to update the written inventory conditions and the inventory maps.

The Communities, Lands & Waterways: Data Source is an encyclopedic compilation of all available data in the Coos area that describe socioeconomic and environmental conditions. Chapters highlight status and trends of environmental factors and natural resources within the estuary and surrounding watershed, provide anticipated effects of climate-related changes on those topics, and

describe data limitations and data gaps. Additionally, the report highlights cultural and socioeconomic aspects of the communities surrounding the Coos estuary. Chapters were peer reviewed by the PCW and technically reviewed by outside experts.

The Coos Estuary Map Atlas is a series of maps and tables that analyze and portray current conditions and uses within the estuary. Current GIS data was used to provide a map-based understanding of land uses and physical features in a defined study area created by combining the official estuary management plan boundary and Oregon Department of Geology and Mineral Industries tsunami inundation scenario maps. This was done to provide context for lands potentially at risk for sea level rise or tsunami inundation, and to prove a broader context of adjacent land uses.

Topics included in the Coos Estuary Map Atlas:

- Study area boundaries (CBEMP boundary, XXL tsunami Inundation zone, atlas extent)
- Zoning, management units, and property use
- Improvement status and value ratio, public ownership, special districts, employment density
- Physical features (eelgrass, snowy plover, oyster and clam beds, habitat maps (national and local wetlands inventories, Coastal and Marine Ecological Classification Standard), public spaces and estuary access
- Hazards (flood zones, landslide susceptibility, slope, tsunami inundation, sea level rise)
- Focus areas (dredge material disposal sites, mitigation and restoration sites, tidal wetland landward migration zones, economic areas and zones, urban renewal districts)

Benefits

Updating the maps and written information for the inventories is a crucial step to modernizing the factual base of the plan. It also incorporates more user-friendly modern-day technologies such as GIS and searchable pdf documents. This step provides guidance for information still needed in an update by highlighting gaps in current data.

Costs

- **Subcontractor costs:**
  - The Communities, Lands & Waterways: Data Source cost approximately $300,000. Costs supported data compilation, analysis and writing by South Slough National Estuarine Research Reserve (environmental and natural resource chapters) and the Coos Watershed Association (socioeconomic chapters). Costs also supported project coordination, grant proposal development and reporting, product branding, technical review solicitation, and website creation.
  - Coos Estuary Map Atlas was completed for approximately $50,000. Costs covered IPRE subcontract for atlas compilation including data acquisition and analysis and technical review solicitation.
- **Other costs:**
  - Meeting costs (including occasional room rental, meeting supplies, and refreshments) for the Communities, Lands & Waterways: Data Source were about $1,500.
  - The same meeting costs for the Coos Estuary Map Atlas were around $900
- **Stakeholder volunteer hours:**
  - PCW committee members each donated roughly 48 hours to the Communities, Lands & Waterways: Data Source inventory; technical review took nearly 400 hours spread across 42 reviewers.
  - PCW members each donated approximately 18 hours for the Coos Estuary Map Atlas. while the technical reviewers lent approximately 20 hours of review divided between two reviewers.
- **Project team members' time:**
  - A full-time assistant project coordinator was hired for the Communities, Lands & Waterways: Data Source to coordinate and complete data acquisition, analysis and writing tasks while the Project Lead spent approximately 75% of the time coordinating project efforts including editing chapters, writing grant reports, coordinating stakeholder meetings and other organization and administrative duties.

– The Coos Estuary Map Atlas took approximately 90 hours for Project Lead coordination. Other project team members including the county planning director contributed approximately 40 hours each.

Time

- **Communities, Lands & Waterways:** Data Source took approximately two and a half years to complete from grant funding to publication.
- **Coos Estuary Map Atlas** took approximately 18 months from grant funding to completion.

Considerations

Depending on the size of the estuary and surrounding communities, inventory conditions and mapping can be completed by members of the project team, by planning staff, or through a contractor. Mapping data needs to cover the entire estuary and coincide with the written portion of the inventory. Review by both stakeholders and technical experts is crucial. This is one area where the large Coos estuary, which is very data heavy, had a lot of information to amass and therefore was likely more expensive to compile than other Oregon estuaries.

ENGAGING THE BROADER COMMUNITY

The PCW acquired new and updated policy information necessary to revise the estuary management plan through several levels of public engagement: focus groups, targeted outreach, and a public open house.

Focus Groups: Three focus groups composed of experts were formed to develop a vision for the future of the estuary related to updating the estuary management plan, and to provide insight to the how lands within the plan could benefit updated designation. Local experts were assigned to one of three focus groups depending on their area of expertise: Economic Development, Natural Resource Protection and Restoration, or Socio-cultural Interests. Participants from each group committed to four meetings (one full-day and three partial days). All participants convened together at the first meeting to learn about the project, the current status of the estuary plan, and statewide planning process with a focus on the goals that estuary plan is based on. At that meeting, desired outcomes and rules of engagement were established. The first meeting established a common foundation between the groups. Groups were integrated and asked a set of questions related to natural resources, economics, socio-cultural interests, and regulatory topics (for full description of process, see Land Analysis Report under Resources).

At the second and third set of meetings each group was presented with a set of questions specific to each focus group's area of expertise. The refined answers were developed into recommendations for a plan update. These recommendations were reviewed during the final meeting that all participants attended, and then finalized based on their feedback.

Open House: A public open house was organized to solicit feedback from the broader community and test legitimacy of project results. A survey was developed to gauge how open house participants felt about the status of the current plan, which area of interest they most associated with (i.e., natural resource protection, economic development, socio-cultural interests), and how well they agreed with focus group recommendations. The open house began with presentations on who the PCW is, statewide planning goals, and status and limitations of the existing Coos Bay Estuary Management Plan. Information stations were set up to provide greater detail on the Communities, Lands & Waterways: Data Source, Coos Estuary Map Atlas, assessment of the Coos Bay Estuary Management Plan, and focus group recommendations.

Targeted Outreach: The project team frequently gave project updates to local organizations and entities to maintain transparency and receive feedback from the community. Audiences included city councils, county commissioners, planning commissions, tribal councils and staff, boards of commissioners (e.g., watershed association, development councils, invasive species councils), chamber of commerce, community organizations (e.g., rotary club), and professional meetings (e.g., Pacific Estuarine Research Society, Oregon Coastal Planners Network Meeting) to name a few.

Benefits

It is important to include public interests when developing recommendations on ways to improve the plan. The best way to do this is to include the public during the development phase when you can still be responsive to their reactions. Ultimately, multiple and diverse perspectives will create a stronger plan.

Costs

- **Subcontractor:** Facilitator costs for focus group meetings were nearly $20,000; University of Oregon's IPRE spent approximately $30,000 to develop recommendations based on the focus group workshops, attend PCW meetings, and present products at the public open house.

- **Other costs:** Refreshments and meeting room costs were $3,000 for the focus groups, public open house and regular PCW meetings. The open house took nearly $3,800 to advertise including the flyer copies that were mailed out in a classified paper that reached the most residences.
- **Stakeholder volunteer hours:** The PCW members each lent around 24 hours for meetings and a combined 80 hours for staffing the public open house.
- **Project team members' time:** Project coordination including organizing workshops, PCW meetings, and the open house and developing and providing presentations to local audiences took approximately 0.5 FTE for the project lead; team members spent on average 120 hours each including workshop development and implementation, giving presentations, attending stakeholder meetings, and staffing the open house.

Time

- From initiation and development of focus group objectives to final recommendations took 10 months. Focus group meetings were completed in one month with a follow-up meeting three months later to review final recommendations.
- Public open house took about three months to plan, advertise, and execute.
- Targeted outreach was strong in the first six months of the project to introduce PCW efforts to the community. Project updates were provided to various groups throughout the project.

Considerations

Facilitator costs may have been more than needed had the PCW known exactly what they wanted up front. The facilitator was paid to travel to the PCW several times to develop the workshop in conjunction with them. If this step was completed prior to facilitator involvement, it would reduce costs.

Especially for public meetings, ensure the message is clear that this is about updating and revising a common plan and not about any one specific project.

Depending on the community, the effort involved in advertising for a public open house may require multiple mechanisms (e.g., press release, social media, flyers). To get the widest possible audience (e.g., average citizens who are not aware of land use plan issues), it may be beneficial to have a presence at popular community events such as festivals, wine walks and others, to promote the open house.

OPTION SCENARIOS FOR THE JURISDICTIONS TO CONSIDER

Based on stakeholder feedback, focus group recommendations, and public response, three scenarios were developed by University of Oregon's IPRE that local jurisdictions can consider in their process to modernize the estuary management plan. This consisted of a preliminary evaluation that decision-makers can reference when considering if, when and to what extent, an update of the plan will occur. The evaluation is structured around a set of criteria commonly used for policy analysis: technical feasibility, economic and financial possibility, political viability, administrative ease, and efficacy of the option (based on the assessment of the plan – see Assessing Areas for Improvement above). This included a decision-making matrix that summarizes how well each criterion is met for every option. Full Options Scenario report is within the Final Report (link to

Benefits

This is an effective way to frame discernable options by providing an evaluation of pros and cons for a suite of alternatives, which responsible jurisdictions can consider.

Costs

- **Subcontractor:** University of Oregon's IPRE used approximately $5,000 to develop the options report.
- **Other costs:** Refreshments and meeting room costs were $300 for monthly PCW meetings.
- **Stakeholder volunteer hours:** PCW members donated about three hours each for this process.
- **Project team members' time:** On average this process took 20 hours for the team lead and 15 hours for project team members.

Time

This process took about six months from start to completed product.

Considerations

None

INCORPORATING NEW INFORMATION INTO EXISTING PLAN

The project team and IPRE contractor developed a framework for updating and amending the plan. The IPRE researched and outlined relevant state and local processes for such an update, reviewed county and city estuary management plan policies, interviewed planners from affected jurisdictions, and "crosswalked" focus group recommendations with the plan. Based on this information, IPRE developed a series of recommendations on which policies to remove, modify or add in order to incorporate the focus group recommendations and new data into the inventories (i.e., Communities, Lands & Waterways: Data Source, Coos Estuary Map Atlas). In addition, they drafted policy options for changes to implementing ordinance and code amendments.

Benefits

Developing a framework sets the stage for the implementing agency to easily incorporate any new information into the existing plan.

Costs

- Subcontractor: $40,000
- Other costs: Refreshments and meeting room costs were $300 for stakeholder meetings.
- Stakeholder volunteer hours: Stakeholders each donated roughly 12 hours for meetings and interviews.
- Project team members' time: Team members spent around 15 hours each for this process.

Time

Six months from start to completion.

Considerations

Since this step involves identifying how the county and cities' plans differ and align with recommendations and modern data, it is beneficial to form a sub-group that includes city and county planners, tribal planners, and port authorities.

GENERAL CONSIDERATIONS

Consider a community visioning process prior to developing recommendations. This would make it easier to address target visions (e.g., what do people want our bay to look like, what do we want to see more or less of in the future, etc.) and then formulate policy (by people who are better versed in policy) based on that vision. Alternatively, we would include more time for focus groups to devote to visioning. However, a separate visioning process is not necessary if the focus is kept on improving the estuary management plan since input often already contains visioning elements.

BEST PRACTICES

Collaboration: When working with stakeholders from various and sometimes conflicting interest groups, set a foundation of commonality and collaboration by discussing commonalities and values. For example, speak to the importance of a healthy estuary for all estuary users, which acknowledges the interconnectedness of economic, socio-cultural and natural resource interests. Discuss limitations of the current plan, including the outdatedness of zoning-related data, the exclusion of modern science-based data, or limitations in accessibility of the current plan. Despite differing interests, stakeholders are in it together and can only improve the plan with collective and dedicated effort. The PCW uses insightful discussion and collaborative consensus for its decision-making process.

Focus groups: Participants should be aware of and supportive of the collaborative approach. Select focus group participants that are knowledgeable on a range of issues; this will make for more robust and encompassing input on what an updated plan should include. Include socio-cultural interest groups, not just economic development and natural resource protection interests. This is an important to fully encompass how the estuary is used by the community. Have representation from the various state and federal offices that oversee development and policy, to help workshop participants gain a basic foundation for what might be considered overlapping information when discussing regulations, zoning and other aspects of updating a plan. Hand out a fact sheet on the purpose of the plan prior to initial discussions, and for people to reference during conversations.

Simplify the message of what you are trying to accomplish and develop clear goal/outcome statements to help people advance conversations. Having discussions facilitated can help this; however, plan for conversations that stray from the original purpose. When this happens do not shut down the dialogue but steer it back on track by clarifying what the plan does or does not do.

If there are known strong personalities, try to separate them from one another during the initial meeting that all participants attend collectively, to limit having only a few voices providing feedback. Allow enough time for each focus group to drill down during successive meetings in order to obtain high quality policy recommendations. Record sessions for later reference and use a competent note-taker.

Public meetings: Use note-takers to record public input. Provide background information, either via presentations or as a packet mailed or emailed prior to the meeting.

THINGS TO WATCH OUT FOR

Consistent participation by stakeholders: Stakeholder committee members are volunteers to the project, sometimes making it hard to ensure commitment to a project. Inconsistent attendance to regular meetings (due to work commitments or staff turnover for example) can cause setbacks when people ask for changes after a product has nearly been finalized. One way to help this is to provide timely meeting minutes to absentee members and require they read minutes and supporting materials, so they stay abreast of the project.

Lack of clarity: The group had difficulty defining "socio-cultural" in the context of estuary planning given the term cultural had a different meaning within the terms of the Statewide Planning Goals 5 and 17 then it did to the people that were part of the group. This unclarity translated into a lack of understanding as to how such a wide variety of socio-cultural interest would inform an estuary update. This in turn may have caused a lower attendance for socio-cultural focus group participation than desired. The terms should be defined using the statewide planning goals, rules, statutes or comprehensive plans as guidance. It is important to define the terms of the groups prior to the selecting members to serve.

Ensuring quality focus group discussion: The focus groups are intended to be small and intimate, yet counter-intuitively it can be hard to get input from everyone. During our focus group discussions, some people were hesitant to speak their minds – for example due to fear of seeming to go against other organizations they work closely with, or not wanting to misrepresent their agency by speaking their own opinion. There was also a tendency for group discussion to focus on points voiced the loudest and not step back to see what was missed. For example, it was easy for people to get bogged down with wetland regulation process, which while related to estuary planning, is an entirely different mechanism.

Our focus groups were made up of both "visioners" and policy experts, who do not always speak the same language. It may have been easier to begin with a separate visioning process (as part of the workshop, or prior to this work). Translating desires and visions into actual estuarine management policy was challenging and often accomplished on the fly by the lead planner.

Prior to the focus group workshops, only a small handful of people were familiar with Oregon Statewide Planning Goals 16/17. Had people had more background on the goals 16 and 17 they may have had a much clearer idea on how to frame their recommendations (e.g., attendees could have determined if their recommendation fit as an ordinance or regulation). While the lead planner did an admirable job of translating peoples discussion points into policy recommendations, this tended to delay workshop progress due to people debating how to best word a statement rather than discussing the point itself.

Our series of workshops were extremely ambitious in terms of the amount of progress expected from each workshop. Having an additional half-day workshop might have allowed the participants, and the consultant team, more time to refine the ideas generated and "flesh out" the recommendations.

RESOURCES

PCW PRODUCT LINKS

PCW Website: http://www.partnershipforcoastalwatersheds.org/

Coos Estuary Land Use Analysis Final Report:

Coos Bay Goal 16 Estuary Management Plan Assessment: http://www.co.coos.or.us/Portals/0/Planning/CBEMP%20Goal%2016%20Audit.pdf?ver=2017-09-06-084340-243

Communities, Lands & Waterways: Data Source: http://www.partnershipforcoastalwatersheds.org/lands-waterways-data-source/

Coos Estuary Map Atlas:

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FUNDING SOURCES

Department of Land Conservation and Development, Technical Assistance grant

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APPENDIX B:

PRINCIPLE TECHNICAL REVIEWERS' COMMENTS

South Slough Reserve | June 2019

APPENDIX B: PRINCIPLE TECHNICAL REVIEWERS' COMMENTS

Four technical experts were solicited for their feedback. Each had expertise in one of the following areas:

- Statewide planning goals and policy (Matt Spangler, begins page B1)
- Socio-cultural interests (Dr. Stephen Beckham, begins page B2)
- Natural resource protection and restoration (Dr. Steve Rumrill, begins page B10)
- Economic development (Alex Campbell, begins page B12)

Each expert was sent a draft final report of the Coos Estuary Land Use Analysis and all accompanying appendices. Comments from the technical reviewers were addressed in the body of the report and appendices where possible. Comments not able to be addressed are found below. These comments will be valuable for the policy-makers when moving forward with the Coos Bay Estuary Management Plan revision. It should be noted that reviewers did not assess the "Framework to Incorporate Data into CBEMP" portion of the document, as that was not completed at time of review.

Statewide Planning Goals and Policy

Matt Spangler, Policy Analyst, Department of Land Conservation and Development

GENERAL:

Overall the final report provides an accurate and clear summary of the analysis and allows reviewers to gain a complete understanding of the project. The report is thorough, and I believe provides an excellent foundation to support the next steps in the modernization of the Coos Bay Estuary Management Plan. I have focused my review of the report on content related to the requirements of the Oregon's statewide planning program, in particular the provisions of Statewide Planning Goals 16 (Estuarine Resources) and 17 (Coastal Shorelands).

FOCUS GROUP RECOMMENDATIONS:

In general, the focus group recommendations are based on perceived weaknesses and desired improvements to the current CBEMP. The majority of these recommendations are broad in scope and therefore implementation could take a variety of forms. Given the broad sweep of many of the recommendations, evaluating the recommendations in terms of consistency with statewide planning goals can only be accomplished at a very general level. Having said that, I believe that in all cases, the recommendations can be implemented in a manner consistent with the goals.

For purposes of incorporating the recommendations into an update or revision of the CBEMP, it will be necessary to synthesize these into specific policy concepts and language. This process will provide ample opportunity to align the implementation of recommendations to comply with applicable statewide planning goals.

Thank you again for the opportunity to review and comment on the final report of the Coos Estuary Land Use Analysis. My compliments on a project well done.

[All suggested technical revisions have been incorporated into the final report].

Socio-cultural Interests

Dr. Stephen Beckham, American historian, retired

The Coos Estuary Land Use Analysis 2019, an overview, is well-organized and clearly written. It communicates effectively about the project and processes engaging staff, consultants, and the public. I have attempted to provide a critique of the documents, offer suggestions for changes, and, in several cases, given the rationale for edits or inclusion of additional information. I offer some general comments.

First is the decline of Coos Bay's significant forest products economy. The collapse was inevitable with logging of old growth forests and emphasis from 1945 to the 1980s on "getting out the cut." Ultimately the

resource was so over-harvested there were but limited stands remaining. Many blamed the Endangered Species Act (Spotted Owl and Marbled Murrelet) for the cessation of logging, but that law was only the "canary in the mine shaft," an indicator of the immensity of the economic problems facing the forest products industry of western Oregon in general. The old growth forests were gone, and the new, reforested stands would never be permitted to grow long enough to produce the huge timber volumes of the forests that for decades fed the industry.

Dairy farming, milk production, and manufacturing plants for milk products (ice cream and cheese) have also vanished from Coos Bay. In 2018 only one commercial dairy remains on Coos River where in former decades virtually every farm had cows and sold milk products to the processing plants in town. Similarly, commercial fishing and crabbing have been beset by a variety of factors: decreasing fish runs, limits on harvest to conserve the resource, and the overhead costs of acquiring, operating, and maintaining boats.

The decline of forest products, dairying, and fishing as economic mainstays have only slowly been off-set by the awareness that tourism and providing affordable housing and quality life settings for retired Americans may create elements of economic stability on the estuary. It appears that the Coos Bay Port Commission and others yet envision short-fixes for the economy such as restoration of rail service and construction of the LNG facility. The vision, however, needs to be long-term and, in so far as possible, sustainable. In this regard the railroad between Coos Bay and Eugene is a "money pit" because of its numerous bridges, tunnels, trestles, and century-old infrastructure.

An alternative approach is to build on the educational and cultural resources of Coos Bay. Nowhere does the estuary report mention the presence and role of Southwestern Oregon Community College as an important asset. The educational programs of that institution appear to have no connections to the local economy or the estuary. Also unmentioned is the construction and opening of the Coos History and Maritime Museum on the waterfront and Highway 101. Other amenities not included in the report (except for the state parks) are the programs and opportunities of the South Slough Estuary and Oregon Institute of Marine Biology. These locations offer strong visual, cultural, educational, and recreational opportunities.

Similarly, the Oregon Dunes NRA is a special asset with yet only partly developed tourism potentials. All of these, except the campus of SWOCC, are within the study area of the estuary plan.

Much more needs to be imagined and accomplished. An example could be the restoration and in-filling with new buildings along Front Street, the historic core of the old city of Marshfield (Coos Bay). This development, however, is mitigated by its location in the tsunami zone. Such improvements (such as those in Old Town in Florence, Newport, or Astoria) may no longer be permitted because of changed awareness of site dangers. This suggests that the undeveloped tribal property atop Coos Head and the scenic Cape Arago Lighthouse could be targets for new construction and interpretation, joining the critical mass of state parks and OMBI and South Slough Estuary. Similarly opening and maintaining the Oregon Coast Trail and Mountain Bike Trail along the Seven Devils south of Cape Arago State Park are projects adding more interest for visitors to the area.

Cruise ships pass up and down the coast of Oregon. The Port of Astoria has attracted as many as thirty vessels per year to tie up at its docks. These vessels bring thousands of visitors into the core business district of Astoria. This traffic seems only to grow every year. With its government-maintained harbor, Coos Bay seems poised to lure maritime travelers. To do so it needs, however, to develop the on-shore amenities to meet their interests and needs. Options exist, for example, for a riverboat to retrace the old route across Coos Bay and ascend either the North or South Forks of Coos River to a restaurant/café or terminal attraction (comparable to the boat trips between Gold Beach and Agness on the Rogue River). Or maybe the venue might be a bay cruise and a salmon bake on one of the dredge material islands in upper Coos Bay. Imagination and capital investment beckon.

APPENDIX D: CBEMP AUDIT

This document identifies the scope of Goal 16 as "unique environmental, economic, and social values of estuaries." The Goal may be deficient today in that it does not specially address "cultural values." Estuaries for hundreds and, indeed, thousands of years, were vital places of food acquisition, food processing, travel, locations of shoreline villages, and trade centers for Native Americans. In the nineteenth century they became the location of shipyards, wharfs, sawmills, commercial buildings on pilings, and served as the "highways" from 1853 to the early 1900s before the construction of roads. The cultural dimension of estuaries is largely missing in this report and certainly not identified as a "value."

Noteworthy and missing in the discussion of "social values" are educational institutions: North Bend and Marshfield High schools, Southwestern Oregon Community College, North Bend and Coos Bay Public libraries, and the instructional programs at the Oregon Institute of Marine Biology. In addition, these institutions all have college-educated staff who enrich the cultural life of the communities surrounding the estuary.

"Usability Recommendations" on page 2 of the report recommends "Include mapping of natural resources and areas of cultural significance." This mapping should also include "mapping of significant cultural resources within or directly associated with estuaries." Some of the cultural resources of the Coos Bay estuary include, for example:

- Aboriginal village sites (inventoried in restricted site files at the SHPO).
- Indian fish weirs and fish traps (inventoried in restricted site files at the SHPO).

Nowhere in the planning studies and reports is there any awareness that the Coos Bay estuary has the largest assemblage of Indian fish traps and fish weirs on the West Coast of the United States. The archaeological inventories of these features have led to initial testing and confirmation that these cultural features date to as much as 1,000 years before the present. In spite of channel dredging and filling of significant portions of the estuary, more than twenty of the weirs and traps remain. These were locations of sustained Indian subsistence activity. They are water-saturated sites with nearly 100% preservation of fish clubs, spears, gaffs, fishhooks, basketry, knives, and the clothing of those who used these devices to harvest food. They are the "Pompeii of Coos Bay." The Coos Bay estuary shoreline is also the location of documented and inventoried but, as yet, un-excavated water-saturated village sites. These locations have tremendous potentials to shed light on the prehistory of the native peoples of the southwest coast. This information could deepen cultural and historical interpretation essential to attracting and holding tourists.

- Indian mythological sites mostly associated with geological features such as the fossil deposits at Fossil Point (Barview), the "Cannibal Ogre" site in the cove at La'xai [Fossil Point], and "Stone Hammer Baby" [Utter Rocks] site in the estuary northwest of the Empire District.
- Empire Pioneer Cemetery (Coos ancestral village and cemetery with historic cemetery sharing same site, property owned by the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw).
- Location of the pioneer shipyards on Coos Bay: Henry H. Luse yards, Empire; Asa M. Simpson yards, Old Town (North Bend); Kruse & Banks yards (site of The Mill Casino, North Bend), and E. B. Dean shipyards (south Marshfield waterfront).
- Location of the Newport Mine coal bunkers on piling on Coos Bay north of the mouth of Coal Bank Slough near Bunker Hill.
- Location of major sawmills such as that of C. A. Smith (Bunker Hill) where the first "package lumber" was loaded into ships with overhead cranes in the 1910s.
- Front Street, Marshfield (North Front, Coos Bay) where the Coos Bay Iron Works and Marshfield Sun building (National Register, 1973) are notable historical resources.
- Egyptian Theatre (South Broadway, Coos Bay), was built in 1925 and is one block from the bay. It has original vaudeville scrim set curtains and one of the state's largest, operative Wurlitzer pipe organs (National Register 2010).
- Conde B. McColloch Memorial Bridge (National Register, 2005)
- Coos Bay Railroad Bridge (1914) operated by Coos Bay Rail Link (CBR)

- Government Works, site on the North Spit in 1890s as base camp for construction of North Jetty (BLM ownership
- U.S. Life-Saving Service Station/U.S. Navy Detection Finding Station/U.S. Army Coast Patrol Station, site on North Spit used from 1892 to 1946 (BLM ownership)
- U.S. Life-Saving Service/U.S. Coast Guard facility at Charleston with historic boathouse (01MB lecture hall) and crew quarters (01MB administrative offices) and the Army Corps of Engineers residence from the North Spit (1894) used as a faculty cottage (OIMB)
- Log storage sites such as the immense Waterford Boom, which from the 1930s to the 1960s was the major log holding area used by Irwin & Lyons Lumber Company and its successor, Menasha Corporation. The Waterford Boom was located at Graveyard Point north of the mouth of Catching Inlet along the east shore of the bay. The Coos River Boom Company's extensive boom and rafting facility reached from Bessey Creek on the South Fork of Coos River upstream to the waterfall above Dellwood, a distance of about three miles in the uppermost tidal part of South Coos River. Piling and large cable "eyes" cemented into the cliffs along the south bank of the river remain from this rafting area. Weyerhaeuser Corporation in the late twentieth century dredged a log-sorting basin out of the former Mark Cutlip farm on the north bank of South Coos River immediately downstream from Dellwood.

The report refers to the significant changes in the socio-economic situation of the Coos Bay estuary in the past 40 years but does not explain what has happened. The rationale for a revised master plan is driven not only by the new mapping techniques and ecological perspectives of shorelands and estuary but also the specifics of the changed economy and culture. These include the following:

- Coos Bay was for most of the twentieth center the "world's largest lumber shipping port." This reality no longer exists.
- Coos Bay was the location of seven, major forest products manufacturing plants that included sawmills, pulp and paper, plywood, and particle board manufacturing. These facilities are gone and the surviving plants today employ only about 15% of the forest products workers of forty years ago. [Forest products plants now vanished: Menasha Corporation (pulp mill, sawmill, plywood plant), Weyerhaeuser Corporation (sawmill, plywood plant, particle board plant), Scott Paper Company (pulp mill), Coos Head Timber Company (sawmill), Georgia-Pacific Corporation (sawmill), Evans Products Company (battery-separator plant), Irwin ft Lyons Lumber Company (sawmill), and others.]
- Coos Bay was once the setting for numerous cultural venues such as the Community Concerts (using the Marshfield High School auditorium), On Broadway (a local theater company in downtown Coos Bay), and fraternal organizations (Masons, Eastern Star, IOOF, Rebecca Lodge, Elks, Moose, Eagles, and Coos Bay Pirates). These cultural offerings have diminished or vanished. Surviving is the Little Theater on the Bay (North Bend). The ethnic lodges (Suomi (Finns), Vasa (Swedes), Order of Runeberg (Norwegians), Linea (Swedes) have disappeared; these organizations were the social and cultural expression of a significant Scandinavian population who settled on Coos Bay to work in shipyards, sawmills, and fishing. Coos Bay was also the activity area for the Coos Bay Yacht Club which had a headquarters club house and dock on the bay and sponsored an annual "Sailing Regatta."
- Forty years ago, there were no federally-recognized Indian tribes in Coos County. Congress in the Western Oregon Termination Act (1956) severed relations with the tribes and fee-patented lands to individuals who were tribal members. Congress subsequently restored to a federal relationship the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw (1984) and the Coquille Tribe (1989). Both tribes are players in governmental relations, own trust lands adjacent to or in the immediate vicinity of the estuary, are important employers, and are participants in the federal "consultation process" mandated by President Clinton in Executive Order 13175 (2000). Both also participate in the Oregon Commission on Indian Services.
- The report nowhere identifies or explains the significant change in the landscape of the North Spit and its long reach from the present harbor entrance northward toward Henderson Marsh and Jordan Cove. Prior to the 1890s the North Spit was a wave-washed sand spit. The ocean frequently breached it and drove eastward against the cliffs at Barview and north

beyond Tar Heel Point. In the 1890s congressional appropriations enabled the Corps of Engineers to design and supervise construction of the North Jetty. It established the Government Works, a headquarters community on the spit. It constructed housing, offices, and a wharf to receive boulders quarried on South Coos River at the Anion Rogers farm. The boulders were lifted from barges and set on train cars. A steam locomotive traveled south over the spit on a trestle that gradually extended west into the ocean. Workers laid down fascines (woven brush mats) to hold the boulders when they were dumped. Slowly the North Jetty rose above the waves and sand. Since 1894 the North Spit has gradually vegetated. The cover includes bull pine and, most significantly, *Ammophila arenaria*, or Holland Grass. Workmen dug the grass in San Francisco and moved it by ship to Coos Bay. The Army Corps launched an ambitious dune stabilization project on the North Spit. Over the passage of 120 years *Ammophila* has spread, created the foredune, and dramatically changed the landscape of the North Spit.

The report correctly points out that CBEMP addresses what landowners "can do" and that state and federal permits stated what they "can not do." The report does not identify the special historical circumstances in Coos Bay that are a major complicating factor. Congress passed the Swamp Lands Act (1849) and extended it in 1860 to Oregon. The state activated the law in 1870 and sold significant estuarine lands in Coos Bay. These privately-owned wetlands became sites for sawmills, wharfs, and town site expansion. Major portions of the margins of the estuary passed into private ownership and thus became available for deposition of dredged materials. The Corps of Engineers has frequently sought privately-owned wetlands and paid the owner for dumping dredged materials. A recent example was the extensive filling of the McIntosh/ Christensen ranch at Graveyard Point opposite the confluence of Catching Slough and Coos River. The property was then owned by Weyerhaeuser Corporation and in 2018 is owned by the City of North Bend.

APPENDIX E: COOS ESTUARY MAP ATLAS

Pertaining to Section 5.10 Estuary Features: Section 5 presents a comprehensive identification of features related to the Coos Bay estuary. Section 5.10 includes information on state and select city parks. Missing from this discussion are Cultural Resources. The overlooked cultural resources include:

- Prehistoric Indian Fish Weirs and Traps: The Oregon Statewide Inventory has site information on more than twenty water-saturated fish weirs and traps in the Coos Bay estuary. Protected by non-disclosure (as well as high tide and mud), this is the largest assemblage of this type of Indian fishing technology on the West Coast of the United States. Testing confirms the weirs are as much as 1,000 years old.
- Conde B. McCullough Memorial Bridge (1936): The bridge is the most prominent visual feature on the landscape of the Coos Bay estuary and is a primary transportation corridor for Highway 101. The bridge was nominated to the National Register of Historic Places in 2005. The bridge includes Conde B. McCullough Bridgehead Wayside State Park on its north end running along the southern shore of Haynes Inlet.
- Coos Bay Railroad Bridge (1914): This swing through truss bridge became a vital railroad connection to ship forest and agricultural products from Coos Bay to the rest of the United States. The bridge is a prominent visual element of the historical landscape of the estuary and is maintained in 2018 by Coos Bay Rail Link (CBR).
- Coos Historical and Maritime Museum: This building stands in Coos Bay on piling and fill on the shoreline of upper Coos Bay adjacent to Highway 101. It is the headquarters of the Coos County Historical Society founded in the 1890s, one of the oldest such organizations in Oregon (predating the Oregon Historical Society founded in 1898). The museum, library, and collections document and focus on development of the county and Coos Bay in particular.
- Marshfield Sun Museum: Located in Coos Bay on North Front Street and Highway 101, this is the only completely intact nineteenth century printing plant on the West Coast. Founded in 1891 by Jesse Allen Luse, the Marshfield Sun was printed on a Washington Hand Press. The building holds the original presses, type cases, and job press items printed by the company. Luse operated the press from 1891 to 1944, the last

hand-press in Oregon. The building was entered in 1972 on the National Register of Historic Places. It stands dredge materials filling north Front Street.

- Coos Bay Iron Works: Located in Coos Bay on North Front Street (mostly on piling), this privately-owned, industrial building is filled with the machinery and tools used for decades to construct and repair sawmilling and shipbuilding enterprises on the Coos Bay estuary. It is eligible for the National Register of Historic Places and has significant potentials for education, interpretation, and tourism (if preserved and developed).
- Oregon Dunes National Recreation Area: Established by Congress in 1972, the NRA is administered by the Siuslaw National Forest. The southern unit at Horsfall Lake reaches from North Slough west to the Pacific Ocean and includes significant, traditional hunting and gathering areas used by the Coos and Coquille (Miluk band) Indians.
- Oregon Institute of Marine Biology: This 100-acre marine station was established in 1924 at Charleston at the entrance to Coos Bay. Its campus became the site of a Civilian Conservation Corps camp between 1935 and 1941. The station is administered by the University of Oregon and includes instructional programs, public lectures, and the Marine Life Center.
- South Slough National Estuarine Research Reserve: Located on South Slough, an arm of Coos Bay, this 4, 771-acre natural area was designated in 1974 by Congress. It has an interpretive center, art gallery, walkways, educational programs, summer camps, and offers the opportunity for exploration of an extensive estuary by water or trail.
- U.S. Navy Submarine Detection Station: This facility is located on Coos Head on a property transferred by the federal government to the Confederated Tribes of Coos, Lower Umpqua, and Siuslaw. It is the remaining building of a Cold War submarine detection station. Long cables reach west into the ocean and continue in 2018 to monitor maritime traffic. The station is unmanned and operated remotely from the U.S. Navy Whidbey Island Naval Station on Puget Sound. In addition to this Navy facility, the United States Air Force General Surveillance Radar station, 3. 9 miles north-northeast of Hauser, Oregon, operated from 1950 to 1980. This was an intercontinental missile detection facility.

APPENDIX F: FOCUS GROUP RECOMMENDATIONS AND GLOSSARY OF TERMS

Page F1, last item proposes amending "all inventories to include the most updated data available for habitat protection including wetlands."

Comment: This recommendation overlooks including updated data available for protection of cultural resources in and adjacent to the estuary. In the longer term the cultural resources are integral to the continuing development of tourism and sustaining the post-forest products economy of Coos Bay.

Page F2, bullet 4 calls for including and updating "cumulative and historical impacts to the estuary consistent with Statewide Planning Goals 16 and 17."

Comment: The extent of this updating is unclear.

- Does it include the existence of the now rapidly vegetating dredge material islands in the upper bay and their role in avian habitat?
- Does it include the major industrial changes occurring on the North Spit?
- Does it include the U.S. Forest Service management of the southern unit of the Oregon Dunes National Recreation Area?

These subjects do not appear to gain identification.

Page F3, bullets 2, 3, and 4.

Comment: Addressing the scenic and cultural resources is vitally important in the post-forest products economy of Coos Bay. These Goal/Priority Statements are essential for sound future planning.

Page F4, section 4 "Coos Estuary Map Atlas."

The development of this atlas should draw on historical documents providing extensive hydrographic data on the estuary, its original shoreline, and many on-shore features within the immediate viewshed of the estuary. These include cadastral survey field notes, meander survey notes, and plats and the several nineteenth century maps and charts listed below. These documents can facilitate reconstruction of the historical shoreline and landscape of Coos Bay. In addition to these sources, for the twentieth century shoreline changes, consult the several editions of

the charts of Coos Bay, Oregon. Especially useful is the U.S. Coast & Geodetic Coos Bay chart of 1924.

Recommended sources of baseline information:

Anonymous 1882 "Coos Bay, Oregon. Survey 1879, Showing Changes After Jetty Construction, 1881." Map, RG 77: Records of the Office of Chief of Engineers.

Bolton, Channing M. 1878 "Entrance to Coos Bay, Oregon Showing Proposed Plan of Improvement." Map, RG 77: Records of the Office of Chief of Engineers.

Dickins, E. F. 1889 "Descriptions of Stations, Coos Bay, Oregon." Map, RG 23: Records of the U.S. Coast ft Geodetic Survey.

Dickins, E. F. and F. Westdahl 1889-90 "Topography [and Hydrography] Coos Bay, Oregon." Map.

Lawson, James E. 1861 "Entrance and Part of Coose Bay, Oregon." Map.

1861 "Description of Signals, Stations Coose Bay, Oregon." Map, RG 23: Records of the U.S. Coast ft Geodetic Survey.

1861 "Hydrography of Entrance and Part of Coose Bay, Oregon." Map.

1862 "Entrance and Part of Coose Bay, Oregon." Map.

1865 "Sheet No. 2, Hydrography of Coose Bay, Oregon." Map.

Littlefield, R. W. 1883 "Coos Bay, Oregon, Survey of 1879, Showing Changes After Jetty Construction up to June, 1883, Made from Measurements Made Under the Direction of Capt. C. F. Powell." Map, RG 77: Records of the Office of Chief of Engineers.

Lyell, G. A. 1889 "Entrance to Coos Bay, Oregon, Soundings Taken on the Bar, August, 1889."

McMillan, A. J. 1889 "Entrance to Coos Bay, Oregon, February, 1889. Surveyed Under the Direction of Captain W. Young." Map, RG 77: Records of the Office of Chief of Engineers.

Pickens, E. F. 1887 "Topographical Reconnaissance from Yaquina Point to Cape Orford, Oregon."

Secretary of War 1893 "Entrance to Coos Bay, Oregon, Bar & Entrance Soundings from U.S. Eng. Dept. Survey of March, 1892." Secretary of War Annual Report, 1893.

Glossary of Terms

Consider expanding the glossary:

- **Cultural Resources:** Arch aeological sites (villages, fish weirs and traps, trading sites, cemeteries, mythological sites, quarries), historical buildings, sites, objects, and landscapes.
- **National Register of Historic Places:** A planning tool established by the National Historic Preservation Act (1966) that is an inventory of cultural sites and objects significant locally, statewide, regionally, or nationally that have been inventoried, nominated, and entered by the Keeper of the Register, National Park Service.
- **Section 106 Compliance:** This is a planning process mandated by the National Historic Preservation Act (1964) and the National Environmental Policy Act (1970). Most projects involving federal dollars (roads, sewer lines, water facilities, and others) require compliance with Section 106. Compliance can be met by a Finding of No Significant Impact (FONSI), an Environmental Assessment (EA), or an Environmental Impact Study (EIS).
- **State Historic Preservation Office:** An office in Oregon State Parks that administers the National Historic Preservation Act, Cultural Resource compliance with the National Environmental Policy Act, the National Register program, and maintains the statewide inventory of historical and archaeological cultural resources.
- **Traditional Cultural Property:** A nexus of sites and features integral to historic and present tribal cultures including village sites, myth tale locations, native place names (ethnogeography), cemeteries; fisheries, and land-based food resource catchment areas (berry-picking sites, root and bulb digging sites). A Traditional Cultural Property (TCP) may be eligible for the National Register of Historic Places.

Natural Resource Protection and Restoration

Dr. Steve Rumrill, Shellfish Program Lead, Oregon Department of Fish and Wildlife

OVERVIEW: The primary purpose of the Coos Estuary Land Use Analysis is to assist the Coos County Planning Department with assembly of historic and recent environmental data, technical reports, and community-level information that is relevant to the update and modernization of the Coos Bay Estuary Management Plan (CBEMP). More specifically, the project includes three fundamental components: (1) the ***Coos Estuary Map Atlas***; (2) ***Focus Group Recommendations***; and (3) a series of ***Three Scenario Options***. The Coos Estuary Map Atlas drew upon an updated database of local technical information to identify estuary features that have ecological importance, natural resources that may limit, restrict, or impact future shoreline development, and areas of socio-cultural significance. The Focus Group Recommendations were derived from comments and suggestions solicited from stakeholders during a series of workshops. The Scenario Options explore several alternative management options for Coos County to consider as they undertake future revision of the CBEMP, including analyses of estimated costs and issues regarding scope and technical feasibility. The different components of the Coos Estuary Land Use Analysis 2018 report constitute and effective and informative evaluation of the current status of the Coos Bay Estuary Management Plan, and they contribute valuable new information that will greatly improve the technical content and update the accuracy of the planning document. Taken together, the components constitute a thorough and accurate assessment, provide a solid rationale for the need to revitalize the management plan, and present a reasonable pathway for modernization of the important estuary planning document.

TECHNICAL APPROACH AND METHODS: The document begins by pointing out that land use planning efforts for the Coos Estuary were originally carried out in within the context of economic and social drivers of the 1970-80s, and that substantial modernization is needed to revise, rework, and adjust the planning document to place the technical assessment, analyses, and recommendations into the more contemporary context of the 2020s. The rationale for modernization is straightforward and compelling, and the authors clearly articulate their central question: *"how do we modernize land use planning for an Oregon estuary in a way that balances responsible economic development, social interests, and the protection of natural resources?"*

The technical approach and process developed to assess, evaluate and make recommendations for modernization of the Coos Estuary Management Plan is suitable for an undertaking of the scope and magnitude of the local planning exercise, and the process that was followed appears to be adequate to develop a solid overall foundation for the more detailed planning work that will certainly be needed in the near future. More specifically, the assessment and evaluation process included collaborative work carried out in cooperation with the Coos County Planning Department and a local stakeholder group (Partnership for Coastal Watersheds) to develop five products that will be valuable contributions for the estuary plan revision, including: (1) an audit/assessment of the current Coos Bay Estuary Management Plan (CBEMP); (2) the ***Communities, Lands & Waterways: Data Source*** (a compilation of current socio-economic and environmental status and trends); (3) the Coos Estuary Map Atlas (a series of maps and tables analyzing current natural resource, natural hazard and socio-economic data within the CBEMP boundaries); (4) findings from three focus groups (economic development, socio-cultural interests, natural resource protection and restoration); and (5) alternative management options for Coos County as they consider revision of the CBEMP.

The technical approach, methods, and process followed were appropriate and adequate to evaluate the current status of the CBEMP. It is important to acknowledge, however, that much more detailed land-use, zoning, and legal/jurisdictional analyses will be required in the future to fully evaluate the specific issues associated with modern consistency among the complex mosaic of private, city, county, state, tribal, and federal ownership and interests that occur throughout the estuary drainage basin. In addition, more detailed analyses and assessment will also be needed to more fully evaluate issues of zoning areas, adjacency, buffer zones, compatible/in-compatible uses, historical commitments, persistent encumbrances, and likely changes in transportation and municipal infrastructure. The CBEMP should also be revised within the within the context of a much more

detailed understanding and assessment of the shifting socio-economic conditions within Coos County and its associated sphere of influence, as well as within the context of a solid understanding about the status and trends in county, coastal, and statewide demographics, *including projections for the next decades that are expected within the life-span of the planning document.*

ORGANIZATION, EASE OF ACCESSIBILITY, AND UTILITY FOR THE COOS BAY ESTUARY MANAGEMENT PLAN:

The Coos Estuary Land Use Analysis is very well organized, and information in the documents is readily accessible, easy to interpret, and represents a solid foundation of technical data and spatial information that has good utility as reference material for the planning work ahead to revise and modernize the Coos Bay Estuary Management Plan. The different components of the Coos Estuary Land Use Analysis 2018 report constitute and effective and informative evaluation of the current status of the Coos Bay Estuary Management Plan, and they contribute valuable new information that will greatly improve the technical content and update the accuracy of the planning document. The final Focus Group recommendation to proceed forward toward a comprehensive revision and modernization of the Coos Bay Estuary Management Plan is well supported and reinforced by the overview of technical data and spatial information presented by the Coos Estuary Land Use Analysis.

Economic Development

Alex Campbell, Regional Solutions Coordinator, Governor's Office

I think the draft report is a little "bloodless" in describing the problem. It sticks to very dry language about the data and maps being out of date and/or hand-drawn. I think an anecdote or a quote or two might be helpful. Here's one: in my current role assisting in economic development, I made an inquiry to a planning department at one of the local jurisdictions as to whether a proposed use was an "allowable use" for a specific parcel. After some back and forth, I was told that it would take them some research to figure that out and that they would have to get back to me in a few days. The idea that a 5-minute call to a planning department is insufficient to answer such a basic question is astounding to me, and sends a pretty strong (negative) signal to potential developers. Another illustrative fact might just be the number of zone designations. If my memory serves me there are 50 or a 100 or more? That level of complexity reaches almost spot zoning. I question the value of that level of complexity, but if it is necessary, it clearly needs to be brought into the 21st century where we can use technology to make it transparent.

TECHNICAL COMMENTS: FOCUS GROUP PROCESS (within main body of report):

[Pg 9; Related to Focus Group composition] Seems to me another relevant, significant economic constituency is water-dependent manufacturing/boat building and/or marine construction.

[Pg 10; 4th bullet related to questions asked of focus groups pertaining to education related to health of estuary direct relationship with health of economy] I believe the CBEMP process itself, and/or regular updating could serve that public education need. To add individual impact assessment on top of all this work seems to me to be potentially duplicative and unnecessarily burdensome to development.

[Pg 12; last bullet of discussion issues for natural resource protection focus group] How informed was this group about the federal permitting process? It seems to me that there is a very high level of regulation and mitigation requirements.

[Pg 12; first bullet of questions asked of all focus groups] Amen. But can we simply leave some issues to one level of government? And do we really want to add another level of environmental review?

APPENDIX F: FOCUS GROUP RECOMMENDATIONS:

Focus Group Recommendation, page F2: *Wetland mitigation and restoration:*

- *Wetland protection processes including criteria should be consistent through the jurisdictions. (NR)*
- *Update or clarify tiered approach of:*
  1. *Avoidance of creating wetland impacts;*
  2. *Minimize impacts if they cannot be avoided; and*
  3. *Mitigate for impacts if they cannot be avoided or minimized. (NR)*
- *When possible consider "like for like" mitigation as close to the development/redevelopment site as possible but should not conflict with Department of State Lands (DSL) requirements. (NR)*

Reviewer comment: Why do we need local wetland regulation above/beyond State & Federal fill/removal permitting?

Focus Group Recommendation, page F2: Use Oregon Department of Environmental Quality (DEQ) storm water standards to develop low-impact development/green infrastructure land use requirements to compliment but not overlap DEQ storm water processes. (NR)

Reviewer comment: This is confusing ... do DEQ storm water processes not currently align with their standards?

Focus Group Recommendation, page F3: Include or update within the CBEMP narrative an environmental impact section that discusses the history of natural resources in the estuary. (NR)

Reviewer comment: Pretty vague. Not sure what is meant here.

Focus Group Recommendation, page F3: Include a flowchart with all permitting agency information included. Include links to other agencies and resources that would be helpful when buying or developing property. This could also be used as an educational tool. (SC, NR, ED)

Reviewer comment: This is very difficult to do effectively. The intuition is correct, but the reality is so complex, this kind of thing rapidly becomes so complicated that it can be of little use (not to mention it is hard to keep up-to-date) ... UNLESS it is kept at a very high level. An alternative/ supplement would be a no wrong door policy/ agreement among the various relevant agencies, to make sure that individual regulatory bodies have a clear idea of how their piece fits into the whole and where to send folks to complete the rest of the story. A third approach might be a very inclusive check-list of the various approvals/ requirements that are potentially relevant to a wide variety of projects, so that any applicant would be aware of the universe of the potential issues that should be considered as part of due diligence.

Focus Group Recommendation, page F4: Include a link to the Oregon Department of Environmental Quality (DEQ) Facility Profiler-Lite Interactive Viewer for industrial sites. (NR)

Reviewer comment: Not clear to me why this specific tool is being called out. These things come and go.

Focus Group Recommendation, page F4: Include links to other local sources such as chamber of commerce, tribes, parks department, watershed councils, etc. (ED)

Reviewer comment: I'm skeptical of this, as well. Trying to keep information like this up-to-date and complete is a lot of work ... and anyone with an internet connection can find this stuff.

Focus Group Recommendation, page F4: The plan and ordinances should avoid duplicative and contradictive processes between local, state and federal jurisdictions. (ED)

Reviewer comment: What are examples? If we have good/concrete ones, can we just eliminate from local processes?

APPENDIX C:

COMMUNITIES, LAND & WATERWAYS. DATA SOURCE.

South Slough Reserve | 2015

Appendix C: Communities, Lands & Waterways DATA SOURCE

Coos Bay Area, Oregon

Communities, Lands & Waterways Data Source is an encyclopedic compilation of all available data describing the socioeconomic and environmental conditions in the Coos Bay area (including the Coos estuary and lower Coos watershed). The Data Source provides in-depth status and trends information about the project area's environmental attributes (e.g. water quality, eelgrass, etc.) and evaluates our community's social and economic attributes (e.g., jobs, schools, etc.) for comparison with other communities. It also describes the likely effects of climate change on each attribute.

Figure 1. The project area referenced throughout the Communities, Lands & Waterways Data Source is defined by a network of nine environmental "subsystems," which collectively comprise the lower Coos watershed. The subsystems are shown above and in maps throughout the Data Source chapters.

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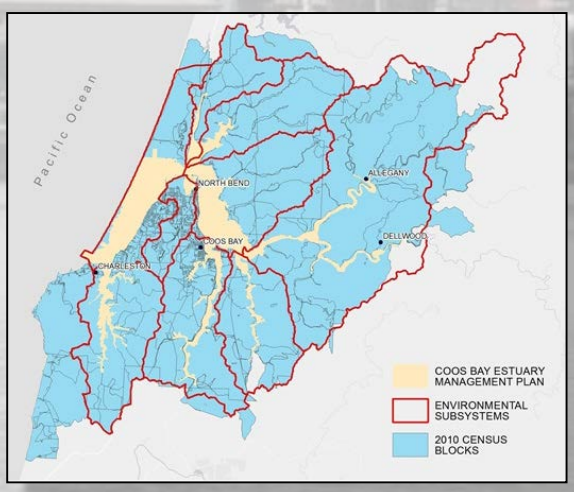
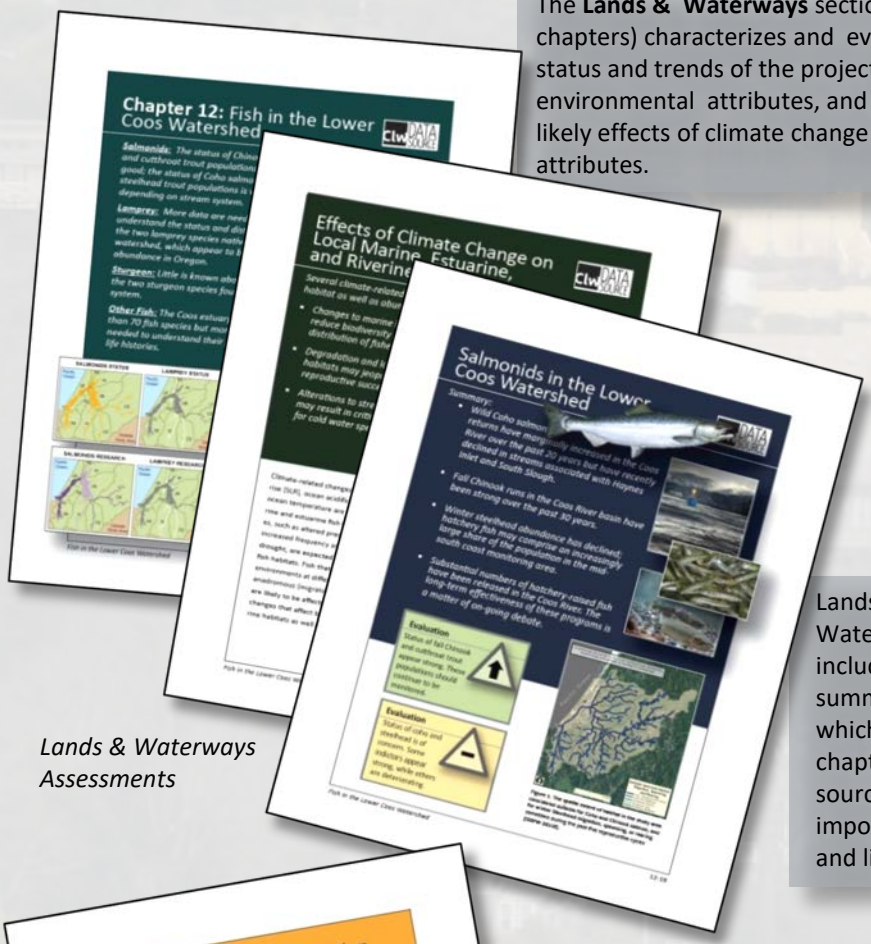


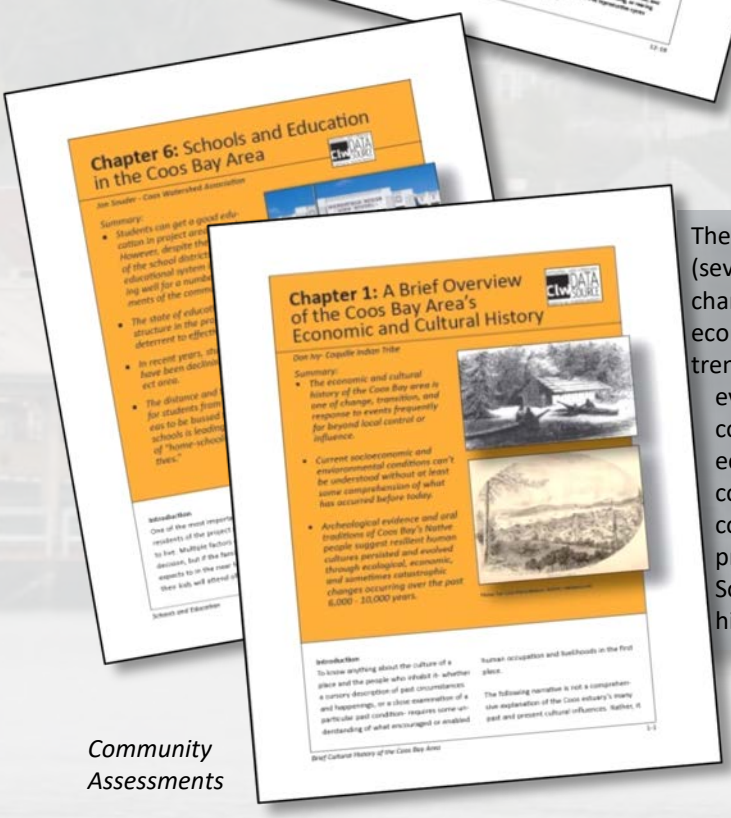
Figure 2. The project area extent closely matches Census blocks from which socioeconomic information was compiled, as well as the administrative boundaries of the Coos Bay Estuary Management Plan, which provides the regulatory basis for estuarine conservation and development decisions in the Coos estuary.

The **Lands & Waterways** section (eleven chapters) characterizes and evaluates the status and trends of the project area's environmental attributes, and describes the likely effects of climate change on those attributes.



Lands & Waterways Assessments

Lands and Waterways chapters include chapter summaries (*far left*), which evaluate the chapter's information sources, identifying important data gaps and limitations.



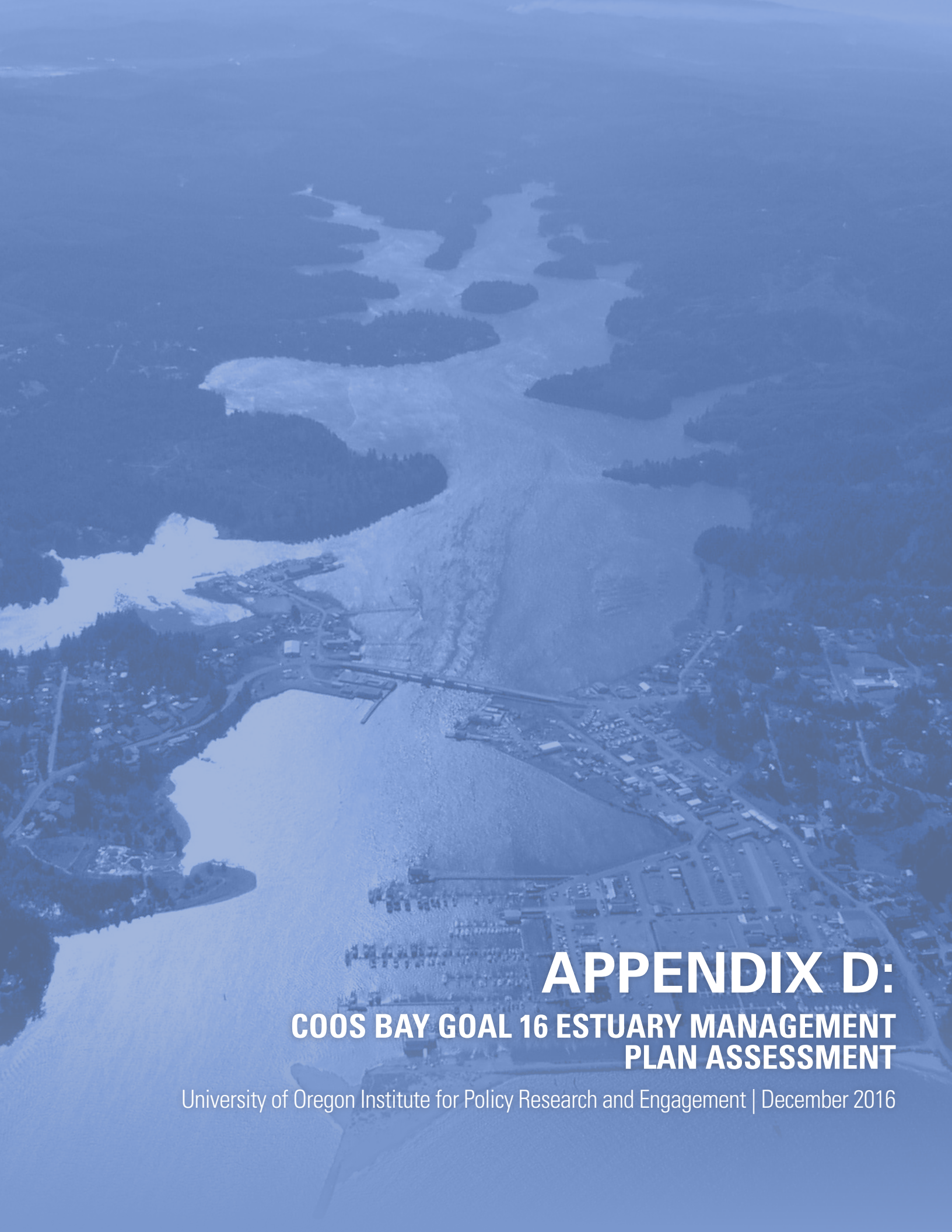
Community Assessments

The **Communities** section (seven chapters) characterizes socio-economic status and trends in the project area, evaluates our community's social and economic attributes for comparison with other communities, and provides the Data Source with critical historical perspectives.

Examples of the status of the environmental attributes characterized in the Data Source, which is evaluated in each chapter using a system of colors and symbols. Green boxes represent good status; yellow represent fair status; and red represent poor status. White is reserved for attributes for which evaluations cannot be made due to insufficient information, thereby highlighting data gaps. The boxes are accompanied by symbols representing trend information. The upward pointing arrow symbolizes increasing trends; the dash represents no clear trends; and the downward pointing arrow indicates decreasing trends. The open circle indicates that not enough information exists to determine trends.

Partnership for COASTAL Watersheds

Online at: *http://www.partnershipforcoastalwatersheds.org/lands-waterways-data-source*



APPENDIX D:

COOS BAY GOAL 16 ESTUARY MANAGEMENT PLAN ASSESSMENT

University of Oregon Institute for Policy Research and Engagement | December 2016

Coos Bay Goal 16 Estuary Management Plan Assessment

December 2016

Final Report

Submitted to:

Coos County Planning Department

225 N. Adams Street
Coquille, OR 97423

Prepared by:

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December 2016

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UNIVERSITY OF OREGON CSC Community Service Center

Special Thanks & Acknowledgements

Community Planning Workshop wishes to thank the following individuals for their assistance with this project:

Jill Rolfe, Coos County Planning Director
Jennie Schmitt, South Slough National Estuarine Research Reserve
Partnership for Coastal Watersheds Steering Committee

Community Service Center Team

Robert Parker, AICP - Director
Michael Howard, AICP, CFM
Ethan Lockwood
Ethan Stuckmayer
Tarik Rawlings

About the Community Service Center

The Community Service Center (CSC), a research center affiliated with the Department of Planning, Public Policy, and Management at the University of Oregon, is an interdisciplinary organization that assists Oregon communities by providing planning and technical assistance to help solve local challenges and improve the quality of life for Oregon residents. The role of the CSC is to link the skills, expertise, and innovation of higher education with the transportation, economic development, and environmental needs of communities and regions in the State of Oregon, thereby providing service to Oregon and learning opportunities to the students involved.

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EXECUTIVE SUMMARY

This report presents a preliminary evaluation of the Coos Bay Estuary Management Plan (CBEMP). The evaluation is intended to inform a comprehensive review and update of the CBEMP that will begin in 2017. The preliminary evaluation focuses on areas where the legal framework might have changed, implications of any legal decisions that occurred since the plan was adopted in the 1980s, and a general evaluation of the usability of the plan.

Background and Purpose

Oregon has a long legacy of land use planning. Starting with the passage of Senate Bill 100 in 1973, the state requires cities and counties to develop comprehensive plans and implementing ordinances. The statewide land use program includes elements specific to coastal communities, including Statewide Planning Goal 16: Estuarine Resources. The intent of Goal 16 is to recognize and protect the unique environmental, economic, and social values of estuaries and associated wetlands. Goal 16 requires affected local governments to develop comprehensive management programs to implement Goal 16.

The Coos County Planning Department is initiating a process to update the Coos Bay Estuary Management Plan (Volume II of the Coos County Comprehensive Plan). The Plan was initially developed, adopted, and acknowledged in the mid-1980s and has not had a comprehensive review since that time. As an initial step, Coos County and the South Slough National Estuarine Research Reserve (SSNERR) wanted a preliminary assessment of the plan against current land use laws, case law, and inventory data that has been gathered by the Partnership for Coastal Watersheds (PCW). This preliminary review is intended to inform a more detailed process to update the Coos Bay Estuary Management Plan. In short, the purpose of this technical review is to evaluate the CBEMP in terms of is legal framework, usability, and document structure in light of the upcoming update process.

Recommendations

These recommendations for the CBEMP update process are drawn from the Community Service Center's review of the state and federal regulatory framework, evaluation of other estuary management plans, and stakeholder interviews. The list of interviewees and questions were developed jointly by the CSC, Jill Rolfe (Coos County), and Jenni Schmitt (South Slough National Estuarine Research Reserve), and other members of the Partnership for Coastal Watersheds (PCW).

Further context and explanation for the recommendations can be found in Chapter II through IV of this report.

Legal Framework Recommendations:

While the current CBEMP plan is currently recognized by the state and thus in full legal compliance, there are significant opportunities to strengthen the legal context of the CBEMP by conducting GIS mapping, using simple and easy to understand

language for goals, policies, ordinances and criteria, and explicitly recognizing outside agency permits and review processes. More specifically CSC recommends:

- Cross reference allowed uses in each management unit with the underlying county or local zoning.
- Update the management units based on current zoning and land use demand
- Align management unit boundaries to tax lots, paying attention to ownership and zoning.
- Clearly distinguish between policies, ordinances, goals, and criteria.
- Clearly distinguish between management unit requirements and estuary-wide requirements.
- Review management unit geographic designations in light of current economic conditions and land uses.
- Consider suitability of developing and designating mitigation banks.

Usability Recommendations:

The current CBEMP is organized within a legal compliance framework and there are significant opportunities to make the document easier for the general public and developers to read and understand.

- Consider developing a user guide to accompany the CBEMP that includes introductory remarks explaining section headings, a more robust definitions sections, and legal understanding.
    - Describe and diagram the path to all required permits for a development to be approved.
- Conduct digital GIS based mapping of land cover and land uses.
    - Create maps at a scale that is suitable to guide development siting within management units.
    - Include mapping of natural resources and areas of cultural significance.
- Acknowledge the outside agencies, regulations, and types of permitting process that exist in addition to the CBEMP regulations and permit.
- Although Policy 18 is very specific on how to incorporate comments from the tribes it should be reviewed since there are conflicts with Statutory timelines.
- Review existing practice for mapping of natural resources and areas of cultural significance. Currently the County relies upon the Coquille Indian Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians to map natural resources areas of cultural significance. Development options need to consider potential impacts upon these areas.
- Use simple language to avoid misunderstandings and to make the plan more accessible to the average user.

Document Structure Recommendations:

The current CBEMP is a lengthy and unwieldly document to navigate and there are significant opportunities to use digital formatting and hyperlinks to improve the document structure.

- Digitize and hyperlink the CBEMP.
- Consider formatting for a web accessible document as opposed to a traditional written report.
- Include a glossary of terms.
- Use clear headers to explain the purpose and need for document sections.
- Cross-reference plan policies and regulations both in text and with tables or matrices (consider the use of a separate policy volume).
- Make more explicit the document hierarchy of policies, ordinances, goals, and criteria.

CHAPTER 1: INTRODUCTION

This report presents a preliminary evaluation of the Coos Bay Estuary Management Plan (CBEMP). The evaluation is intended to inform a comprehensive review and update of the CBEMP that will begin in 2017. The preliminary evaluation focuses on areas where the legal framework might have changed, implications of any legal decisions that occurred since the plan was adopted in the 1980s, and a general evaluation of the usability of the plan.

Background

Oregon has a long legacy of land use planning. Starting with the passage of Senate Bill 100 in 1973, the state requires cities and counties to develop comprehensive plans and implementing ordinances. The statewide land use program includes elements specific to coastal communities, including Statewide Planning Goal 16: Estuarine Resources. Statewide Planning Goal 16 (Estuarine Resources) provides guidance to local governments that have estuaries within their jurisdiction. The goal is specific about the intent:

> *To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and to protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries.*[1]

The Coos Bay Estuary is recognized as a "Deep-Draft Development Estuary" under Oregon's Administrative Rule Classifying Oregon Estuaries (OAR 660-17)[2] and under the requirements of Goal 16, Estuary Management Plans must contain the following elements: factual base, management unit designation maps, dredged material disposal plans, mitigation and restoration plans, and policies for uses and activities.

To comply with Goal 16, Coos County developed the Coos Bay Estuary Management Plan (CBEMP), Volume II of the Coos County Comprehensive Plan. The CBEMP was developed, adopted, and acknowledged in 1984. Since acknowledgement, the County has not conducted a comprehensive review of the CBEMP. The Coos County Planning Department is currently initiating a process to update the CBEMP. Coos County and the South Slough National Estuarine Research Reserve (SSNERR) will initiate a comprehensive review and update of the CBEMP starting in early 2017. As an initial step, the agencies partnered with the University of Oregon's Community Service Center (CSC) to conduct a preliminary assessment of the CBEMP.

[1] Guidelines GOAL 16: ESTUARINE RESOURCES OAR 660-015-0010(1). Oregon's Statewide Planning Goals & Guidelines. https://www.oregon.gov/LCD/docs/goals/goal16.pdf

[2] Oregon Administrative Rule Classifying Oregon Estuaries OAR 660-17. http://arcweb.sos.state.or.us/pages/rules/oars_600/oar_660/660_017.html

Purpose and Methods

The CBEMP is in three volumes and is over 1,000 pages in length. This preliminary review is not intended to be comprehensive; our approach focused on the following elements:

1. *Land Use Inventory*. What work needs to be completed on the inventory to bring it into compliance and to inform policies related to the plan?
2. *Legal Compliance*. What changes have occurred to applicable federal and state regulations? Do the changes require amendments to the plan? Are the plan policies compliant with current legal requirements? Do the policies achieve the County's objectives with respect to management of the estuary?
3. *Administrative Review*. The purpose of any plan is to provide a framework for review of land use activities in the planning area. This part of the review assesses how the plan is implemented via local regulations and intended to identify gaps or areas where the local regulations lack clarity or are inefficient.

As a first step, the CSC first reviewed the Oregon Department of Land Conservation and Development's (DLCD) *Assessment of Oregon's Regulatory Framework for Managing Estuaries*. Next, we conducted a review of estuary management plans within Oregon to identify best practices, innovative approaches, and challenges experienced by other local governments in their estuary management programs. To supplement the document review, CSC conducted interviews with a diverse range of participants representing the environmental, socio-cultural, and economic perspectives to deepen our understanding of the estuarine management planning framework and generate recommendations for the CBEMP update process.

Oregon's Regulatory Framework for Managing Estuaries

The *Assessment of Oregon's Regulatory Framework for Managing Estuaries*[3] was a result of a multi-year effort by DLCD to facilitate the modernization of local estuary management plans. The resulting report is a qualitative assessment of Oregon's current estuary regulatory and management system. The report identifies the primary challenges facing the estuary regulatory system and offers recommendations to address these challenges.

Chapter 2 of this report applies the Assessment's findings and recommendations to the CBEMP plan and its update process.

Oregon Estuary Management Plan Review

CSC reviewed seven estuary management plans in Oregon to identify best practices in terms of legal framework, usability, and document structure that might be applied to the CBEMP update process. The length and age of these plans made extracting best practices and recommendations a significant challenge, but the plan

[3] Assessment of Oregon's Regulatory Framework for Managing Estuaries. (2014). Oregon Department of Land Conservation. https://www.oregon.gov/LCD/OCMP/docs/Publications/RegulatoryAssessment.pdf

review yielded some useful information. Brief case studies of each of these estuary management plans can be found in Appendix A of this report.

Table 1: Oregon Estuary Management Plans

Plan Name	Initial Adoption	Most Recent Update
Curry County Estuarine Resources Chapter	1979	1995
Coos Bay Estuary Management Plan	1984	None
Coastal Resources Plan for Douglas County	1983	2014
Lane County Rural Comprehensive Plan Policies: Coastal Resources Management Plan	1980	2006
Lincoln County Estuary Management Plan	1982	None
Tillamook County Goal 16: Estuarine Resources Element	1982	None
Clatsop County Goal 16 & 17 Element: Columbia River Estuary	1979	1990

Stakeholder Interviews

CSC conducted 10 stakeholder interviews to supplement our research. Jill Rolfe (Coos County), Jenni Schmitt (South Slough National Estuarine Research Reserve) and members of the Partnership for Coastal Watersheds (PCW) selected individuals for interviews. The interviewees represent a range of environmental, socio-cultural, and economic perspectives as they relate to the Coos Bay Estuary. The group focused on identifying individuals who are familiar with the CBEMP in their professional capacity. The goal of these interviews was to validate the inventory of existing legal requirements and to identify attitudes, perceptions, concerns, and opportunities related to the existing Estuary Management Plan.

The full interview script developed by the CSC in coordination with the Coos County Planning Department and members of the PCW is included in Appendix B of this report. The following table contains the list of interviewed key stakeholders, their organizations, and their positions.

Table 2: Stakeholder Interviewees

Name	Organization, Title
Andrew Stamp	Coos County Hearings Officer and Land Use Attorney
Bob Braddock	Jordan Cove Energy Partners, Vice President & Project Manager
Brianna Hanson	Oregon International Port of Coos Bay, Treasurer
Chris Claire	Department of Fish and Wildlife, Habitat Protection Biologist
Chris Hood	Stuntzner Engineering and Forestry, Planning Department Head
Connie Stopher	South Coast Development Corporation, Executive Director
Courtney Johnson	Crag Law Center, Staff Attorney
Debbie Erler	City of Coos Bay Planning Department, Planner 1
Jill Rolfe	Coos County, Planning Director
Kassandra Rippee	Coquille Indian Tribe, Historic Preservation Officer & Archaeologist

Organization of Report

The rest of this report is organized around the three research themes: (1) legal framework; (2) usability; and (3) document structure. An overview of what was broadly identified as challenges and opportunities surrounding the CBEMP update process is presented in Chapter 2. Chapters 3 through 5 provide a more in-depth consideration of each of the three research themes (legal framework, usability, and document structure). Chapter 6 contains our recommendations for the CBEMP update process.

CHAPTER II: CHALLENGES AND OPPORTUNITIES

The Department of Land Conservation and Development (DLCD), as the agency charged with implementing and enforcing the statewide land use program, and as a participating agency in the Oregon Coastal Zone Management Association (OCZMA), has a significant interest in the success and effectiveness of local estuary management programs. Modernization of estuary management plans across Oregon is a need recognized by DLCD.

In 2014 DLCD completed an *Assessment of Oregon's Regulatory Framework for Managing Estuaries* to help facilitate updates of estuary management plans.[4] The assessment found the following opportunities for improvement of estuary management plans:

- Plans do not incorporate updated digital mapping and resource technology.
- An overall lack of awareness and understanding of the role these plans play in the land use decision-making process that reduces the effectiveness of the plans.
- Changing market and economic conditions have led to the need for highly detailed plans to be updated at a scale and frequency beyond the capacity of local governments.
- Many plans either duplicate or contradict state and federal regulatory processes, which places undue technical burdens on local governments when enforcing Plan policies.
- The Oregon system presumes a level of local government resource capacity (staff and resources) that does not, for the most part, exist. As a result, the capacity to administer and maintain plans is constrained.

To address each of these challenges the assessment outlines five recommendations to be fulfilled by the Department of Land Conservation and Development:

1. Assist local governments in incorporating up to date digital habitat classification maps into local estuary management plans.
2. Develop guidance for and provide direct technical assistance to local governments for evaluating/auditing local estuary management plans to identify priority areas for plan updates.
3. Develop and implement estuary planning related outreach, education and training efforts directed to stakeholders and decision makers involved in

[4] Assessment of Oregon's Regulatory Framework for Managing Estuaries. (2014). Oregon Department of Land Conservation. https://www.oregon.gov/LCD/OCMP/docs/Publications/RegulatoryAssessment.pdf

estuary management. In particular, efforts should focus on local government planning staff and state and federal resource agency staff.

4. Convene a technical work group to evaluate in detail the coordination between estuary management plan implementation and the Joint DSL/ Corps permit process. This work should focus on opportunities for improved integration of local plans with other regulatory processes.

5. Develop guidance and provide direct technical assistance to local governments for updating city/county planning coordination agreements to specifically address estuary management plan implementation, maintenance, and update responsibilities.

The assessment suggests an intent by DLCD to be an active partner in future estuary management plan updates. Support and guidance from the DLCD should be sought as the update process proceeds, particularly in regard to conducting outreach and integrating the land use inventory. In addition, DLCD can provide support with the legal and regulatory aspect of estuary management in Oregon.

Challenges and Opportunities

The PCW identified three primary perspectives from which to discuss challenges and opportunities that exist within the Coos Bay Estuary: environmental, socio-cultural, and economic. The CSC reviewed the CBEMP, other estuary management plans, and conducted interviews with key stakeholders to identify major challenges and opportunities.

Natural Resource

The CBEMP does not reflect the significant changes in the understanding of estuary environmental functions and services that have occurred since the CBEMP was written. In addition, the CBEMP does not reflect changes to land cover and habitat that are now available with improved mapping and data inventories. As a result of the disconnect between the existing knowledge of estuary environmental functions and data the allowed uses within management units may not align with the current land cover and habitat. There is now an opportunity to refine the management units and allowed uses to better align with existing conditions.

Socio-cultural

The demographic characteristics of the Coos Bay area have changed since the CBEMP was adopted in the 1980s. As such, current community values and beliefs about how the Coos Bay Estuary should be managed may not be accurately reflected in the CBEMP. With the changing socio-cultural landscape, there is a need to engage additional stakeholders in the planning process to instill existing values within the estuary management plan. There is also an opportunity to develop a structure that allows a wider range of users to easily understand and navigate the plan.

Economy

According to the stakeholders that the CSC interviewed the economy of the greater Coos Bay region has undergone dramatic changes in the past 30 years. A shift from a predominately natural resource dependent economy to a more diversified and varied economy that includes tourism and services has occurred. The type and scale of development that was planned for when the CBEMP was created does not match the economic reality of the current time. The management units, allowed uses, and potential development sites of the CBEMP need to be updated to reflect the current economic opportunities.

To better understand current economic opportunities Coos County should review each jurisdictions' Economic Opportunities Analysis (EOA) and the Comprehensive Economic Development Strategy (2014-2018).

CHAPTER III: LEGAL FRAMEWORK

Oregon's Statewide Planning Goal 16 (Estuarine Resources) establishes legal requirements for estuary management plans. Because the CBEMP is formally acknowledged by the state it was deemed in full legal compliance with applicable statewide planning goals and administrative rules that existed in 1984. Per ORS 197.646(3) any plan that is out of compliance with state law must directly apply relevant state provisions to local land use decisions. While there are no changes in state planning requirements or case law that need to be addressed in an update of the CBEMP there are opportunities to clarify the existing network of state and federal requirements.

Although the CBEMP is part of a larger framework of state and federal permitting processes required for a development project to break ground, these outside agencies and processes are not currently recognized or acknowledged within the plan. The fact that the CBEMP does not recognize other state and federal permitting requirements and processes does not directly conflict with outside permitting processes, a separate CBEMP permitting process that does not recognize other permits the overall permitting/entitlement process confusing and challenging to understand.

In broad terms, the CBEMP describes what landowners can do in the estuary. Other state and federal permits tell landowners own what they cannot do. While this does present a hurdle to incorporating project-specific outside permitting processes into the CBEMP, there is still room for significant improvements. Stakeholders interviewed indicated that confusion surrounding the timeline and order of permit applications between the CBEMP and outside regulatory agencies places a time and cost burden on potential developers. This burden is large enough that it may be considered a barrier to economic development in the estuary.

State Level Regulations

The following are common Oregon State permits and regulations that may be required for projects within the Coos Bay Estuary that are not acknowledged or included in the current CBEMP.

- Department of State Lands (DSL) Removal and Fill permits (ORS 196.795-990).[5]
- Department of Fish and Wildlife (ODFW) hunting, fishing, and fish hatchery regulations.
- Department of Environmental Quality (DEQ) point and nonpoint source water quality regulations and permits. Point source regulations are generally outlined in Oregon Administrative Rules Chapter 340.[6] Nonpoint

[5] Removal-Fill Permits: http://www.oregon.gov/DSL/WW/Pages/Permits.aspx

[6] OAR Chapter 340: http://arcweb.sos.state.or.us/pages/rules/oars_300/oar_340/340_tofc.html

strategies are managed through the state "Total Maximum Daily Load" (TMDL) standards.[7]

- Department of Agriculture (ODA) aquaculture regulations and permits.

Federal Level Regulations

The following are common Federal permits and regulations that may be required for projects within the Coos Bay Estuary that are not acknowledged or included in the current CBEMP.

- Army Corps of Engineers (USACE) jetty and ship channel regulations.
- Fish and Wildlife Service (FWS) environmental regulations and permits.
- National Marine Fisheries Services (NMFS) ocean fisheries and anadromous fish regulations.
- Environmental Protection Agency (EPA) Clean Water Act and Endangered Special Act regulations.

Stakeholder Interview Findings

The following are key findings concerning the legal framework of the CBEMP that were synthesized from the CSC stakeholder interviews:

- Considerable time and effort is being expended to align mapping and land use issues on a case by case basis.
- The language used in the CBEMP control policies can be vague and ambiguous leading to legal conflicts over intent and over whether a project falls within an allowed use or not.
- The size and number of individual management units reflect outdated land uses, scale of development, and environmental impacts.
- Current projects that cross over multiple management units incur significant increases in cost, time, and effort in a complex, multi-tiered permitting process.
- Federal agencies, permitting, requirements, and processes are not directly recognized or acknowledged within the plan leading to confusion regarding the connection of state and federal permitting. Stakeholders interviewed indicated that confusion surrounding the timeline and order of permit applications between the CBEMP and outside regulatory agencies places a time and cost burden on potential developers. This burden is large enough that it may be considered a barrier to economic development in the estuary.

[7] Total Maximum Daily Loads: http://www.oregon.gov/deq/wq/tmdls/Pages/default.aspx

Case Study Best Practices

The Curry County Estuarine Resources Chapter goes above and beyond the legal requirements of the State Coastal Management Program by including non-classified estuaries and rivers that go beyond the geographic boundary required under the goal. Including additional resources (minor estuaries) that extend beyond the estuary boundary strengthens the environmental protections and can prevent later legal issues during a development proposal.

The Clatsop County Comprehensive Plan Goal 16 & 17 Element: Columbia River Estuary includes a Cumulative Impact Analysis. This section outlines the importance of protecting, maintaining, and managing the Columbia River Estuary. This section includes analysis of the economic, social, and environmental benefits of natural resources. The CBEMP includes a cumulative impacts statement at the end of Volume II, Part 3: Linkage and Goal Exceptions. Explicitly incorporating this into Part 1 of the CBEMP would make this information easier to access and more likely to guide decision making.

CHAPTER IV: PLAN USABILITY

The CBEMP is a large document that is contained within three volumes and is over 1,000 pages in length. While the sheer length and content of the plan creates usability issues, the length itself is not as critical an issue as is the ability to navigate through the volumes. The CBEMP is organized from a legal compliance framework as opposed to a project permitting framework. While this framework presumably made it easier to determine compliance with Goal 16 and other applicable policies, it is not very accessible from the end user perspective. Finally, the legal jargon, undefined terminology, and verbose writing makes the document challenging to use as a landowner, developer, or member of the general public.

Stakeholder Interview Findings

Following are key findings concerning the usability of the CBEMP that the CSC synthesized from the stakeholder interviews:

- The CBEMP is currently organized from a legal compliance framework as opposed to a project permitting framework. This organization combined with legal and ambiguous terminology makes the document challenging to use.
- Although the CBEMP is part of a larger framework of state and federal permitting and review processes, these outside agencies and processes are not clearly acknowledged nor are they described in the CBEMP.
- Confusion exists surrounding the timeline and order of CBEMP and other regulatory agency permit applications between the placing a time and cost burden on developers.
- It is challenging for many users to distinguish between policies, ordinances, goals, and criteria within the CBEMP.

Case Study Best Practices

The Introduction of the Lincoln County Estuary Management Plan is likely the most organized and best formatted of all such plans in Oregon. It includes a thorough description of each of the section headings in the remainder of the document. Additionally, the Introduction includes a helpful section titled “Content and Use of the Document” which describes how the reader should use the document and why it exists. Including a comparable section in the updated CBEMP would improves the usability of the plan.

The Curry County Estuarine Resources Chapter includes 17 Countywide policies that are separated into those that address the estuaries themselves and those that address the estuarine shorelands. Separating policies into useful categories such as shoreland and non-shoreland in the updated CBEMP can improve the document’s usability.

CHAPTER V: DOCUMENT STRUCTURE

It is widely recognized that the CBEMP document structure is a significant barrier to the use and understanding of the document. The document was developed before the widespread use of word processors which greatly enhanced formatting options. This is largely due to the scanned format, overall length, lack of useful headings, and confusing organization of the current document.

Stakeholder Interview Findings

The following are key findings concerning the usability of the CBEMP that were synthesized from the CSC stakeholder interviews:

- Stakeholders were in unanimous agreement that the CBEMP is a challenging document to use due to its scanned format, overall length, and lack of useful structure.
- Stakeholders did not feel that that there were significant sections of the document that could be removed or condensed, but they did feel strongly that the overall length of document requires stronger formatting and cross referencing.
- Document users can be confused as to why certain document sections are included, however, being explicit about what content is required to comply with Statewide Planning Goals 16 and 17 could improve the indexing of the Plan.
- The document structure makes it challenging to determine which control policies apply to the entire estuary and which pertain to specific management units without reading the entire document. Cross-referencing control policies at the management until level would assist landowners and developers in properly identifying all policies that apply to a certain geography.

Case Study Best Practices

The lack of recent meaningful updates to estuary management plans in Oregon has led to the current situation in which there are no estuary management plans that the CSC found to have exemplar or recommendable document structure beyond the digitization of plan text. The length of estuary management plans is highly variable and dependent on the number of estuaries included, the size of the estuary, and the type of the estuary.

CHAPTER VI: CONCLUSIONS AND RECOMMENDATIONS

CSC developed a toolbox of recommendations for the CBEMP which we categorize by the three main categories of this assessment; legal framework, usability, and document structure. These recommendations reflect opinions and suggestions expressed by stakeholders to the CSC during the interview process. The CSC compiled, summarized, and organized these recommendations but did not change or validate the information gathered from the interviews.

Legal Framework

- Cross reference allowed uses in each management unit with the underlying county or local zoning.
- Update the management units based on current zoning and land use demand
- Align management unit boundaries to tax lots, paying attention to ownership and zoning.
- Clearly distinguish between policies, ordinances, goals, and criteria.
- Clearly distinguish between management unit requirements and estuary-wide requirements.
- Review management unit geographic designations in light of current economic conditions and land uses.
- Consider suitability of developing and designating mitigation banks.

Usability

- Consider developing a user guide to accompany the CBEMP that includes introductory remarks explaining section headings, a more robust definitions sections, and legal understanding.
    - Describe and diagram the path to all required permits for a development to be approved.
- Conduct digital GIS based mapping of land cover and land uses.
    - Create maps at a scale that is suitable to guide development siting within management units.
    - Include mapping of natural resources and areas of cultural significance.
- Acknowledge the outside agencies, regulations, and types of permitting process that exist in addition to the CBEMP regulations and permit.
- Although Policy 18 is very specific on how to incorporate comments from the tribes it should be reviewed since there are conflicts with Statutory timelines.
- Review existing practice for mapping of natural resources and areas of cultural significance. Currently the County relies upon the Coquille Indian Tribe and the Confederated Tribes of the Coos, Lower Umpqua, and Siuslaw Indians to map natural resources areas of cultural significance. Development options need to consider potential impacts upon these areas.

- Use simple language to avoid misunderstandings and to make the plan more accessible to the average user.

Document Structure

- Digitize and hyperlink the CBEMP.
- Consider formatting for a web accessible document as opposed to a traditional written report.
- Include a glossary of terms.
- Use clear headers to explain the purpose and need for document sections.
- Cross-reference plan policies and regulations both in text and with tables or matrices (consider the use of a separate policy volume).
- Make more explicit the document hierarchy of policies, ordinances, goals, and criteria.

Conclusion

There is a demonstrated need for the CBEMP plan to undergo an update process. The document has not been significantly updated since its creation in 1984 and there have been significant changes in the physical environment, outside legal processes, local economy, scientific understanding of estuary functions and processes, and community values.

While many of these changes will be the result of significant public outreach and will involve the PCW and its informational products, the overall document's legal framework, usability, and structure should also remain important considerations as they have significant impacts on how the resulting CBEMP will be interpreted and utilized within the community. Improving the legal framework, usability, and document structure can lead to a CBEMP that is easier for users to understand by providing clear environmental protections that reflect the current socio-cultural values of the community while allowing for smart economic development and growth.

APPENDIX A: OREGON ESTUARY MANAGEMENT PLAN SUMMARIES

Clatsop County Goal 16 and 17 Element: Columbia River Estuary

Overview

First adopted in June 1979. Most recently amended on December 21, 1990. The Columbia River Estuary is divided into 46 planning subareas that are drawn to represent distinct planning units with common features and needs. This planning process was prepared by the Columbia River Estuary Study Taskforce (CREST) a collection of cities, counties, and port districts that extends into the State of Washington. In 1987 the plan update process began as a result of continually changing state and federal regulation and programs.

Document Framework

1. Introduction and Background
2. Cumulative Impacts
3. Columbia River Estuary Shoreland and Aquatic Regional Policies
4. Intergovernmental Coordination Policies
5. Columbia River Estuary Subarea Plans
6. Mitigation and Restoration Plan for the Columbia River Estuary
7. Appendices

Findings

The Clatsop County EMP's strength is the outline of its policies. Once a reader identifies the location of a policy in question, the document offers a small background section as rationale for each policy. Following the background section, the document lists any specific policy information in a clear and concise manner. These policies are bolstered by cross-referencing other relevant Plan Sections throughout the document that readers can use to get further clarification.

Another strength of this plan is the inclusion of the Cumulative Impact Analysis. This section outlines the importance of protecting, maintaining, and managing the Columbia River Estuary. This section includes analysis of the economic, social, and environmental benefits of the natural resource.

As far as readability and user-friendliness, the plan is formatted poorly. It is easy to get lost in the document due to the large blocks of texts without proper indentation or style structure. Additionally, the heading and section headers listed in the Document Framework require that the reader have at least some prior background of the local government estuary process. Also, the Coos County Plan includes a section describing the public involvement process that is missing from the Clatsop County Plan.

Tillamook County Goal 16: Estuarine Resources Element

Overview

Originally adopted in 1982, the plan has not been updated since. The Tillamook County Goal 16: Estuarine Resources Element is a chapter within the County's larger Comprehensive Plan.

Document Framework

1. Overview of Estuary Plan
2. Estuary Management Unit Designation Maps
3. Dredged Material Disposal Plan Element
4. Restoration and Mitigation Plan Element
5. General Policies for Estuaries
6. Policies for Estuaries Uses
7. Policies for Estuary Activity
8. Implementation Policies
9. Appendix

Findings

Like all chapters in the Tillamook County Comprehensive Plan, Goal 16 follows an easy to follow section style structure. The indentation of each subsequent section allows the reader to easily understand where they are within each section of the document. Additionally, the large blocks of text are broken into manageable sections by the use of charts and graphics.

The Document Framework is separated into each of the major required elements of Estuary Management Plan: Maps, Dredged Material Disposal, Restoration and Mitigation, and Policies. This makes it easy for the reader to locate exactly what they are searching for. The document also includes a table of contents for all maps within the chapter.

The policy sections of this document are easy to follow and find. Each section categorizes general policies and includes additional, or specific, policies within each of these categories. This helps decision makers easily identify the policies related to agriculture, marinas, mining and mineral extraction, or any other activity taking place along the estuary.

A weakness of this document is its length. Policies related to estuaries are not mentioned until page 276. While this shows the thoroughness of the document, it forces readers to wade through hundreds of pages before they get to rules guiding development in Tillamook County.

Lincoln County Estuary Management Plan

Overview

Originally adopted in September 1982, the plan has not been updated since. Lincoln County is home to the Yaquina Bay Estuary one of the three major estuaries on the Oregon Coast. The EMP is a standalone document that has been attached to the County's Comprehensive Plan.

Document Framework

1. Introduction
2. Overall Management Policies
3. Sub-Area Policies
4. Management Classifications & Permitted Use Definitions
5. Estuarine Use Standards
6. Management Units/Permitted Use Matrix
7. Mitigation and Restoration
8. Log Storage and Transportation
9. Future Development Sites
10. Plan Implementation
11. Appendix

Findings

The Introduction of the Lincoln County EMP is likely the most comprehensive of all plans reviewed in this memorandum. It includes a thorough description of each of the section headings in the remainder of the document. Additionally, the Introduction includes a helpful section titled "Content and Use of the Document" which describes how the reader should use the document and why it exists.

Similar to the Lane County structure, each of the policy sections only provides a list of policies with no supporting background information. While this shortens the document for better readability it puts some background research on the shoulders of the reader.

Another strength of this document is the inclusion of sections dedicated to the Management Unit/Permitted Use Matrix, Log Storage and Transportation, and Future Development Sites. These three sections are helpful to staff, stakeholders, and citizens when making decisions on development within the estuary area. The Management Unit/Permitted Use Matrix makes it easy to understand what development is permitted and where, it's clear that this can be a valuable resource to city leaders. A drawback of these sections, specifically the Future Development Sites section, however, is the need to constantly keep them up to date based on development trends, new technologies, and changing regulations.

The major weakness of this EMP is that its age and lack of scientific findings that make it functionally weak.

APPENDIX E:
COOS ESTUARY MAP ATLAS

University of Oregon Institute for Policy Research and Engagement | June 2019

COOS ESTUARY AND SHORELAND ATLAS

University of Oregon Institute for Policy Research and Engagement | June 2019

COOS ESTUARY AND SHORELAND ATLAS

UNIVERSITY OF OREGON INSTITUTE FOR POLICY RESEARCH AND ENGAGEMENT | JUNE 2019

Prepared for:
South Slough National Estuarine Research Reserve

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CHAPTER 1: OVERVIEW

This report presents an Estuary and Shoreland Atlas for the Coos Estuary. The Estuary and Shoreland Atlas provides data and maps that show current conditions and uses within the estuary. This Atlas provides updated information on physical and biological resources in the Coos estuary.

Designated as a Deep Draft estuary by the Oregon Estuary Classification system, the Coos estuary is the sixth largest on the U.S. west coast[1]. The estuary's abundance, diversity, and quality of natural resources as well as its economic and cultural values make the estuary a key regional asset. Statewide Planning Goals 16 and 17 require that local governments adopt policies to manage aquatic and shoreland estuarine resources. Coos County adopted the Coos Bay Estuary Management Plan (CBEMP) in the 1980s based upon information from a 1978 inventory of physical and biological resources. In 2016, the Community Service Center (CSC) Coos Bay Goal 16 Estuary Management Plan Assessment concluded that the plan is complex and out of date and made several recommendations regarding the legal framework, usability, and structure of the document. This Atlas provides information that will support a future update of the CBEMP.

The CSC prepared the Land Inventory Atlas to classify and document estuary features as outlined in federal, state, and local land use policies. Specific areas of interest include, identifying the development status and constraints of the land within the study area that have the potential to impact future development. The inventory identifies the environmental features that contribute to the estuary's ecological importance. The intent of this inventory is to aid in Coos County's development of more modern management policies and practices to reflect the needs of the communities within the region.

ORGANIZATION OF THE COOS ESTUARY AND SHORELAND ATLAS

The atlas is comprised of six chapters and an appendix:

Chapter 1 describes the background of the project within the larger context of the CBEMP update.

Chapter 2 lists the methods and rationale for developing the study area used in the inventory.

The remainder of this atlas is organized within four primary chapters around categories identified in Statewide Planning Goals 16 and 17.

Chapter 3 presents county and city zoning and CBEMP Management Unit designations.

Chapter 4 describes by tax parcels the land use, ownership and improvement status of lands within the study area.

Chapter 5 describes the physical features within the study area that may affect future development given physical or natural hazards present.

Chapter 6 describes areas of focus defined by criteria determined through stakeholder workshops and consultation with Oregon Department of Land Conservation and Development (DLCD) and Partnership for Coastal Watersheds (PCW).

Appendix A describes the greater methodology used to conduct the inventory, data sources used, and glossary.

Appendix B includes maps described in Chapters 3 through 6.

BACKGROUND AND CONTEXT

The South Slough National Estuarine Reserve (SSNERR) received grant funding from the National Estuarine Research Reserve System Science Collaborative (a program funded by the National Oceanic and Atmospheric Administration and managed by the University of Michigan Water Center) for an estuarine and shoreland zoning analysis, and an integrated assessment to help determine the highest and best uses of the estuarine lands. Additionally, Coos County has identified the need to update the CBEMP to reflect the current economic, environmental, and socio-cultural drivers in the community that have changed since the plan was adopted in the 1980s. Part of the process to update includes examining environmental changes and management of key natural resources within the CBEMP. While this inventory is not an update of the CBEMP, the results will help to inform residents, stakeholders, and decision-makers of the economic, environmental, and socio-cultural features of the estuary and create a dialogue about updating the plan.

The Partnership for Coastal Watersheds (PCW), in collaboration with Coos County and SSNERR, developed three main objectives for the Integrated Assessment Project:

1. Assist the County's Planning Department to create an inventory by collecting and analyzing current information: current land ownerships, designated land

[1] Oregon Coastal Atlas. "Coos Bay Estuary." Oregon Coastal Atlas: http://www.coastalatlas.net/ (retrieved August 17, 2017).

uses, and regulatory policies not clearly articulated in the current CBEMP; formatted for improved clarity and accessibility by CBEMP users.

2. Develop and report land use recommendations as proposed by local stakeholders that address three viewpoints: (1) economic development needs; (2) natural resource conservation and restoration needs; and 3) socio-cultural interests.
3. Develop a series of scenarios that integrate current development, social, and conservation criteria, and other potential land use or development opportunities to provide the County Planning Department a basis for public involvement during the anticipated CBEMP revision process[2].

The atlas (Objective 1) will provide Coos County with current estuarine and shoreland information for use in a future revision of the CBEMP. The integrated assessment will include a broader look at how the county manages the lands in the estuary, including determining allowable uses. That process will include consideration of economic, socio-cultural, and natural resource values. In short, the integrated assessment is a key first step in the process to update the CBEMP. Ultimately, any modifications to the CBEMP will be made through a local government land use process led by Coos County that will include ample opportunity for public input as well as required public hearings.

Policy Context

Management of lands within the estuary and adjacent shoreland are governed by a complex set of federal, state, and local policies. The following is a high-level description of key policies. Any update of the CBEMP will be required to comply with applicable federal and state policy.

Federal Policy

The Coastal Zone Management Act of 1972 created the National Estuarine Research Reserve System (NERRS) as part of the Federal Coastal Management Program. As indicated in the NERRS regulations, 15 C.F.R. Part 921.1(a), the National Estuarine Research Reserve System mission is to provide "the establishment and management, through federal-state cooperation, of a national system of Estuarine Research Reserves representative of the various regions and estuarine types in the United States[3]". Established to provide opportunities for long-term research, education, and interpretation to promote informed management of the Nation's estuaries and coastal habitats, Estuarine Research Reserves are a network of 29 coastal sites that consist of a partnership between the National Oceanic and Atmospheric Administration (NOAA) and coastal states. The South Slough National Estuarine Research Reserve (NERR) was designated in 1974 as the first site in the NERR system. It is the only NERR in Oregon and its state partner and administrative agency is the Oregon Department of State Lands[4]. The South Slough NERR is also subject to oversight from the Reserve Management Commission.

Oregon Planning Context

Goal 16 (Estuarine Resources) of Oregon's Statewide Planning Program requires counties with estuaries to develop management plans for those estuaries. Adopted to satisfy the requirements of Goal 16, the Coos Bay Estuary Management Plan (CBEMP) last underwent review in 1984. The intent of this project is to develop data that the county will use to update the CBEMP.

Goal 16: Estuarine Resources

Goal 16 is one of four Coastal goals and requires that appropriate local, state, and federal agencies develop comprehensive management strategies to meet the stated purpose of the goal:

To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and

To project, maintain, and where appropriate, develop and restore the long-term environmental, economic, and social values, diversity, and benefits of Oregon's estuaries.

Goal 16 requires inventories to "provide information on the nature, location, and extent of physical, biological, social, and economic resources in sufficient detail to establish a sound basis for estuarine management and to enable

[2] Patnership for Coastal Watersheds. "Coos Estuary Land Use Inventory Project." Partnership for Coastal Watersheds: http://www.partnershipforcoastalwatersheds.org/coos-estuary-land-use-analysis-project/ (retrieved August 17, 2017).

[3] National Oceanic and Atmospheric Administration. "National Esturine Research Reserves." NOAA: https://coast.noaa.gov/nerrs/. (retrived August 17, 2017).

[4] South Slough Reserve. "South Slough National Estuarine Research Reserve Management Plan: 2017-2022." South Slough Reserve: http://www.oregon.gov/dsl/SS/Documents/SouthSloughReserve2017- 2022ManagementPlan.pdf (retrieved August 17, 2017).

[5] Oregon's Statewide Planning Goals & Guidelines. "Guidelines Goal 16: Estuarine Resources OAR 660-015- 0010(1)." Oregon Statewide Planning Goals & Guidelines: http://www.oregon.gov/LCD/docs/goals/goal16.pdf

the identification of areas for preservation and areas of exceptional potential for development."[5]

Statewide Planning Goal 17: Coastal Shorelands

Goal 17 requires planning and management of lands adjacent to the estuary shoreline within the coastal shoreland boundary. The CBEMP boundary is the coastal shoreland boundary for Coos Bay. The estuary shoreline is the "area of non-aquatic vegetation or the area of mean higher high water, whichever is higher".[6]
The coastal shoreland boundary must extend a minimum of 50 feet upland of the estuary shoreline and includes areas subject to ocean flooding, geologic instability, riparian resources/vegetation, significant shoreland and wetland biological habitats, areas needed for water dependent and water-related uses, including dredged material disposal and mitigation sites, areas of exceptional aesthetic or scenic quality, and coastal headlands.[7]

Goal 17 require inventories to include hazard areas, existing land uses and ownership patters, economic resources, development needs, public facilities, topography, and hydrography, areas of aesthetic and scenic importance, wetlands, area of public access and recreation areas, riparian areas, sedimentation sources, archaeological and historical sites, and coastal headlands.[8]

Local Management

While the Oregon Land Use system provides state guidance, land use planning occurs at the local level. Local land use plans (including estuary management plans) are required to be consistent with state regulations and be acknowledged by the Oregon Land Conservation and Development Commission (LCDC). The CBEMP was acknowledged in the early 1980s.

The CBEMP includes an inventory consistent with Goal 16 and Goal 17 requirements. The CBEMP also includes identification of areas for preservation and areas of exceptional potential for development (OAR 660-015-0010 (1)). The Coos Bay Estuary is a deep-draft development estuary (OAR 660-017-0015) and is managed to provide for navigation and other identified needs for public, commercial, and industrial water-dependent uses consistent with Goal 16 requirements (OAR 660-017-0025).

PURPOSE AND METHODS

This project aims to inform land use decisions in the county; however, this atlas will not lead to an updated CBEMP. The CSC conducted an audit in 2016, the Coos Bay Goal 16 Estuary Management Plan Assessment, on the usability and legal framework of the current plan and created a set of recommendations intended to increase functionality of the structure and content of the CBEMP. The key conclusion of the audit was that the CBEMP needs to be modernized and simplified. The audit examined the CBEMP for consistency with changes to federal and state regulations since the plan's adoption. Additionally, the audit examined the usability of the plan and made recommendations for increased usability, including revision the plan structure in a future update. In summary, the audit provides guidance for local governments to consider during the update the CBEMP.

CSC prepared this land inventory atlas to build a geographic picture of land, land uses, and physical features in a defined study area. The land inventory atlas used available data sources; primarily geographic information system (GIS) data derived from a variety of sources.

This inventory provides data applicable to Goals 16 and 17 and:

- Defines a study area;
- Classifies land within the study area by zoning and use categories;
- Identifies areas of existing public access, recreation, and subsistence gathering;
- Identifies, at the tax parcel level, areas of improved and unimproved economic status (see Glossary in Appendix A);
- Identifies land with physical, environmental, or policy constraints (see Glossary in Appendix A); and
- Displays the results in a series of tables and maps (each Map includes only maps that display relevant data for the section subject).

Appendix A provides a more detailed discussion of data sources and methods used to compile this atlas.

[6] Department of Land Conservation and Development. "The Oregon estuary plan book." 1987. http://hdl.handle.net/1957/42391

[7] Oregon's Statewide Planning Goals & Guidelines. "Guidelines Goal 17: Coastal Shorelands OAR 660-015- 0010(2)." Oregon Statewide Planning Goals & Guidelines: http://www.oregon.gov/LCD/docs/goals/goal17.pdf

[8] Ibid.

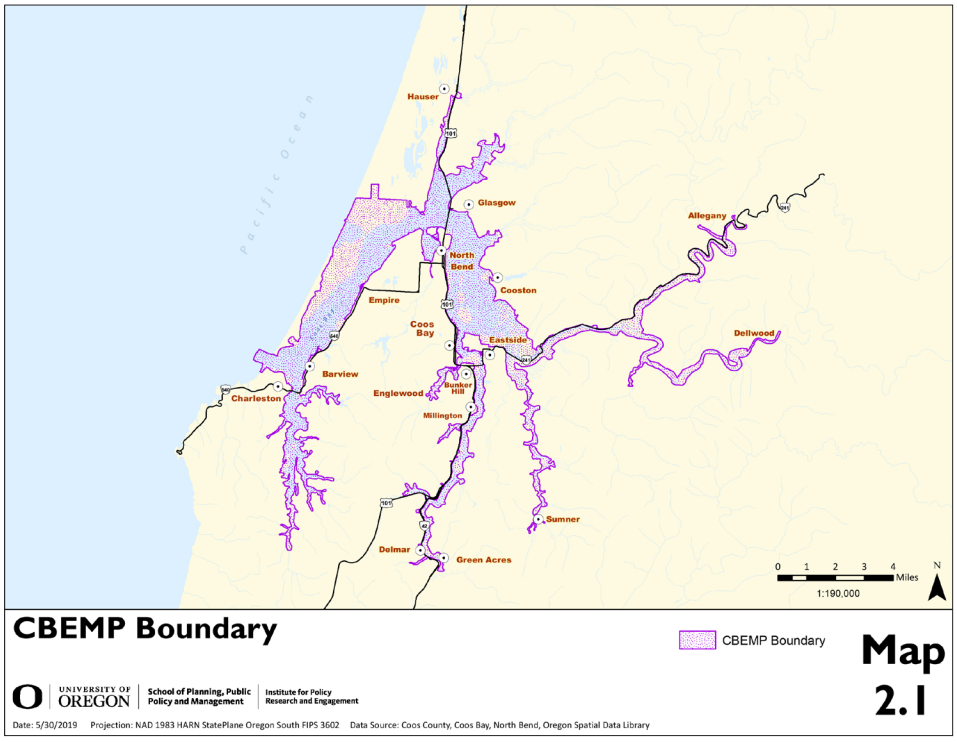
CHAPTER 2: STUDY AREA

The first step in the atlas was to define a study area boundary. Coos County currently has an adopted estuary management plan boundary covering the water and land governed by Goal 16 (Estuarine Resources) and Goal 17 (Coastal Shorelands). The atlas uses a broader study area boundary that extends onto adjacent lands. This chapter presents the definition and rationale of the study area used in this report.

DEFINING THE STUDY AREA

The CBEMP boundary defines the areas governed by Statewide Planning Goals 16 and 17. In short, the CBEMP zoning and land use requirements only apply within the plan boundary. The CBEMP boundary is defined by the submerged, intertidal, and upland areas that are regulated by Statewide Planning Goals 16 and 17.[9]

The atlas study area was expanded beyond the existing CBEMP boundary in order to: (1) provide a broader context of potentially impacting land uses and features within, and adjacent to, the CBEMP boundary (estuary and shorelands), and (2) provide context for lands that are potentially at risk of flooding due to sea level rise projections and/or tsunami inundation.



Map 2.1: *CBEMP Boundary*

The Oregon Department of Geology and Mineral Industries (DOGAMI) has been mapping tsunami inundation along the Oregon Coast since the mid-1990s. The tsunami inundation maps assist counties, cities, and other jurisdictions to plan for, and mitigate the risk from, the potential disastrous impacts of tsunami. DOGAMI has mapped five scenarios that are labeled as "T-Shirt sizes" (S, M, L, XL, and XXL) that reflect the range of tsunami impacts that are possible in the future.

The XXL inundation zone marks the upper elevations where tsunami could potentially impact the estuary and adjacent lands. The XXL inundation zone also encompasses lands that are vulnerable to flooding due to sea level rise and includes lands adjacent to the CBEMP boundary. As such, the boundary for this study area encompasses the entire estuary (including aquatic and terrestrial areas), as well as the adjacent XXL Tsunami Zone. The boundary includes lands within the urban growth boundaries and city limits of both Coos Bay and North Bend.[10]

Map 2.1 shows the CBEMP boundary

Map 2.2 shows the XXL tsunami inundation zone

Map 2.3 shows the study area boundary and tax parcels

Map 2.4 shows the study area and Coos watersheds

For more information on the XXL tsunami inundation zone, visit the DOGAMI Oregon Tsunami Clearinghouse: http://www.oregongeology.org/tsuclearinghouse/default.htm

[9] CBEMP, Vol. II, Part 2, Section 3.1.

[10] Oregon Department of Geology and Mineral Industries. "Oregon Tsunami Clearinghouse." Oregon Department of Geology and Mineral Industries: http://www.oregongeology.org/tsuclearinghouse/pubs.htm (retrieved August 17, 2017).

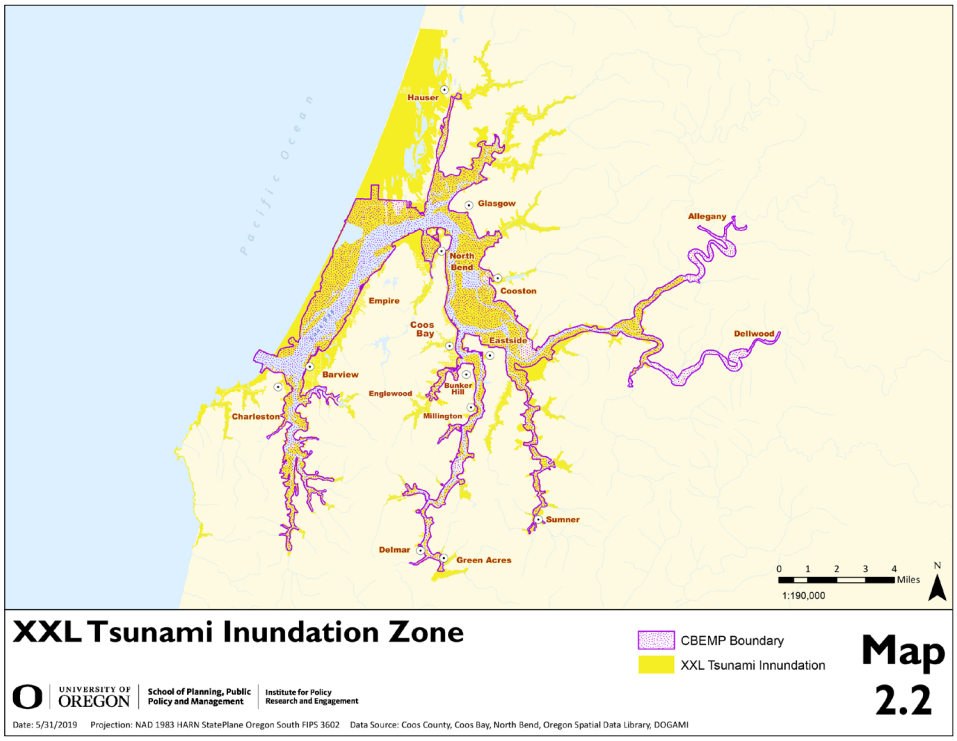
ESTUARY AND SHORELAND INVENTORY

Chapter 3 through 6 identify the economic, environmental, and physical features of the estuary and surrounding areas. The inventory includes zoning, land use, and ownership within the study area. The inventory examines assessed improvements within the study area, including the improvement status and improvement to land value ratios of tax parcels. The chapter concludes with an inventory of environmental and physical constraints within the study area. This inventory uses tax parcels as the unit of analysis and classifies all land into the jurisdictions of Coos County and cities of Coos Bay and North Bend.

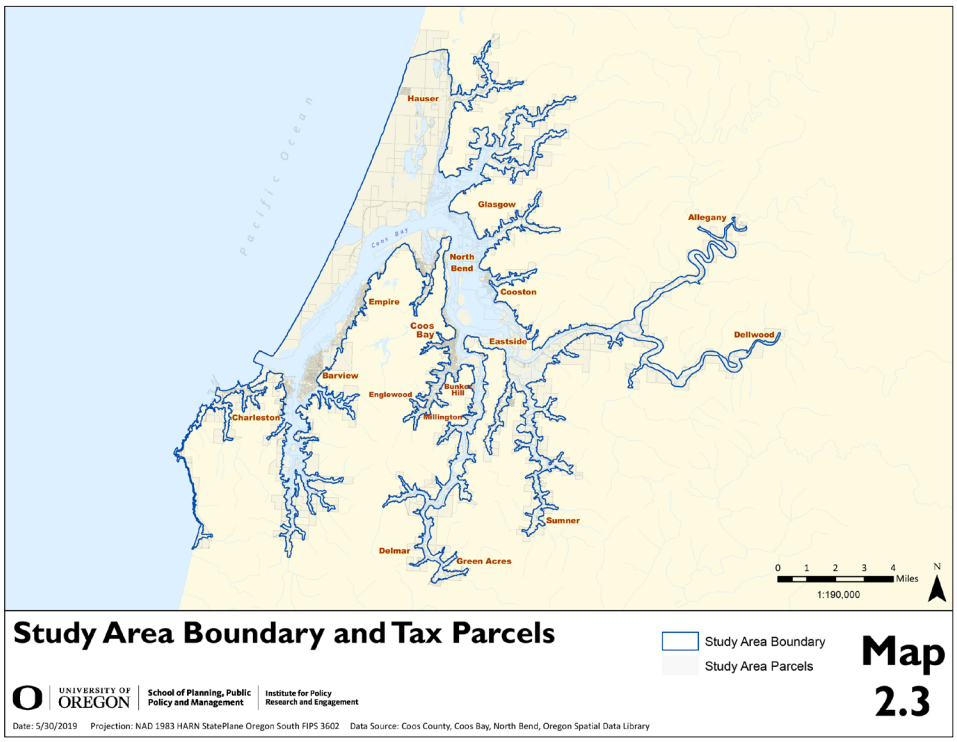
Organization of the Inventory

The following section divides the components of the inventory into four chapters that meet Goal 16 and 17 requirements for completing an inventory of estuarine resources.

- Chapter 3 shows zoning and CBEMP Management Units
  - Map 3.1: Generalized Zoning
  - Map 3.2: Management Units
  - Map 3.3: Property Use Classification
- Chapter 4 describes the land use patterns (including lands with businesses), ownership, and improvement status of tax parcels
  - Map 4.1: Improvement Status
  - Map 4.2: Improvement Value Ratio
  - Map 4.3: Public Ownership
  - Map 4.4: Active and Inactive Diking Districts
  - Map 4.5: Fire Districts
  - Map 4.6: School Districts



Map 2.2: *XXL sunami Inundation Zone*

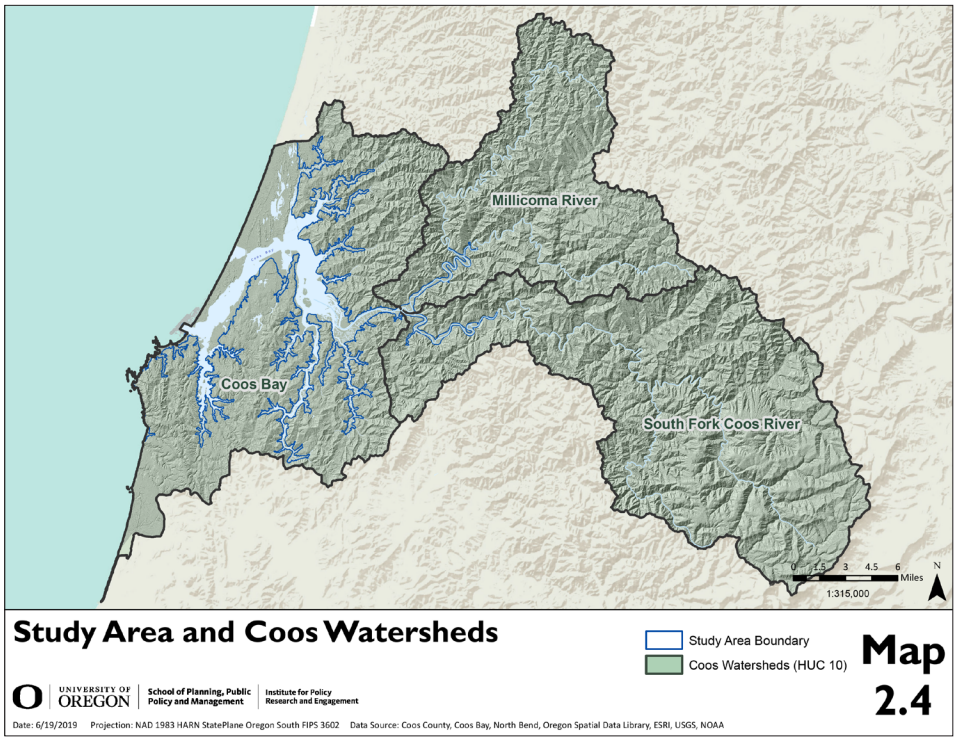


Map 2.3: *Study Area Boundary and Tax Parcels*

- Map 4.7: Coos Bay-North Bend Water Board
- Map 4.8: Employment Density

- **Chapter 5 shows environmental features, natural hazards, and physical features**
  - Map 5.1: Eelgrass and Snowy Plover
  - Map 5.2: Oyster Beds and Clam Beds
  - Map 5.3: Flood Zones
  - Map 5.4: Landslide Susceptibility
  - Map 5.5: Slope
  - Map 5.6: National Wetlands Inventory
  - Map 5.7: Local Wetlands Inventory
  - Map 5.8: Sea Level Rise (2100)
  - Map 5.9: Tsunami Inundation
  - Map 5.10: Estuary Features
  - Map 5.11: CMECS Aquatic
  - Map 5.12: CMECS Biotic
  - Map 5.13: CMECS Physical (Geoform)
  - Map 5.14: CMECS Geologic Substrate

- **Chapter 6 identifies CBEMP Focus Areas**
  - Map 6.1: Dredged Material Disposal Sites
  - Map 6.2: Mitigation Sites
  - Map 6.3: Tidal Wetland Landward Migration Zone (LMZ) Prioritization
  - Map 6.4: Urban Renewal Districts
  - Map 6.5: Economic Zones



Map 2.4: *Study Area and Coos Watersheds.*

CHAPTER 3: ZONING, MANAGEMENT UNITS, AND PROPERTY USE

Table 1: Generalized Zoning Designations

CSC DESIGNATIONS	COUNTY ZONES	COOS BAY ZONES	NORTH BEND ZONES
Agriculture and Forestry	EFU, F		
Employment	C, IND	C, I	M-H, C-G, C-L, M-L, A-Z
Mixed Commercial-Residential	CD, RD	MX	
Recreational	REC, Q-REC, BDR	UP, TL, W, W-H	
Residential	RR, UR	LDR, MDR	R-M, R-T, R-5, R-6,R-7, R-10
South Slough	SS, MES		
Airport	AO		

Source: Information retrieved from Coos County, Coos Bay, and North Bend Zoning Codes, categorized by the Community Service Center.

Zoning is a land use planning tool that allows jurisdictions to regulate how land is developed. CSC created seven generalized zoning designations for Coos County, Coos Bay, and North Bend to allow comparison across jurisdictions. Coos County has 14 unique zones within the study area (not including management units), Coos Bay has seven (7), and North Bend has 11 (Table 1). Table 1, Table 2, Map 3.1, and Map 3.2 present generalized zoning; however, the specific zoning category for each tax parcel is available in the attribute tables included within the geographic information system (GIS) geodatabase provided as an supplement to this report.

Zones within the CBEMP boundary are designated as Management Units, which are defined as, "A discrete geographic area, defined by biophysical characteristics and features within which particular uses and activities are promoted, encouraged, protected, or enhanced and others are discouraged, restricted, or prohibited."[11] The CBEMP includes three management units that apply to both aquatic and shoreland areas: Conservation, Development, and Natural. Table 3.2 shows the 12 county zones that relate to these generalized management unit classifications.

Table 2: Generalized Management Units

MANAGEMENT UNITS	COUNTY ZONES
Conservation	CA,CS
Development	DA, DS, UD, UDS, UW, WD
Natural	NA, NS, NWD, RS

Source: Information retrieved from Coos County, Coos Bay, and North Bend Zoning Coded, categorized by the Community Service Center.

Conservation Management Units

Conservation management units consist of Conservation Aquatic (CA), and Conservation Shoreland (CS), zones. These management units are defined as:

> *"[…] areas shall be designated for long-term uses of renewable resources that do not require major alteration of the estuary, except for the purpose of restoration. These areas shall be managed to conserve the natural resources and benefits. These shall include areas needed for maintenance and enhancement of biological productivity, recreational and aesthetic uses, and aquaculture.*
>
> *They shall include tracts of significant habitat smaller or of less biological importance than those in the "Natural" management unit, and recreational or commercial oyster and clam beds not included in the "Natural" management unit. Areas that are partially altered and adjacent to existing development of moderate intensity which do not possess the resource characteristics of natural or development units may also be included in this classification."*[12]

Development Management Units

Development management units consist of Development Aquatic (DA), Development Shorelands (DS), Urban Development (UD), Urban Development Shorelands (UDS), Urban Water (UW), and Water Dependent (WD) zones. These management units are defined as:

> *"[…] areas shall be designated to provide for navigation and other identified needs for public, commercial, and industrial water-dependent uses consistent with the level of development or alteration allowed by the overall Oregon Estuary Classification. Such*

[11] Oregon Department of Land Conservation & Development. "Oregon's Statewide Planning Goals and Guidelines." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/docs/goals/oldgoal14definitions.pdf (retrieved August 17, 2017).

[12] Oregon Department of Land Conservation & Development. "Coos Bay Estuary Management Plan Vol. II, Section 3." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/OCMP/docs/Public_Notice/Coos_CBEMP_EPs.pdf (retrieved August 17, 2017).

areas shall include deep-water areas adjacent or in proximity to the shoreline, navigation channels, subtidal areas for in-water disposal of dredged material, and areas of minimal biological significance needed for uses requiring alterations of the estuary not included in "Natural and Conservation" management units." [13]

Natural Management Units

Natural management units consist of Natural Aquatic (NA), Natural Shorelands (NS), Natural Water Dependent (NWD), and Rural Shorelands (RS) zones. These management units are defined as:

"[…] areas shall be designated to assure the protection of significant fish and wildlife habitats, of continued biological productivity within the estuary, and of scientific, research, and educational needs. These shall be managed to preserve the natural resources in recognition of dynamic, natural, geological, and evolutionary processes. Such areas shall include, at a minimum, all major tracts of saltmarsh, tideflats, and seagrass and algae beds." [14]

MAP 3.1: GENERALIZED ZONING

This section shows generalized zoning within the study area. Land within the study area has been zoned (including aquatic and shoreland estuary management units) to define where specific uses are allowed. Generally, zoning is applied upon tax parcels, however, some aquatic management units within the estuary are in areas without tax parcels.

Map 3.1 (Appendix B) displays the tax lots and aquatic areas by generalized zone within the study area boundary. The data is reported for Coos County, Coos Bay Urban Growth Boundary (UGB), and North Bend UGB. Coos County data is limited to the areas outside of the city UGBs.

Management units are shown as a primary zone within the county. However, within the cities of Coos Bay and North Bend the management units are shown as zoning districts that overlap with the primary use zones of each city. Table 3 shows the primary use zones within the county and cities. Additional detail on management unit zoning designations is presented in Map 3.2: Management Units (Appendix B).

Data used for map and analysis:

- Coos County Zoning (Coos County)
- Coos Bay Zoning (Coos Bay)
- North Bend Zoning (North Bend)

Study Area

The study area includes 54,854 acres, 22,625 acres (41%) are within the CBEMP boundary and 32,229 acres (59%) is outside the CBEMP boundary. The area zoned for management units accounts for the largest area within the study area with 21,458 acres (39%). The agriculture and forestry zone accounts for the second largest area within the study area (17,808 acres, 32% of total acres).

Coos County

In Coos County, agriculture and forestry zones and management units account for the largest areas with 17,808 acres (37% of total acres) and 17,626 acres respectively (37% of total acres). Tax parcels account for 88% of the zoning area, while 12% is within the estuary waters that are not on tax parcels.

Coos Bay

In the Coos Bay UGB, management units have the largest acreage with 3,780 acres (76% of the acres within the Coos Bay UGB). Tax parcels account for 64% of the zoning area, while 36% is within the estuary waters that are not on tax parcels.

Note: Some tax parcels have both a primary zone and a secondary management unit zone designation. Table 4 shows detailed information for management units within the Coos Bay study area.

North Bend

In the North Bend UGB, employment zones account for the largest acreage with 857 acres (46% of the total acres within the North Bend UGB). Tax parcels account for 77% of the zoning area, while 23% is within the estuary waters that are not on tax parcels.

Note: Some tax parcels have both a primary zone and a secondary management unit zone designation. Table 4 shows detailed information for management units within the North Bend study area.

[13] Oregon Department of Land Conservation & Development. "Coos Bay Estuary Management Plan Vol. II, Section 3." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/OCMP/docs/Public_Notice/Coos_CBEMP_EPs.pdf (retrieved August 17, 2017).

[14] Oregon Department of Land Conservation & Development. "Coos Bay Estuary Management Plan Vol. II, Section 3." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/OCMP/docs/Public_Notice/Coos_CBEMP_EPs.pdf (retrieved August 17, 2017).

Table 3: Generalized Zoning in the Study Area, by Jurisdiction

ZONING DESIGNATION	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Agriculture and Forestry	**17,808**	**37%**	**0**	**0%**	**0**	**0%**	**17,808**	**32%**
Within CBEMP Boundary	0	0%	0	0%	0	0%	0	0%
Outside CBEMP Boundary	17,808	37%	0	0%	0	0%	17,808	32%
Recreational	**6,529**	**14%**	**155**	**3%**	**0**	**0%**	**6,684**	**12%**
Within CBEMP Boundary	0	0%	38	1%	0	0%	38	0%
Outside CBEMP Boundary	6,529	14%	117	2%	0	0%	6,646	12%
South Slough NERR	**2,166**	**5%**	**0**	**0%**	**0**	**0%**	**2,166**	**4%**
Within CBEMP Boundary	0	0%	0	0%	0	0%	0	0%
Outside CBEMP Boundary	2,166	5%	0	0%	0	0%	2,166	4%
Management Units	**17,626**	**37%**	**3,780**	**76%**	**51**	**3%**	**21,458**	**39%**
Within CBEMP Boundary	17,626	37%	3,780	76%	51	3%	21,458	39%
Outside CBEMP Boundary	0	0%	0	0%	0	0%	0	0%
Employment	**555**	**1%**	**549**	**11%**	**857**	**46%**	**1,961**	**4%**
Within CBEMP Boundary	0	0%	293	6%	581	31%	874	2%
Outside CBEMP Boundary	555	1%	256	5%	276	15%	1,087	2%
Airport	**0**	**0%**	**0**	**0%**	**663**	**36%**	**663**	**1%**
Within CBEMP Boundary	0	0%	0	0%	236	13%	236	0%
Outside CBEMP Boundary	0	0%	0	0%	427	23%	427	1%
Mixed Use	**0**	**0%**	**56**	**1%**	**0**	**0%**	**56**	**0%**
Within CBEMP Boundary	0	0%	0	0%	0	0%	0	0%
Outside CBEMP Boundary	0	0%	56	1%	0	0%	56	0%
Residential	**3,262**	**7%**	**404**	**8%**	**277**	**15%**	**3,943**	**7%**
Within CBEMP Boundary	0	0%	15	0%	4	0%	19	0%
Outside CBEMP Boundary	3,262	7%	389	8%	273	15%	3,924	7%
Mixed Commercial-Residential	**114**	**0%**	**0**	**0%**	**0**	**0%**	**114**	**0%**
Within CBEMP Boundary	0	0%	0	0%	0	0%	0	0%
Outside CBEMP Boundary	114	0%	0	0%	0	0%	114	0%
Total	**48,060**	**100%**	**4,944**	**100%**	**1,848**	**100%**	**54,854**	**100%**
Total within CBEMP Boundary	17,626	37%	4,126	83%	872	47%	22,625	41%
Total outside CBEMP Boundary	30,434	63%	818	17%	976	53%	32,229	59%
Total (on tax parcels)	42,518	88%	3,152	64%	1,414	77%	47,084	86%
Total (not on tax parcels)	5,542	12%	1,792	36%	434	23%	7,768	14%

Source: Tax lot and zoning data provided by Coos County, Coos Bay, and North Bend; analysis by the Community Service Center.

Notes: Each zoning designation acreage total includes only the total of each primary zone and does not include totals for management units that act as overlays. More detailed accounting for zones that have both a zoning designation and management unit designation is included in section 3.2: Management Units.

MAP 3.2: MANAGEMENT UNITS

This section displays the management units within the study area boundary[15]. Map 3.2 displays the aquatic and terrestrial management units, which include: natural, conservation, and development categories. Management units are defined as, "a discrete geographic area, defined by biophysical characteristics and features, within which particular uses and activities are promoted, encouraged, protected, or enhanced, and others are discouraged, restricted, or prohibited."[16]

Most management units are within tax parcels in the study area; however, some aquatic management units within the estuary waters are not broken into parcels. For these management units, the CSC calculated the acres and management unit type within each jurisdiction.

The CSC calculated the acreage totals for management units by jurisdiction of Coos County and the cities of Coos Bay and North Bend. Coos County designates management units as their own zones, while the cities display management units as zoning districts that overlap with the use zones of each city. To account for this discrepancy, the CSC lists both the total number of acres of management unit designations and the number of acres of management units that overlap other zones. The total number of management units includes both independently designated management units and those that overlap other zoning designations.

Table 4 lists the acreage and percentage of management units within the study area by jurisdiction. All percentage totals for each jurisdiction are calculated from the total number of acres within each jurisdiction. This includes the acres of areas both on and off tax parcels.

Data used for map and analysis:

- Coos County Zoning – Management Units (Coos County)

Table 4: Management Units on Tax Parcels, Acreage Totals and Percent of Total Study Area

MANAGEMENT UNITS	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Conservation Aquatic	2,006	11%	530	13%	201	23%	2,737	12%
With another primary zo	-	-	0	0%	189	22%	189	1%
Conservation Shoreland	1%	8%	283	7%	4	0%	1,721	8%
With another primary zo	-	-	29	1%	4	0%	33	0%
Development Aquatic	1,117	6%	414	10%	158	18%	1,689	7%
With another primary zo	-	-	0	0%	33	4%	33	0%
Development Shoreland	2,294	13%	320	8%	118	14%	2,732	12%
With another primary zo	-	-	314	8%	115	13%	429	2%
Natural Aquatic	5,947	34%	2,577	62%	388	45%	8,912	39%
With another primary zo	-	-	0	0%	374	43%	374	2%
Natural Shoreland	4,829	27%	3	0%	0	0%	4,832	21%
With another primary zo	-	-	3	0%	0	0%	3	0%
Total	17,627	100%	4,127	100%	869	100%	22,623	100%
With another primary zo	-	-	329	8%	407	47%	736	3%

Source: Tax lot and zoning data provided by Coos County, Coos Bay, and North Bend; analysis by the Community Service Center.

Table notes: The top listing for each management unit type includes the total number of acres of management units. This includes zones that are solely zoned as a management unit and those that have both a zoning designation and management unit designation. The second listing is an itemized account for how many acres of the total management unit acres have an additional zoning designation (e.g. a residential zone that also includes a management unit designation).

These numbers are not included in the total to avoid double counting.

[15] Appendix A includes the uses and activities for each management unit type found in the Coos County Development Code.

[16] Oregon Department of Land Conservation and Development. "Oregon's Statewide Planning Goals and Guidelines." Oregon Department of Land Conservation and Development: http://www.oregon.gov/LCD/docs/goals/oldgoal14definitions.pdf (retrieved August 17, 2017).

Study Area

Natural Aquatic management units are the largest category in the study area with 8,912 acres (39% of the total study area), which includes management units both on and off tax parcels. Of the total management units in the study area, about 3% have another primary zone designations in addition to the management unit designation.

Coos County

Natural Aquatic management units are the largest category within the Coos County portion of the study area with 5,947 acres (34% of total acres within the county study area), followed by Natural Shoreland with 4,829 (27% of the total acres within the county study area). None of the total management units in the Coos County study area have another primary zone designation.

Coos Bay

Natural Aquatic management units are the largest category within the Coos Bay UGB with 2,577 acres (62% of the total acres within the Coos Bay UGB study area). Of the total management units in the Coos Bay study area, about 8% have another primary zone designations in addition to the management unit designation.

North Bend

Natural Aquatic management units are the largest category within the North Bend UGB with 388 acres (45% of the total acres within North Bend study area). Of the total management units in the North Bend study area, about 47% have another primary zone designation in addition to the management unit designation.

MAP 3.3: PROPERTY USE CLASS

This section shows generalized property use within the study area. The original system of property classification consists of numeric codes in ten categories: 000-miscellaneous, 100-residential, 200-commercial, 300-industrial, 400-tract, 500-farm, 600-forest, 700-multi-family, 800-recreation, and 900-exempt. The CSC generalized property use classes into five categories (1) residential, (2) commercial, (3) industrial, (4) resource, and (5) exempt, as shown in Table 5.

Table 5: Generalized Property Use Class

DESIGNATION	PROPERTY CLASS
Residential	100, 700
Commercial	200
Industrial	300
Resource	400, 500, 600
Exempt	900

Source: Coos County Assessor; analysis by Community Service Center
Note:Property class categories not within the study area (000, 800) are excluded.

Map 3.3 displays the existing property use classes based on the tax assessor property classification. The land use map displays the current use of the property and not the zoned use. However, zoning and land use in many cases match within the study area. Detailed information about each property class is available in the geodatabase.

The CSC calculated, by jurisdiction, the acreage coverage of each land use designation within the study area that are located on tax parcels (Table 6).

Data used for map and analysis:

- Coos County Assessor's Tax Lot Data (Coos County)

Table 6: Generalized Property Use Class, by Jurisdiction

PROPERTY USE DESIGNATION	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Residential	2,006	11%	530	13%	201	23%	2,737	12%
Commercial	-	-	0	0%	189	22%	189	1%
Industrial	1%	8%	283	7%	4	0%	1,721	8%
Resource	-	-	29	1%	4	0%	33	0%
Exempt	1,117	6%	414	10%	158	18%	1,689	7%
Total	17,627	100%	4,127	100%	869	100%	22,623	100%
With another primary zo	-	-	329	8%	407	47%	736	3%

Source: Coos County, Coos Bay, and North Bend, analysis by Community Service Center

Study Area

Within the study area, resource land account for 21,970 acres (46% of tax parcel acres). Exempt land accounts for 18,579 acres (39% of tax parcel acres), residential land for 3,931 acres (8% of tax parcel acres), industrial land for 1,989 acres (4% of tax parcel acres), and commercial land for 855 acres (2% of tax parcel acres).

Coos County

The largest property use class within the county study area is resource land with 21,552 acres (50% of county tax parcel acres). Exempt land within the county accounts for 15,570 acres (36% of county tax parcel acres).

Coos Bay

The largest property use class within the Coos Bay UGB study area is exempt land at 2,133 acres (67% of the total study area Coos Bay UGB acres). Resource land and residential land account for 368 acres (12%) and 323 acres (10%) respectively.

North Bend

The largest property use class within the North Bend UGB study area is exempt land at 876 acres (61% of the total study area North Bend acres). Industrial, residential, and commercial land account for 196 acres (14%), 184 acres (13%), and 135 acres (9%) respectively.

CHAPTER 4: ECONOMIC LAND USE, OWNERSHIP, AND IMPROVEMENT STATUS

This chapter is divided into the policy and market conditions that may prohibit or impact development within the study area.

Economic, land use, ownership, and improvement status are shown on eight series of maps:

- Map 4.1 displays improvement status based on the property class (PCLS) field.
- Map 4.2 displays the improvement value ratio (IVR) of Real Market Value to Improvement Ratio for tax lot parcels within the study area.
- Map 4.3 shows public ownership within the study area.
- Map 4.4 shows active and inactive diking districts within the study area.
- Map 4.5 shows fire districts within the study area.
- Map 4.6 shows school districts within the study area.
- Map 4.7 shows the Coos Bay-North Bend water board within the study area.
- Map 4.8 shows employment density for the study area

MAP 4.1: IMPROVEMENT STATUS

Map 4.1 displays the improvement status of tax parcels in the study area. Properties are considered either improved or unimproved by the County Assessor's office.

Using Coos County Assessor's data, the CSC calculated the improvement status using the third digit of the Property Class (PCLS) field. A value of one (xx1) indicates that the property is improved while a value of zero (xx0) indicates that the property is unimproved/vacant. Additionally, all properties that had less than $10,000 worth of improvements were considered to be "unimproved." The improvement status map identifies areas with a concentration of unimproved properties surrounded by improved parcels.

The CSC calculated, by jurisdiction, the unimproved and improved parcel coverage within the study area, and the number of acres and the total percentage for unimproved and improved tax lots within the study area (Table 7).

Data used for map and analysis:

- Coos County Assessor's Tax Lot Data (Coos County)

Study Area

Within the study area, there are 17,263 improved tax parcel acres and 30,061 unimproved tax parcel acres. The unimproved tax parcels include areas within the county are natural resources lands, parks, or recreation areas.

Coos County

The study area tax parcel acreage within the County is 42,701 acres, of which 26,946 acres (63% of the county study area parcel acres) is unimproved. Most unimproved areas are natural resource lands, parks, and recreation areas. This analysis and Map was produced from economic data from the county assessor, as such, protected areas that have over the $10,000 improved value threshold, such as the South Slough Interpretive Center, are deemed improved.

Coos Bay

Of the study area tax parcels inside the Coos Bay UGB, 597 acres (19% of the Coos Bay study area acres) are improved. The remaining 2,585 acres are unimproved (81% of the Coos Bay study area acres). A large portion of the unimproved lands on tax parcels are natural resource areas within the estuary.

North Bend

Of the lands inside the North Bend UGB, 911 acres (63% of the North Bend tax parcels within the study area) are

Table 7: Improved and Unimproved Tax Parcel Acreages, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Improved	15,755	37%	597	19%	911	63%	17,263	36%
Unimproved	26,946	63%	2,585	81%	530	37%	30,061	64%
Total	42,701	100%	3,182	100%	1,441	100%	47,324	100%

Source: Assessor's data provided by Coos County; analysis by the Community Service Center.
Note: Aquatic areas within the study area that is not on tax parcels was not included in this analysis.

improved. The remaining 530 acres are unimproved (37% of the North Bend study area acres). This high percentage of improved acres is due to the amount of developed tax parcels and private lands within the UGB.

MAP 4.2: IMPROVEMENT VALUE RATIO

Map 4.2 displays the ratio of the value of improvements to the market land value (IVR) for tax lots within the study area. CSC calculated the IVR using the Real Market Improvements (RMI) divided by the Real Market Assessed Value (RMAV).

Data provided by the Coos County Assessor's office include RMI and RMAV. IVRs are an important tool in identifying underutilized properties. An IVR less than 0.1 indicates minimal or no improvements have been completed on that tax parcel. The IVR information used in conjunction with constrained property data provides information on the value.

The CSC calculated, by jurisdiction, the number of acres and the total percentage for each IVR category within the study area (Table 8).

Data used for map and analysis:

- Coos County Assessor's Tax Lot Data (Coos County)

Study Area

Most protected areas, such as parks and the South Slough NERR lands, have zero improvement value. As such, a large percentage of tax parcels within the study area, approximately 65% of tax parcels within the study area, has an IVR less than 0.1. The largest ratios, those having a value greater than 10, are largely lands zoned for Agriculture and Forestry. Other common zone designation examples for this category include city use and a wide range of management units.

Coos County

Like the entire study area, the county has a large number of tax parcels with low IVRs. About 65% of tax parcels within the county study area, excluding cities, have an IVR less than 0.1 and 77% have a ratio of 1-to-1 or less.

Coos Bay

Eighty-one percent of tax parcels within Coos Bay UGB study area exhibit IVRs of 0.1 or below. This is due to several large tracts of land bordering the estuary itself. Tax parcels within the urbanized areas have much smaller acreages but higher IVRs.

North Bend

Within the North Bend UGB, 76% of tax parcels have an IVR of 1 or less. While large areas, 38% of the total, have an IVR of less than 0.1, 29% have values between 0.6 and 1, indicating higher percentages of lands with improvements within the UGB.

Table 8: Improvement Value Ratio Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Less than 0.1	27,559	65%	2,585	81%	547	38%	30,691	65%
0.1 - 0.5	2,791	7%	56	2%	169	12%	3,016	6%
0.6 - 1.0	2,213	5%	95	3%	411	29%	2,719	6%
1.1 - 1.5	1,421	3%	120	4%	116	8%	1,657	4%
1.6 - 3.0	4,093	9%	220	7%	59	4%	4,372	9%
3.1 - 10	3,648	9%	94	3%	92	6%	3,834	8%
Greater than 10	976	2%	12	0%	47	3%	1,035	2%
Total	42,701	100%	3,182	100%	1,441	100%	47,324	100%

Source: Assessor's data provided by Coos County; analysis by the Community Service Center.
Note: Aquatic areas within the study area that is not on tax parcels was not included in this analysis.

Table 9: Public Ownership Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
County and Cities	769	2%	294	6%	714	52%	1,777	4%
Coquille Indian Tribe Trust	542	1%	59	1%	18	1%	619	1%
Tribes of Coos	2	0%	2	0%	0	0%	4	0%
Federal	7,321	18%	6	0%	11	1%	7,338	16%
State	1,946	5%	410	9%	9	1%	2,365	5%
Special Districts*	191	0%	89	2%	41	3%	321	1%
Port of Coos Bay	1,322	3%	1,295	28%	2	0%	2,619	6%
South Slough	3,297	8%	0	0%	0	0%	3,297	7%
Total	15,390	37%	2,155	47%	795	58%	18,340	39%

Source: Assessor's data provided by Coos County; analysis by the Community Service Center.
*Note: * = Special Districts are comprised of rural fire protection districts, diking districts, school districts, and water boards, shown in Map 4.4 through 4.7.*

MAP 4.3: PUBLIC OWNERSHIP

Map 4.3 displays the public ownership of land within the study area. Public ownership of land is defined as land owned by: Coos County, Coos Bay, North Bend, Tribal Organizations, Federal Organizations, State Organizations, Port of Coos Bay, South Slough NERR, or are within a special district.

The CSC used the ownership field within the Tax Assessor's data to determine ownership. The public ownership data and maps identify the extent of the public ownership categories in the study area.

The CSC calculated, by jurisdiction, the number of acres and the total percentage for each public ownership category within the study area (Table 9).

Data used for map and analysis:

- Coos County Assessor's Tax Lot Data (Coos County)

Study Area

The largest public ownership category; federal, accounts for 7,338 acres, which is 16% of the total study area. In total, public ownership categories account for 18,340 acres, which is 39% of the total tax parcels within the study area.

Coos County

Eighty-four percent of the Federal land within the study area exists outside the UGBs of the two cities. The largest public land owner in the county portion of the study is Federal, accounting for nearly half of all public land (7,321 acres). The South Slough NERR owns the second largest amount of land; 3,297 acres which is 8% of the total study area acreage.

Note: SSNERR owns and/or manages additional land that is outside of the study area (see Map 4.3).

Coos Bay

Within the Coos Bay UGB, the Port of Coos Bay represents the largest public land owner. The port owns 28% of all tax parcels within the Coos Bay study area, totaling 1,295 acres.

North Bend

Fifty-eight percent of the tax parcels within the North Bend UGB are publicly owned, amounting to a total of 795 acres; 714 acres are owned by either the county or the city.

MAP 4.4 TO 4.7: SPECIAL DISTRICTS

Map 4.4 to 4.7 display the acres of land owned by select special districts within the study area. The special district maps for this study are more general than the ORS definition. The Special District Maps include the following:

- 4.4: Active and Inactive Diking Districts
- 4.5: Fire Districts
- 4.6: School Districts
- 4.7: Coos Bay-North Bend Water Board

Data Used for Maps:

- Diking Districts (Oregon Spatial Data Library)
- Fire Districts (Oregon Spatial Data Library)
- School Districts (Oregon Spatial Data Library)
- Water Boards (Oregon Spatial Data Library)

MAP 4.8: EMPLOYMENT DENSITY

Map 4.8 identifies employment density within the study area.

The CSC generalized the employment sector using the North American Industry Classification System (NAICS) Code into four categories (Table 10):

1. Commercial and Services
2. Manufacturing
3. Public Administration
4. All Other

The commercial and services category includes businesses within the following sectors:

- Business services
- Health services
- Education services
- Business administration
- Information services

In addition to calculating the number of businesses by type and jurisdiction within the study area, the CSC calculated the number of employers and total employees based upon businesses that employ:

- Fewer than 10 employees
- Between 10 and 49 employees
- Greater than 50 employees

The employee size classification categories use the average number of employees within a business in the 2015 calendar year; these represent the average number of employees throughout the year.

Data used for map and analysis:

- QCEW Employment Data (Oregon Employment Department)

For detailed information on map and table methodology see Appendix A.

Table 10: Employers and Employees, by Jurisdiction

EMPLOYER SECTOR/SIZE	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Commercial and Services								
<10	33	75	191	681	95	344	319	1,100
10 to 49	9	194	88	1,781	47	860	144	2,835
> 50	ND	ND	8	909	8	1,084	16	1,993
Manufacturing								
<10	6	24	9	31	ND	ND	15	55
10 to 49	6	175	6	138	ND	ND	12	313
> 50	ND	ND	ND	ND	ND	ND	ND	ND
Public Administration								
<10	ND	ND	6	25	ND	ND	6	25
10 to 49	ND	ND	ND	ND	ND	ND	ND	ND
> 50	ND	ND	ND	ND	ND	ND	ND	ND
All Other Sectors								
<10	46	134	95	229	19	62	160	425
10 to 49	9	145	25	474	7	181	41	800
> 50	ND	ND	ND	ND	ND	ND	ND	ND

Source: Employment data provided by Oregon Employment Department; analysis by the Community Service Center.
Note: ND – Not discloseable due to confidentiality restrictions.

CHAPTER 5: PHYSICAL FEATURES

This chapter discusses the environmental, physical, and natural conditions that may prohibit or impact development on a site within the study area. The factors chosen for analysis were the result of consultation of Statewide Planning Goal 5 (Natural Resources), Goal 7 (Natural Hazards), and Goal 16 (Estuarine Resources) as well as from input given by the Partnership for Coastal Watersheds (PCW).

Regulatory Constraints are shown on the following Map:

- Map 5.1: Eelgrass and Snowy Plover
- Map 5.2: Oyster Beds and Clam Beds
- Map 5.3: Flood Zones
- Map 5.4: Landslide Susceptibility
- Map 5.5: Slope
- Map 5.6: National Wetlands Inventory
- Map 5.7: Local Wetlands Inventory
- Map 5.8: Sea Level Rise (2100)
- Map 5.9: Tsunami Inundation
- Map 5.10: Estuary Features
- Map 5.11: CMECS Aquatic
- Map 5.12: CMECS Biotic
- Map 5.13: CMECS Physical (Geoform)
- Map 5.14: CMECS Geologic Substrate

MAP 5.1: EELGRASS AND SNOWY PLOVER

Map 5.1 displays the eelgrass and snowy plover coverage within the study area. Eelgrass is an important component of the estuary environment, it provides habitat and food for a variety of marine life and it helps reduce coastal erosion.[17] Due to the ephemeral nature of eelgrass populations (i.e., changes in year-to-year distribution and density), eelgrass data were combined into an eelgrass maximum extent layer to indicate areas of potential eelgrass habitat.

The Pacific Coast population of the western snowy plover was listed as a threatened species under the Endangered Species Act of 1973 and the Oregon Endangered Species Act. As such, special considerations must be given to protect their habitat areas. Presence of either eelgrass or snowy plover populations within the study area are noted in the maps and analysis to provide information for the PCW committee to discuss further. This data was provided to the CSC by the South Slough National Estuarine Research Reserve.

The CSC calculated, by jurisdiction, the number of acres and percent cover for both eelgrass and snowy plover habitat within the study area (Table 11).

Data used in the analysis include:

- Eelgrass Cover (EPA)[18]
- Snowy Plover Cover (US Fish and Wildlife)

Study Area

Eelgrass beds account for 1,076 acres, which is 2% of the total study area. Snowy plover habitat accounts for 278 acres, less than 1% of the study area.

Note: Eelgrass bed size and distribution vary by year, therefore the locations on the map should not be considered permanent, actual distribution may include areas that are not mapped.

Table 11: Eelgrass Cover and Snowy Plover Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Eelgrass	840	2%	207	4%	29	2%	1,076	2%
Snowy Plover	278	1%	0	0%	0	0%	278	1%

Source: Data provided by the EPA and US Fish and Wildlife; analysis by the Community Service Center.

[17] National Oceanic and Atmospheric Administration Fisheries. "The Importance of EelGrass." NOAA Fisheries: http://www.westcoast.fisheries.noaa.gov/stories/2014/04_11072014_eelgrass_mitigation.html

[18] Clinton, P. J., D. R. Young, D.T. Specht, and H. Lee. (2007), "A Guide to Mapping Intertidal Eelgrass and Nonvegetated Habitats in Estuaries of the Pacific Northwest USA", U.S. Environmental Protection Agency, Washington, D.C., EPA/600/R-07/062 (retrieved January 2017).

Coos County

Eelgrass beds account for 840 acres, which is about 2% of the county study area. Snowy Plover habitat accounts for 243 acres, which is less than 1% of the county study area.

Coos Bay

Eelgrass beds account for 207 acres, which is 4% of the total Coos Bay UGB study area. There is no Snowy Plover habitat within the Coos Bay UGB.

North Bend

Eelgrass beds account for 29 acres, which is 2% of the total North Bend UGB study area. There is no Snowy Plover habitat within the North Bend UGB.

MAP 5.2: OYSTER BEDS AND CLAM BEDS

Map 5.2 shows the oyster lease coverage and important areas where recreational clams are found within the study area. Oysters are an important component of the estuary habitat, they provide habitat for a range of species and help filter waste from estuary waters. A smaller oyster population means increased loss of habitat and reduced jobs in the oyster industry.[19]

While the map shows commercial oyster zones in the estuary, the Coos estuary also supports a stable population of native Olympia oysters. Areas shown in the map are intertidal regions that support native oysters. A 2006 survey from the Journal of Shellfish Research indicated that native Olympia oyster populations appear stable and increasing.[20]

In 2009, the Oregon Department of Fish and Wildlife (ODFW) completed the Shellfish and Estuarine Assessment of Coastal Oregon (SEACOR) project for the Coos estuary, which displays the clam beds in the lower Coos estuary and South Slough.[21] The project's primary focus was to determine where recreationally important bay clams are found and what their abundance is. Recreational clamming is one of Oregon's most popular outdoor activities.[22] The presence of clam populations within the study area is noted in this section's maps.

The CSC calculated by jurisdiction the number of acres and the total percentage for both Commercial Oyster Beds within the study area (Table 12). Clam beds are not analyzed in this table, however, their distribution is shown within Map 5.2.

Data used for map and analysis:

- Commercial Oyster Beds (South Slough NERR)
- Commercial Oyster Plats (South Slough NERR)
- Native Oysters (South Slough NERR)

Study Area

Commercial Oyster Beds and Plats account for 1,723 acres, which is 3% of the total study area. Oyster Plats account for 228 acres, which is less than 1% of the total study area tax parcels. Oyster Plat data is only available in the South Slough area.

Table 12: Commercial Oyster Beds and Recreational Clam Beds Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Oyster Plats	228		0		0			
(SSNERR)		< 1%		0%		0%	228	< 1%
Olympia Oysters	157	< 1%	93	2%	19	1%	269	< 1%
Other Beds	1,077	2%	149	3%	0	0%	1,226	2%
Total	1,462	3%	242	5%	19	1%	1,723	3%

Source: Data provided by South Slough NERR and ODFW; analysis by the Community Service Center.

[19] "Oysters Are Habitat, Too!," last modified November 19th, 2012, http://www.habitat.noaa.gov/abouthabitat/oysters.html

[20] Groth, S. and S. Rumrill. (2009). History of Olympia oysters (Ostrea lurida Carpenter 1864) in Oregon estuaries, and a description of recovering populations in Coos Bay. Journal of Shellfish Research 28(1): 51-58.

[21] Cornu, C., Larson, E., and Johnson, C., "Clams and Native Oysters in the Coos Estuary," Partnership for Coastal Watersheds, 2006, accessed August 15, 2017, http://www.partnershipforcoastalwatersheds.org/clams- and-native-oysters-in-the-coos-estuary/

[22] Oregon Department of Fish and Wildlife. "Shellfish and Estuarine Assessment of Coastal Oregon (SEACOR)." Oregon Department of Fish and Wildlife: http://www.dfw.state.or.us/mrp/shellfish/seacor/index.asp (retrieved September 5, 2017).

Coos County

Commercial Oyster Beds account for 1,462 acres, which is 2% of the county study area. Oyster Plats account for 228 acres, which is less than 1% of the county study area. Additionally, there are 45 SEACOR clam sites that lie outside the UGB boundaries. They are located near the unincorporated communities of Barview and Charleston, north of the SSNERR.

Coos Bay

Commercial Oyster Beds account for 242 acres, which is 3% of the Coos Bay UGB study area.

North Bend

Commercial Oyster Beds account for 19 acres, which is 1% of the North Bend UGB study area.

MAP 5.3: FLOOD ZONES

Map 5.3 details the 100-year (1% annual chance) and 500-year (0.2% annual chance) flood zone hazards. FEMA developed Flood Insurance Rate Maps (FIRMs) that are used by jurisdictions to locate areas subject to floodplain regulations.

According to the DLCD, "The flood hazard information contained on these maps is based on historic flooding, hydraulic and hydrologic data, flood control projects, and other factors that impact flooding".[23] Presence of flood zones within the study area are noted in the maps and analysis.

The CSC calculated, by jurisdiction, the number of acres and the total percentage within the 100- year and the 500-year flood zones within the study area (Table 13).

Data used for map and analysis:

- Flood Zones (Oregon Spatial Data Library)

Study Area

The study area has 23,319 acres within the 100-year floodplain, which is 43% of the study area tax parcels acres; an additional 251 acres (23,570 total acres) are within the 500-year floodplain. The areas most at risk from the 500-year flood zone include parts of the Southwest Oregon Regional Airport (North Bend) and several industrial parcels south of downtown Coos Bay. Constrained areas center around the estuary, rivers, and streams.

Coos County

Coos County has 17,933 acres within the 100-year flood plain, which is 30% of the county study area tax parcel acres; an additional 71 acres (18,004 total acres) are within the 500-year flood plain. Constrained areas are primarily adjacent to the estuary, rivers, and streams.

Coos Bay

Coos Bay has 4,362 acres within the 100-year flood plain, which is 66% of the Coos Bay study area tax parcel acres; an additional 35 acres (4,397 total acres) are within the 500-year flood plain. Most of the Coos Bay tax parcels within the study area are located near the estuary, leading to a high percentage of tax parcels at risk.

North Bend

North Bend has 1,024 acres within the 100-year flood plain, which is 41% of the North Bend study area tax parcel acres; an additional 145 acres (1,169 total acres) are within the 500-year flood plain. The North Bend tax parcels surrounding the Pony Slough, adjacent to the estuary and near the airport are at risk of flooding. North Bend tax parcels further inland are less likely to be impacted by flooding.

Table 13: Flood Zones Acreage, by Jurisdiction

	COOS COUNTY			COOS BAY UGB			NORTH BEND UGB			STUDY AREA		
	Acres	Percent Change	Percent	Acres	Percent Change	Percent	Acres	Percent Change	Percent	Acres	Percent Change	Percent
100 Year Flood (1%)	17,933	-	30%	4,362	-	66%	1,024	-	41%	23,319	-	43%
500 Year Flood (0.2%)	18,004	0.4%	30%	4,397	1%	67%	1,169	14%	52%	23,570	1%	43%

Source: Data retrieved from the Oregon Spatial Data Library Data Library; analysis by the Community Service Center.

[23] DLCD Natural Hazards. "Floods: Property Owners and Developers." DLCD Natural Hazards: http://www.oregon.gov/LCD/HAZ/Pages/propowndev.aspx (retrieved August 15, 2017).

MAP 5.4: LANDSLIDE SUSCEPTIBILITY

Map 5.4 shows the degree of risk to which lands are susceptible to landslides. Precipitation, earthquakes, and other factors trigger landslides.

As cities expand into landslide prone areas, developments and infrastructure are at higher risk of landslide susceptibility. There are four (4) classes of landslide susceptibility: Low, Moderate, High, and Very High. Lands within the study area are divided into these categories to assist in identifying areas that may be prone to landslides. This data is elevation-based and uses slopes, geology, and mapped historical landslides to create a 10-meter raster from LiDAR imagery. This data was acquired by the CSC from Oregon Spatial Data Library Data Library and was created by the Oregon LiDAR Consortium (OLC) data and U.S. Geological Survey National Elevation Dataset (NED) data where OLC data was not present.

Data used for map and analysis:

- Landslide Susceptibility (DOGAMI)

Study Area

The low-lying lands nearest to the estuary have the lowest risk of landslide. These areas comprise most of the study area. Few points exhibit moderate or high risk for susceptibility within the area studied.

MAP 5.5: SLOPE

Map 5.5 displays the slope terrain of the study area.

Slope categories are generalized to three (3) categories including: less than 10%, 10% to 25%, and greater than 25%. Slopes are an important consideration that contribute to compliance with Statewide Planning Goal 7, Areas Subject to Natural Disasters. Slopes greater than 25% are considered undevelopable.[24] Presence of low slope and high slope within the study area is noted in the maps and analysis.

The CSC calculated, by jurisdiction, the number of acres and total percentage of the study area for each slope category within the study area (Table 14).

Data used for map and analysis:

- Digital Elevation Model (Oregon Spatial Data Library)

Study Area

Slopes greater than 25% represent the areas of concern due to development constraints. Areas of less than 10% slope amount to 98% of the land within the study area. Less than 1% of land has slopes greater than 25%.

Coos County

Areas of less than 10% slope amount to 98% of the land within the Coos County portion of the study area. Less than 1% of land has slopes greater than 25%.

Coos Bay

Areas of less than 10% slope amount to 100% of the land within the Coos Bay portion of the study area. None of the land within Coos Bay's study area contains slopes greater than 25%.

North Bend

Areas of less than 10% slope amount to 100% of the land within the North Bend portion of the study area. None of the land within North Bend's study area contains slopes greater than 25%.

Table 14: Slope Cover Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
< 10%	25,492	98%	2,921	100%	1,179	100%	29,592	98%
10% to 25%	555	2%	9	< 1%	2	< 1%	566	2%
Slope > 25%	28	< 1%	0	0%	0	0%	28	< 1%
Total	26,075	100%	2,930	100%	1,181	100%	30,186	100%

Source: Data retrieved from Oregon Spatial Data Library Data Library; analysis by the Community Service Center.

[24] DLCD. "Analysis of Land Use Efficiency in Oregon Cities." DLCD: http://www.oregon.gov/LCD/docs/rulemaking/UGB_RAC/UO_Report_LandUseEfficiency_FINAL.pdf (retrieved

MAP 5.6: NATIONAL WETLANDS INVENTORY

Map 5.6 highlights areas constrained by inventoried national wetlands. Wetland areas provide significant habitat value and hydrologic and water quality benefits.

Statewide Planning Goals 5 (Natural Resources), 16 Estuaries, and 17 (Coastal Shorelands) include wetlands as a resource that must be inventoried and protected.[25] In addition, the Coos County Comprehensive Plan says that the riparian corridor boundary shall be 50 feet from the upland edge of significant wetlands.[26]

The CSC calculated, by jurisdiction, the number of acres and the total percentage of wetlands within the study area (Table 15).

Data used for map and analysis:

- National Wetlands Inventory (Oregon Spatial Data Library)

Study Area

The study area has 25,312 acres of NWI wetlands, which amounts to 46% of the study area tax parcels.

Coos County

Coos County has 20,377 acres of NWI wetlands, which amounts to 42% of the county tax parcels within the study area.

Coos Bay

Coos Bay has 4,034 acres of NWI wetlands, which amounts to 82% of the Coos Bay tax parcels within the study area.

North Bend

North Bend has 901 acres of NWI wetlands, which amounts to 49% of the North Bend tax parcels within the study area.

Table 15: National Wetlands Inventory Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Estuarine and Marine Deepwater	6,179	13%	2,471	50%	539	29%	9,189	17%
Estuarine and Marine Wetland	2,704	6%	1,255	25%	283	15%	4,242	8%
Freshwater Emergent Wetland	7,418	15%	198	4%	45	2%	7,661	14%
Freshwater Forested/Shrub Wetland	2,418	5%	92	2%	22	1%	2.532	5%
Freshwater Pond	278	1%	11	0%	5	0%	294	1%
Lake	383	1%	0	0%	0	0%	383	1%
Riverine	997	2%	7	0%	7	0%	1,011	2%
Total	20,377	42%	4,034	82%	901	49%	25,312	46%

Source: Data provided by South Slough NERR; analysis by the Community Service Center.

MAP 5.7: LOCAL WETLANDS INVENTORY

[25] Oregon Department of State Lands. "Waterways & Wetlands Planning." Oregon Department of State Lands: http://www.oregon.gov/dsl/WW/Pages/WetlandConservation.aspx (retrieved August 15, 2017).

[26] Coos County. "Comprehensive Plan 4.10.030." Coos County: http://www.co.coos.or.us/Portals/0/Planning/AM- 14-10/Chapter%20IV.pdf (retrieved August 15, 2017).

Map 5.7 highlights areas constrained by inventoried local wetlands. Wetland areas provide significant habitat value and hydrologic and water quality benefits.

Statewide Planning Goals 5 (Natural Resources), 16 Estuaries, and 17 (Coastal Shorelands) include wetlands as a resource that must be inventoried and protected.[27] In addition, the Coos County Comprehensive Plan says that the riparian corridor boundary shall be 50 feet from the upland edge of significant wetlands.[28]

The CSC calculated, by jurisdiction, the number of acres and the total percentage of wetlands within the study area (Table 16).

Data used for map and analysis:

- Local Wetlands Inventory (Coos County)

Study Area

The study area has 3,612 acres of LWI wetlands, which amounts to 7% of the study area tax parcels.

Coos County

Coos County has 3,612 acres of LWI wetlands, which amounts to 8% of the county tax parcels within the study area.

Coos Bay

No identified LWI wetlands.

North Bend

No identified LWI wetlands.

Table 16: Local Wetlands Inventory Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Cranberry Bogs	45	0%	0	0%	0	0%	45	0%
Farm Ponds, Mill Ponds, Other Man- Made Water Bodies	4	0%	0	0%	0	0%	4	0%
Wet Meadows in Current Agricultural Use	1,850	4%	0	0%	0	0%	1,850	3%
Wetlands with Hydric Soils and Wetland Plants	1,710	4%	0	0%	0	0%	1,710	3%
Wetlands Formerly in Agricultural Use; Potential Reclamation	3	0%	0	0%	0	0%	3	0%
Total	3,612	8%	0	0%	0	0%	3,612	7%

Source: Data provided by South Slough NERR; analysis by the Community Service Center.

[27] Oregon Department of State Lands. "Waterways & Wetlands Planning." Oregon Department of State Lands: http://www.oregon.gov/dsl/WW/Pages/WetlandConservation.aspx (retrieved August 15, 2017).

[28] Coos County. "Comprehensive Plan 4.10.030." Coos County: http://www.co.coos.or.us/Portals/0/Planning/AM- 14-10/Chapter%20IV.pdf (retrieved August 15, 2017).

[29] NOAA Technical Report NOS CO-OPS 083. Global and Regional Sea Level Rise Scenarios for the United States." 2017.

Table 17: Sea Level Rise Inundation, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Potential Sea Level Rise Inundation 2 ft.	927	2%	14	0%	43	2%	984	2%
Potential Sea Level Rise Inundation 4 ft.	14,513	30%	4,035	82%	874	47%	19,422	35%
Potential Sea Level Rise Inundation 6 ft.	15,780	33%	4,149	84%	1,123	61%	21,052	38%

Source: Data provided by NOAA; analysis by the Community Service Center.

Table 18: Sea Level Rise Low Areas Affected, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Potential Sea Level Rise Low Areas Affected 2 ft.	927	2%	14	0%	66	4%	1,007	2%
Potential Sea Level Rise Low Areas Affected 4 ft.	977	2%	9	< 1%	124	7%	1,110	2%
Potential Sea Level RiseLow Areas Affected 6 ft.	1,186	2%	12	< 1%	87	5%	1,285	2%

Source: Data provided by NOAA; analysis by the Community Service Center.

MAP 5.8: SEA LEVEL RISE

Map 5.8 details scenarios of expected seal-level rise by the year 2100. The sea level rise scenarios were developed by the National Oceanic and Atmospheric Administration.[29] Oregon law does not prevent or limit development within sea level rise zones. However, sea level rise is important to consider especially around coastal areas. Development at low elevations located close to the ocean is the most susceptible to sea level rise.

The CSC calculated, by jurisdiction, the number of acres and total percentage impacted by the four- foot sea level rise scenario (high scenario by 2100) within the study area (Table 17). The sea level rise scenario uses the 2000 mean higher high tide as the baseline sea level. Table 18 shows the acres of low lying lands that are potentially impacted by each sea level rise scenario.

Data used for map and analysis:

- Sea Level Rise Inundation Data (NOAA Coastal Services Center)

Study Area

The four-foot sea level rise scenario potentially inundates 19,422 acres, which is 35% of the study area. In general, land nearest to the estuary is low lying and at risk to sea level rise.

County

The four-foot sea level rise scenario potentially inundates 1,752 acres of the county, which is about 30% of the county study area. Notable areas of concern for this series include some industrial and recreational areas on the North Spit.

Coos Bay

The four-foot sea level rise scenario potentially inundates 4,035 acres, which is 82% of the Coos Bay UGB study area. Much of the land within Coos Bay's downtown business district is low lying and very close to sea level, this makes it subject to significant sea level rise that may occur.

North Bend

The four-foot sea level rise scenario potentially inundates 874 acres, which is 47% of the North Bend UGB study area. Particularly vulnerable areas include the airport and Pony Village.

Table 19: Tsunami Inundation by Cover Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Small Scenario	12,988	27%	3,952	80%	1,092	59%	18,033	33%
Medium Scenario	17,193	36%	4,098	83%	1,193	65%	22,485	41%
Large Scenario	22,159	46%	4,286	87%	1,365	74%	27,811	51%
XL Scenario	28,241	59%	4,493	91%	1,601	87%	34,336	63%
XXL Scenario	29,415	61%	4,618	93%	1,628	88%	35,663	65%

Source: Data retrieved from Oregon Spatial Data Library Data Library; analysis by the Community Service Center.

MAP 5.9: TSUNAMI INUNDATION

Map 5.9 details the five Tsunami inundation scenarios. The Oregon Department of Geology and Mineral Industries (DOGAMI) has been mapping tsunami inundation along the Oregon Coast since the mid-1990s. The tsunami inundation maps assist counties, cities, and other jurisdictions to plan for, and mitigate the risk from, the potential disastrous impacts of a tsunami. DOGAMI has mapped five scenarios that are labeled as "T-Shirt sizes" (S, M, L, XL, and XXL) that reflect the range of tsunami impacts that are possible in the future. [31]

Note: DOGAMI expects to complete a Multi-Hazard Risk Report in 2018, when complete the report will include tsunami inundation information: http://www.oregongeology.org/pubs/ims/p-ims.htm.

Each scenario is calculated from a timeframe of fault slip; S: 300 years; M: 425-525 years; L: 650-800 years; XL: 1,050-1,200 years; XXL: 1,200 years. The map also shows the regulatory tsunami inundation line (SB 379 line). The tsunami regulatory line and maps (Oregon Senate Bill 379) limit the construction of certain critical and essential facilities in the tsunami inundation zone.[32]

The CSC calculated by jurisdiction the tsunami inundation by acreage and the total percentage for the S, M, L, XL, and XXL scenarios within the study area (Table 19). As previously discussed in Chapter 1: Purpose and Methods, the XXL layer is used in conjunction with the study area as it is a "catch-all" for future land use decisions.

Data used for map and analysis:

- Tsunami Inundation (DOGAMI)

Study Area

The XXL Tsunami layer represents the acknowledged "worse case" scenario for the region and places a constraint on 35,663 acres, which is 65% of land within the study area.

County

The XXL Tsunami Inundation scenario covers 29,415 acres (61% of the study area tax parcels).

Coos Bay

The XXL Tsunami Inundation scenario covers 4,618 acres (93% of the study area tax parcels).

North Bend

The XXL Tsunami Inundation scenario covers 1,628 acres (88% of the study area tax parcels).

MAP 5.10: ESTUARY FEATURES

Map 5.10 details estuary features within the study area. The estuary features maps provide an in- depth look at different features located within the estuary, including: tide gates, levees, levee protected lands, state parks, and boat launches.

Levee protected lands are lands next to levees, dikes, roads that act like levees, and jetties and rip rap that protect land from flooding.[32] The levee protected land layer was developed inventorying any tax parcels adjacent to a levee structure

[30] Oregon Department of Geology and Mineral Industries. "Oregon Tsunami Clearinghouse." Oregon Department of Geology and Mineral Industries: http://www.oregongeology.org/tsuclearinghouse/pubs.htm

[31] Oregon Tsunami Clearinghouse. "Tsunami Regulatory Maps (Oregon Senate Bill 379) for the State of Oregon." Oregon Tsunami Clearinghouse: http://www.oregongeology.org/tsuclearinghouse/pubs-regmaps.htm

[32] Oregon Spatial Data Library Library. "Estuarine Levee Protected Lands." Oregon Spatial Data Library Library: http://spatialdata.oregonexplorer.info/geoportal/details;id=c448ffe2e1dc4ca78506e64d83285a76 (retrieved August 15, 2017).

or parcels within a fully diked set of parcels. Tide gates and boat launch data identify the respective point location of each feature within the study area.

Table 20, identifies the acres of each state park within the study area.

Table 20: State Parks

STATE PARKS	ACRES
Conde B. McCullough	25
Cape Arago	154
Shore Acres	722
Sunset Bay	395
Yoakam Point	28

Source: Data provided by South Slough NERR; analysis by the Community Service Center.

In addition, there are several other parks shown on Map 5.10 including: Barview State Wayside (Historic), Ferry Road Park, Simpson Park, Bastendorff Beach County Park, 10th Street Park, Airport Heights Park, and the Eastside Boatramp. Approximately ten parks within the study area also contain RV and/or other camping amenities.

The CSC calculated, by jurisdiction, the acreage impacted by levee-protected lands, the number of tides gates, the number of boat launches, and the state park acreage within the study area (Table 21).

Data used for map and analysis:

- Oregon State Parks (Oregon Spatial Data Library)
- Levee Protected Lands (Oregon Spatial Data Library)
- Levee Inventory (Oregon Spatial Data Library)
- Tide gates (Oregon Spatial Data Library)
- Boat Launches (South Slough NERR)

Study Area

Within the study area there are 466 tide gates and 12 boat launches. The levee protected lands account for 18,208 acres, which is 33% of the total study area tax parcels. The five (5) state parks account for 1,324 acres. The state parks are all located in the county. Much of the state park land within the study area is located in the southwest at Cape Arago.

County

There are eight (8) boat launches and 134 tides gates located within the study area county tax parcels. A total of 16,054 acres are levee-protected lands, which is 33% of the county tax parcel acres within the study area.

Coos Bay

Coos Bay has three (3) boat launches and four (4) tides gates within the study area tax parcels. A total of 1,556 acres are levee-protected lands, which is 31% of the Coos Bay tax parcel acres within the study area.

North Bend

North Bend does not have any tide gates located within the study area tax parcels. North Bend has one (1) boat launch (California Ave.) located within the study area tax parcels. A total of 598 acres are levee-protected lands, which is 32% of the North Bend tax parcel acres within the study area.

MAP 5.11-14: CMECS MAPS

Coastal and Marine Ecological Classification Standard (CMECS) provides a national standard for consistent descriptions of coastal and marine ecological features developed by NOAA. In Oregon, the Department of Land Conservation and Development has produced estuary and

Table 21: Levee Protected Lands Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Levee Protected Lands	16,054	33%	1,556	31%	598	32%	18,208	33%

Source: Data provided by South Slough NERR and the Oregon Spatial Data Library Data Clearinghouse; analysis by the Community Service Center.

shoreland habitat maps using the CMECS standard for all of Oregon's major estuaries. The presence and type of these features within the study area have been provided both in maps and analysis.

Maps 5.11-14 identify the CMECS types within the study area, including:

- Aquatic
- Biotic
- Physical (Geoform)
- Geologic Substrate

The CSC calculated, by jurisdiction, the number of acres of all CMECS types within the study area.

Data used in the analysis include:

- CMECS Classifications (DLCD, Oregon Coastal Atlas)

MAP 5.11: CMECS AQUATIC

Map 5.11 details the aquatic CMECS types within the study area.

The subcomponents of the aquatic data identify the salinity, temperature, hydro form, and biogeochemical features to classify the aquatic features into three categories (Table 22):

- Estuarine Coastal: accounts for 15,450 acres of CMECS aquatic data (76%).
- Estuarine Coastal (Diked): accounts for 3,714 acres of CMECS aquatic data (18%).
- Estuarine Open Water: accounts for 1,036 acres of CMECS aquatic data (5%).

Additionally, to better understand the physical features of the land and water within the CBEMP the CSC performed analysis for aquatic CMECS at the management unit level. Table 23 displays the aquatic CMECS categories by management unit types.

- Estuarine Coastal: accounts for 14,065 acres, with 8,636 acres within Natural Aquatic management units.

Table 22: Aquatic CMECS Component Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Estuarine Coastal	11,023	72%	3,628	92%	799	89%	15,450	76%
Estuarine Coastal Diked	3,708	24%	6	0%	0	0%	3,714	18%
Estuarine Open Water	652	4%	290	7%	94	11%	1,036	5%
Total	15,383	100%	3,924	100%	893	100%	20,200	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

Table 23: Aquatic CMECS Component Acreage, by Management Unit Type

	TOTAL		AQUATIC						SHORELAND					
	Management Unit		Conservation		Development		Natural		Conservation		Development		Natural	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Estuarine Coastal	14,065	72%	2,452	92%	945	57%	8,636	98%	614	100%	454	89%	964	37%
Estuarine Coastal (Diked)	1,693	24%	6	0%	0	0%	9	0%	1	0%	54	11%	1,623	63%
Estuarine Open Water	1,037	4%	200	8%	700	43%	137	2%	0	0%	0	0%	0	0%
Total	16,795	100%	2,658	100%	1,645	100%	8,782	100%	615	100%	508	100%	2,587	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

- Estuarine Coastal (Diked): accounts for 1,693 acres, with 1,623 acres within Natural Shoreland management units
- Estuarine Open Water: accounts for 1,037 acres, with 700 acres within Development Aquatic management units.

MAP 5.12: CMECS BIOTIC

Map 5.12 identifies the biotic CMECS types within the study area.

The subcomponents of the biotic data identify the planktonic and benthic/attached biota to classify the estuary into 10 types (Table 24).

Table 24: Biotic CMECS Component Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Aquatic Bed	788	5%	217	6%	51	6%	1,056	5%
Emergent Wetland	3,258	22%	3	0%	0	0%	3,261	17%
Emergent Tidal Marsh	1,622	11%	41	1%	37	4%	1,700	9%
Brackish Marsh	869	6%	487	13%	66	8%	1,422	7%
Scrub-Shrub Wetland	102	1%	1	0%	0	0%	103	1%
Tidal Scrub-Shrub Wetland	217	1%	51	1%	13	1%	281	1%
Brackish Tidal Scrub-Shrub	4	0%	1	0%	0	0%	5	0%
Forested Wetland	51	0%	0	0%	0	0%	51	0%
Tidal/Forest Woodland	165	1%	2	0%	1	0%	168	1%
Unclassified	7,893	53%	3,029	79%	710	81%	11,632	59%
Total	14,969	100%	3,832	100%	878	100%	19,679	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

Table 25: Biotic CMECS Component Acreage, by Management Unit Type

	Total		Aquatic						Shoreland					
	Management Unit		Conservation		Development		Natural		Conservation		Development		Natural	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Aquatic Bed	1,042	6%	37	1%	33	2%	938	11%	4	1%	12	3%	18	1%
Emergent Wetland	1,526	9%	2	0%	0	0%	7	0%	1	0%	41	10%	1,475	61%
Emergent Tidal Marsh	805	5%	42	2%	3	0%	125	1%	53	9%	91	21%	491	20%
Brackish Marsh	1,359	8%	60	2%	10	1%	966	11%	187	32%	45	11%	91	4%
Scrub-Shrub Wetland	20	0%	0	0%	0	0%	0	0%	1	0%	3	1%	16	1%
Tidal Scrub-Shrub Wetland	180	1%	4	0%	1	0%	10	0%	42	7%	92	22%	31	1%
Brackish Tidal Scrub-Shrub	6	0%	0	0%	0	0%	2	0%	1	0%	2	0%	1	0%
Forested Wetland	9	0%	0	0%	0	0%	0	0%	0	0%	1	0%	8	0%
Tidal/Forest Woodland	91	1%	12	0%	1	0%	16	0%	17	3%	6	1%	39	2%
Unclassified	11,428	69%	2,483	94%	1,585	97%	6,681	76%	283	48%	132	31%	264	11%
Total	16,466	100%	2,640	100%	1,633	100%	8,745	100%	589	100%	425	100%	2,434	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

Additionally, to better understand the physical features of the land and water within the CBEMP, the CSC performed analysis for biotic CMECS at the management unit level. Because the management units include portions of the study area that are within estuary waters and not on tax parcels, the total acreage is higher than at the tax parcel level of analysis. Table 25 displays the biotic CMECS categories by management unit types.

MAP 5.13: CMECS PHYSICAL (GEOFORM)

Map 5.13 identifies the Physical (Geoform) CMECS types within the study area.

The subcomponents of the Physical (Geoform) data identify the tectonic and physiographic settings to classify the estuary into 17 types (Table 26).

Additionally, to better understand the physical features of the land and water within the CBEMP, the CSC performed analysis for Physical (Geoform) CMECS at the management unit level. Because the management units include portions of the study area that are within estuary waters and not on tax parcels, the total acreage is higher than at the tax parcel level of analysis. Table 27 displays the Physical (Geoform) CMECS categories by management unit types.

MAP 5.14: CMECS GEOLOGIC SUBSTRATE

Map 5.14 identifies the Geologic Substrate CMECS types within the study area.

CMECS Geologic Substrate classifies the geologic, biogenic, and anthropogenic substrates of the estuary for classification into 15 types (Table 28).

Additionally, to better understand the physical features of the land and water within the CBEMP, the CSC performed analysis for geologic substrate CMECS at the management unit level. Because the management units include portions of the study area that are within estuary waters and not on tax parcels, the total acreage is higher than at the tax parcel level of analysis. Table 29 displays the substrate CMECS categories by management unit types.

Table 26: Physical (Geoform) CMECS Component Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Other Water	4,383	29%	2072	53%	466	52%	6,921	34%
Channel	863	6%	231	6%	0	0%	1,094	5%
Slough	1493	10%	157	4%	72	8%	1,722	9%
Fan	15	0%	0	0%	0	0%	15	0%
Flat	1,201	8%	639	16%	203	23%	2,043	10%
Island	6	0%	29	1%	0	0%	35	0%
Marsh Platform	5,767	38%	542	14%	102	11%	6,411	32%
Natural Levees	6	0%	0	0%	1	0%	7	0%
Natural Levees Fill	7	0%	0	0%	0	0%	7	0%
Shore	372	2%	119	3%	9	1%	500	2%
Artificial Levee	106	1%	6	0%	0	0%	112	1%
Breached Dike	46	0%	1	0%	0	0%	47	0%
Dredge Deposit	21	0%	0	0%	0	0%	21	0%
Fill Area	214	1%	113	3%	21	2%	348	2%
Marina/ Boat Ramp	1	0%	0	0%	0	0%	1	0%
Unclassified	828	5%	29	1%	19	2%	876	4%
Total	15,329	100%	3,938	100%	893	100%	20,160	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

Table 27: Physical (Geoform) CMECS Component Acreage, by Management Unit Type

	Total Management Unit		Aquatic						Shoreland					
			Conservation		Development		Natural		Conservation		Development		Natural	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Other Water	6,906	41%	1,359	51%	1,149	70%	4,336	49%	20	3%	35	7%	7	0%
Channel	1,065	6%	728	27%	35	2%	181	2%	11	2%	8	2%	102	4%
Slough	1,713	10%	267	10%	339	21%	1,046	12%	9	2%	26	5%	26	1%
Fan	50	0%	0	0%	34	2%	14	0%	2	0%	0	0%	0	0%
Flat	1,977	12%	115	4%	0	0%	1,722	20%	62	10%	17	3%	61	2%
Island	36	0%	0	0%	1	0%	10	0%	21	4%	3	1%	1	0%
Marsh Platform	3,698	22%	104	4%	13	1%	1,094	12%	240	40%	191	38%	2,056	80%
Natural Levees	8	0%	0	0%	1	0%	4	0%	0	0%	1	0%	2	0%
Natural Levees Fill	1	0%	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Shore	490	3%	50	2%	58	4%	292	3%	35	6%	34	7%	21	1%
Artificial Levee	81	0%	7	0%	1	0%	3	0%	0	0%	9	2%	61	2%
Breached Dike	34	0%	4	0%	1	0%	11	0%	2	0%	3	1%	13	1%
Dredge Deposit	7	0%	0	0%	0	0%	1	0%	1	0%	1	0%	4	0%
Fill Area	189	1%	12	0%	8	0%	23	0%	15	3%	58	12%	73	3%
Marina/Boat Ramp	1	0%	1	0%	1	0%	0	0%	1	0%	1	0%	1	0%
Rip Rap Deposit	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Unclassified	506	3%	15	1%	4	0%	58	1%	177	30%	115	23%	137	5%
Total	16,763	100%	2,663	100%	1,645	100%	8,795	100%	596	100%	502	100%	2,565	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

Table 28: Geologic Substrate CMECS Component Acreage, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Rock	4	0%	0	0%	0	0%	4	0%
Unconsolidated Mineral Substrate	7,935	51%	3,132	77%	741	82%	11,808	58%
Gravelly Muddy Sand	6	0%	0	0%	0	0%	6	0%
Gravelly Mud	19	0%	0	0%	0	0%	19	0%
Slightly Gravelly Sandy Mud	11	0%	0	0%	0	0%	11	0%
Muddy Sand	691	4%	6	0%	0	0%	697	3%
Sandy Mud	4,166	27%	54	1%	48	5%	4,268	21%
Mud	918	6%	15	0%	0	0%	933	5%
Biogenic Substrate	652	4%	512	13%	35	4%	1,199	6%
Anthropogenic Substrate	39	0%	1	0%	0	0%	40	0%
Anthropogenic Rock	389	3%	125	3%	24	3%	538	3%
Anthropogenic Rock Rubble	4	0%	1	0%	0	0%	5	0%
Anthropogenic Rock Hash	37	0%	85	2%	2	0%	124	1%
Construction Material	1	0%	1	0%	3	0%	5	0%
Unclassified	567	4%	113	3%	52	6%	732	4%
Total	15,439	100%	4,045	100%	905	100%	20,389	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

Table 29: Table 29: Geologic Substrate CMECS Component Acreage, by Management Unit Type

	Total		Aquatic						Shoreland					
	Management Unit		Conservation		Development		Natural		Conservation		Development		Natural	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Rock	4	0%	2	0%	0	0%	0	0%	2	0%	0	0%	0	0%
Unconsolidated Mineral	11,753	70%	2,483	15%	1,602	97%	7,352	84%	98	16%	78	14%	140	5%
Gravelly Muddy Sand	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	0%
Gravelly Mud	4	0%	0	0%	0	0%	1	0%	0	0%	0	0%	3	0%
Slightly Gravelly Muddy Sand	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	0%
Muddy Sand	575	3%	9	0%	8	0%	127	1%	68	11%	137	25%	226	9%
Sandy Mud	2,091	12%	31	0%	2	0%	153	2%	51	8%	100	18%	1,754	67%
Mud	225	1%	5	0%	1	0%	22	0%	10	2%	4	1%	183	7%
Biogenic Substrate	1,154	7%	43	0%	10	1%	878	10%	143	23%	33	6%	47	2%
Anthropogenic Substrate	20	0%	1	0%	1	0%	0	0%	2	0%	2	0%	14	1%
Anthropogenic Rock	327	2%	23	0%	9	1%	38	0%	18	3%	87	16%	152	6%
Anthropogenic Rock Rubble	6	0%	1	0%	0	0%	1	0%	1	0%	3	1%	0	0%
Anthropogenic Rock Hash	65	0%	1	0%	0	0%	5	0%	2	0%	34	6%	23	1%
Construction Materials	3	0%	1	0%	0	0%	1	0%	0	0%	1	0%	0	0%
Unclassified	659	4%	67	0%	13	1%	212	2%	215	35%	72	13%	80	3%
Total	16,888	100%	2,667	16%	1,646	100%	8,790	100%	610	100%	551	100%	2,624	100%

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

CHAPTER 6: FOCUS AREAS

This section discusses the components of focus areas within the study area that were chosen for analysis through consultation with members of the PCW, DLCD, and workshop participants.

The following series of maps are covered in this chapter:

Map 6.1 – Dredged Material Disposal Sites

Map 6.2 – Mitigation Sites

Map 6.3 – Landward Migration Zone Prioritization Areas

Map 6.4 – Urban Renewal Districts

Map 6.5 – Economic Zones

Note: The focus groups and Partnership for Coastal Watersheds have identified a need for cultural and historic mapping. At the time of this publication the data necessary for mapping cultural and historic areas was not available. A recommendation has been made to include this mapping in the future.

MAP 6.1: DREDGED MATERIAL DISPOSAL SITES

Map 6.1 identifies existing dredged material disposal (DMD) sites within and adjacent to the Coos Bay estuary. The CBEMP identifies disposal sites "that can practicably meet the dredging needs and are consistent with the management decisions of the Plan."[33] The CBEMP anticipated and identified sites to meet future management needs. This Atlas updates the inventory to account for sites that are full or no longer needed.

The dredge disposal sites are summarized in Table 30 showing sites that were determined to be "potential sites", "potential upland sites", "at capacity", and "old/not used".

The sites include those identified in the CBEMP's Dredged Material Disposal Plan (CBEMP Vol. II, Part 2, Section 7, Table 7.6 and Appendix A) and sites identified during focus groups.

Data used for map and analysis:

- CBEMP Mylars, georeferenced by SSNERR and CSC

Table 31 provides detail on each of the identified disposal sites.

MAP 6.2: MITIGATION SITES

Mitigation and restoration of intertidal and tidal marshlands to offset filling and dredging are requirements of Goal 16 and 17. Per the CBEMP the focus of the requirement "is on compensating for the effects that will result when approved dredging or filling activities occur. Mitigation can be accomplished through the restoration of a lost resource, the creation of a new resource, or the enhancement of an existing resource."[34] The CBEMP identifies sites based on whether mitigation is accomplished best through restoration, creation, or enhancement activities. Table 32 provides details for each mitigation site and includes comments on each sites mitigation suitability.

The following definitions apply to the mitigation sites:

Mitigation: The creation, restoring, or enhancing of an estuarine area to maintain the functional characteristics and processes of the estuary, such as its natural biological productivity, habitats and species diversity, unique features, and water quality (ORS 196.830). (CBEMP Vol. II, Part 1, Section 3)

Table 30: Dredged Material Disposal Sites, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA		OFFSITE
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	Acres
Potential Site	369	1%	106	2%	118	6%	593	1%	171
Potential Upland	131	0%	0	0%	0	0%	131	0%	0
At Capacity	327	1%	177	4%	0	0%	504	1%	5
Old/Not Used	38	0%	0	0%	0	0%	38	0%	3
Total	865	2%	283	6%	118	6%	1,266	2%	179

Source: Data from Oregon Coastal Atlas; analysis by the Community Service Center.

[33] CBEMP, Vol. II, Part 2, Section 7

[34] CBEMP Vol. II, Part 2, Section 8, p. 8.2-4

Table 31: Dredged Material Disposal Sites, by Jurisdiction

EXISTING SITE NO.	PROPOSED SITE NO.	NEWLY IDENTIFIED (Y/N)	AT CAPACITY? (Y/N)	POTENTIALLY USED (Y/N)	UPLAND (Y/N)	LOCATION
1b	1	N	Y	N	N	Basentdorff Beach
Ocean	2	N	N	Y	N	Off Bar
3b	3	N	N	Y	N	Barview
-	4	Y	N	Y	Y	Barview
Inbay G	5	N	N	Y	N	Coos Head
4a	6	N	N	Y	N	North Spit
-	7	Y	N	Y	Y	North Spit
4c	8	N	Y	N	N	North Spit
4x	9	N	Y	Y	N	Henderson Marsh
-	10	Y	N	Y	Y	West of Jordan Cove
9x	11	N	N	Y	N	West of Airport
Inbay 8.4	12	N	N	Y	N	Airport
9y	13	N	N	Y	N	Airport Interior
15a	14	N	N	Y	N	East Bay Drive at Kentuck Inlet
18a	15	N	N	Y	N	East of Boynton Point
18b	16	N	N	Y	N	Marshfield Channel
19b	17	N	N	Y	N	South of Marshfield Channel
30b	18	N	N	Y	N	North of Christensen Road
25a	19	N	N	Y	N	Lower Isthmus (West)
25	20	N	N	Y	N	Lower Isthmus (East)

Source: Data from CBEMP and PCW Workshops; analysis by the Community Service Center.
See CEBMP Vol. II, Part 2, Section 7, Appendix A, pp. 9 – 26 for detailed information on each site existing at time of adoption of the CBEMP.

Creation: The creation of wetlands and/or other aquatic resources for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Enhancement: The improvement of conditions in an area which remains under estuarine influence but has experienced past degradation or reduction in productivity due to obstruction of flow, sedimentation, log debris, et cetera. (CBEMP Vol. II, Part 1, Section 3)

There are two basic types of enhancement sites: (CBEMP Vol. II, Part 2, Section 8.4.3, p. 8.4-10)

i. Similar in nature to diked restoration sites, except that there is already a breach in the dike permitting estuarine influence, but with circulation impaired, and

ii. Sites where removal of driftwood, old pilings or other debris would enhance vegetative growth and tidal circulation.

Restoration: Replacing or restoring original attributes or amenities such as natural biological productivity and aesthetic or cultural resources which have been diminished or lost by past alterations, activities, or catastrophic events. Active restoration involves the use of specific remedial actions such as removing dikes or fills, installing water treatment facilities, or rebuilding or removing deteriorated urban waterfront areas. Passive restoration is the use of natural processes, sequences, or timing to bring about restoration after the removal or reduction of adverse stresses. (CBEMP Vol.II, Part 1, Section 3)

Restoration Sites: are of two basic types: (CBEMP Vol. II, Part 2, Section 8, p. 8.4-8)

i. Spoil islands that may be scalped down to intertidal level, and

ii. Diked former tidal marsh where there is an opportunity to restore to tidal influence.

Several sites within the South Slough National Estuarine Research Reserve were identified by the CBEMP to have restoration or enhancement qualities and included for as sites ideally suited for mitigation and restoration activities. In this inventory those sites are identified in the maps, however, they are not included in the sites identified within Table 32 since they are already used for mitigation and no longer available to serve as a repository for intertidal and tidal marshland restoration under ORS 196.830).

The CBEMP prioritized mitigation sites, as High, Medium, or Low, based on a list of criteria including (listed in importance) (CBEMP Vol. II, Part 2, Section 8.5.2)

1. biological gain,
2. use conflicts,
3. engineering requirements,
4. similarity, or similar potential, to development sites,
5. potential to replace habitats subject to greatest historical loss, and
6. in South Slough [National Estuarine Reserve]

The PCW updated the list of mitigation sites to account for sites that are no longer in use, have been fully utilized, or no longer have the benefit that they did when the CBEMP was developed. The PCW also proposed new sites and if they should be considered for creation, enhancement, or restoration activities and if the sites are considered high, medium, or low priority (Table 32).

Table 32: Mitigation Sites Detail

ID	ORIGINAL PRIORITY	PROPOSED PRIORITY	ACTION TYPE	COMMENT
1	Medium	Remove (Restored, SSNERR managed)	Restoration	Restored: Road/dike removed 2002
2	Medium	Remove (Restored, SSNERR managed)	Restoration	Fredrickson marsh- restored in 1998
3	Medium	Remove (Restored, SSNERR managed)	Restoration	Dalton Creek marsh- dikes removed and marsh restored in 1998
4	Medium	Remove (SSNERR managed)	Restoration	Passively restored long ago, considered least-disturbed site.
5	Medium	Remove (Restored, SSNERR managed)	Restoration	Kunz marsh- dike removed and marsh restored in 1996
6	Medium	Remove (Restored, SSNERR managed)	Enhancement	Extremely low ecological lift. Also, SSNERR-managed land and should not be used for mitigation.
7	Medium	Remove (SSNERR managed)	Enhancement	Low ecological lift; breached since the 1990's (i.e., passively restored). Removing the dike remnant may elicit a reaction from local duck hunters who build temporary blinds on the dike. Also, SSNERR-managed land and should not be used for mitigation.
8	Medium	Remove (SSNERR managed)	Enhancement	Little ecological lift since it's been open to tidal exchange since the 1990's (i.e., passively restored). Also, SSNERR-managed land and should not be used for mitigation.
9	Medium	Remove (SSNERR managed)	Enhancement	Likely low ecological lift. While restoration work is a potential, SSNERR-managed land and should not be used for mitigation.
10	Medium	Remove (SSNERR managed)	Restoration	Breached dike open to tidal exchange. While restoration work is a potential to increase tidal exchange, SSNERR-managed land and should not be used for mitigation.

ID	ORIGINAL PRIORITY	PROPOSED PRIORITY	ACTION TYPE	COMMENT
11	Medium	Remove (SSNERR managed)	Enhancement	Little ecological lift since it's been open to tidal exchange since the 1990's (i.e., passively restored). Also, SSNERR-managed land and should not be used for mitigation.
12	Medium	Remove (Restored, SSNERR managed)	Enhancement	Little ecological lift since it's been open to tidal exchange since the 1990's (i.e., passively restored). While restoration work is a potential to increase large woody debris, SSNERR-managed land and should not be used for mitigation.
13	Medium	Remove (SSNERR managed)	Restoration	lift. SSNERR-managed land and should not be used for mitigation.
14	Medium	Remove (Restored, SSNERR managed)	Enhancement	Little ecological lift since it's been open to tidal exchange since the 1990's (i.e., passively restored). While restoration work is a potential to increase large woody debris, SSNERR-managed land and should not be used for mitigation.
15	High	Remove (Restored)	Enhancement	Restored: diked breached 1990's.
16	High	Remove (Restored)	Enhancement	No ecological lift. Considered a least-disturbed site.
17	High	Remove (Restored)	Restoration	Restored: Excavated/salt marsh constructed in 1990's.
18	Medium	Remove (No Value)	Restoration	Tidal influence restored either actively or passively.
19	Medium	Medium	Restoration	Okay, Expensive to remove fill; small area.
20	High	Medium	Restoration	Expensive to remove old dredge fill; might want to lower Priority level to medium
21	Low	Low	Creation	Expensive; probably unrealistic; however, okay as "Low"
22	High	Medium	Restoration	Already fully tidally influenced. Site to Southwest is part of Airport future runway extension.
23	Low	Low	Enhancement	Higher Value than the Hwy 101 bridge channel at Haynes; however, unlikely to receive high mitigation score and likely costly
24	Low	Very Low	Enhancement	Very low additional ecological uplift potential; most dikes breached currently
25	Low	Low	Enhancement	Very low additional ecological uplift potential; perhaps some large woody debris could be added
26	Low	Low or Remove	Enhancement	Limited ecological uplift, recommend remaining "Low" Priority or off list
27	Medium	Low	Enhancement	Dike has breached; little additional uplift to be added; some removal of old berm and installation of channels; Recommend "Low" or remove.
28	Medium	Low	Restoration	Dike has breached; some additional uplift to be obtained; however; should probably be reduced to "Low"
29	Low	Removed (Restored)	Restoration	Restored: 1/2 of site already mitigated; remaining has "Medium: to "High" ecological value; EFU
30	Low	Low	Restoration	Some ecological uplift value with tidegate removal and installation of new culverts
31	-	Medium	Proposed Site	Multiple landowners, needs levee and tide gate removals and likely channel remeanders

ID	ORIGINAL PRIORITY	PROPOSED PRIORITY	ACTION TYPE	COMMENT
32	-	Medium	Proposed Site	Multiple landowners, needs levee and tide gate removals and likely channel remeanders
33	-	High	Proposed Site	Wetland Reserve Program site [Frederickson site]. TIde gate pulled stream remeandered and planted, date:2001 acres: 14, Note: connectivity would be greatly enhanced by adding downstream parcel and deepening channels
34	-	High	Proposed Site	99% under 4ft elevation, levee and tide gate removal and channel remeander required, essential for removing existing primary Palouse tide gate
35	Medium	Low or Remove	Restoration	Conflict with residential use/infrastructure. Move to low or remove.
36	Low	Remove	Enhancement	and very low additional benefits. Remove from list
37	Low	Low	Restoration	Polygon much larger than potential restorative lands
38	-	Low	Proposed Site	Multiple landowners, needs levee and tide gate removals and likely channel remeanders. Protection of access for homes challenging
39	(x)	High	Restoration	Kentuck Golf Course; relatively low elevation; tidal influence if opened to the bay; use by Coho in Kentuck Creek
40	Low	Low	Restoration	Needs new large culvert or bridge; beaver have created high value in site
41	Medium	Medium	Restoration	Medium Okay; needs some tidal channel construction on site and new culvert under East Bay
42	High	High	Restoration	Expensive to remove island to intertidal marsh where ecological benefits high.
43	Medium	Medium	Restoration	Good site for "Medium" benefit; needs tidegate removal and new bridge or culvert under drive to homeowner
44	Low	Low	Enhancement	Mostly restored through time and dike failures; could install some Large woody debris (LWD); unlikely sufficient ecological uplift for mitigation.
45	-	Medium	Proposed Site	Some passive restoration but levee breaching and some stream remeander would add ""uplift"" with MTR tide gate adaptive management
46	-	Medium	Proposed Site	Some passive restoration but levee breaching and some stream remeander would add ""uplift"" with MTR tide gate adaptive management
47	-	Medium	Proposed Site	Single landowner, levee and tide gate removals and channel remeanders required, working lands model would be best if parcels downstream of Russel Road parcels are not included
48	Low	Low	Restoration	Remove tidegate and put in new culvert.
49	Medium	Medium	Restoration	Needs bridge or culvert under East Bay Drive to restore tidal action.

ID	ORIGINAL PRIORITY	PROPOSED PRIORITY	ACTION TYPE	COMMENT
50	High	Low or Remove	Restoration	Dike breeched and largely self-restored but could use improved tidal channels. Reduce Priority level to low or take off list.
51	High	Low	Restoration	Dike has breached but could benefit from improved tidal channels. However, additional ecological uplift low.
52	Low	Low	Restoration	Reasonable ecological uplift, but a bit difficult due to infrastructure. Okay as "Low".
53	Medium	Medium	Restoration	Some of area not intertidal; however, overall good site to remove dike and remeander ditches. Good as "Medium".
54	Medium	Low or Remove	Restoration	Could benefit from installation of tidal channels and removal of dike. However, currently functioning so reduce level to low.
55	(x)	High	Restoration/ Enhancement	Install tidal channels, remove tidegates, and install sufficiently sized culverts under Millicoma Hwy. Potential conflict with grazing uses.
56	(x)	High	Restoration/ Enhancement	Install tidal channels, remove tidegates and remove dike for full tidal influence. Will make excellent Coho/Chinook habitat post restoration.
57	(x)	High	Restoration/ Enhancement	Install tidal channels, remove tidegates and remove dike for full tidal influence. Will make excellent Coho/Chinook habitat post restoration. Potential conflict with grazing uses.
58	(x)	Medium	Restoration/ Enhancement	Install tidal channels, remove tidegates and remove dike for full tidal influence. Will make excellent Coho/Chinook habitat post restoration. Potential conflict with grazing uses.
59	(x)	High	Restoration/ Enhancement	Install tidal channels, remove tidegates and remove dike for full tidal influence. Will make excellent Coho/Chinook habitat post restoration. Potential conflict with grazing uses.
60	-	Low	Proposed Site	Primary tide gate already removed at Daniels Creek mouth, significant wetland maturation already occured, could be enhanced with meandering and planting
61	(x)	Low	Restoration	Would need tidal channels and much larger openings to River/ bay; could be partially restored and retain grazing
62	(x)	Medium	Restoration	Would need tidal channels and much larger openings to River/ bay; could be partially restored to retain grazing
63	(x)	High	Restoration	Would need tidal channels and much larger openings to River/ bay; could be partially restored to retain grazing
64	Low	Medium	Restoration	North end has self-restored; south end remains in need of restoration. Expensive; could be moved to Priority of Medium on south end only.
65	Low	Low	Restoration	Tough site with infrastructure for any substantial restorative actions. Low okay.

ID	ORIGINAL PRIORITY	PROPOSED PRIORITY	ACTION TYPE	COMMENT
66	Low	High	Restoration	Has "High" potential for ecological uplift; however likely use conflict with grazing and EFU.
67	Low	High	Restoration	Has "High" potential for ecological uplift; however likely use conflict with grazing and EFU.
68	-	Medium	Proposed Site	Relatively high elevation, Breached dike open to tidal exchange. additional restoration work has potential to increase tidal exchange
69	Low	High	Restoration	Has "High" potential for ecological uplift; however likely use conflict with grazing and EFU.
70	Low	High	Restoration	Has "High" potential for ecological uplift; however likely use conflict with grazing and EFU.
71	Medium	Medium	Restoration	Same as original assessment.
72	Low	High	Restoration	Has "High" potential for ecological uplift; however likely use conflict with grazing and EFU.
73	Medium	Medium	Restoration	Same as original assessment.
74	High	Remove (Restored)	Enhancement	Has largely self-restored; remove from list
75	Medium	Remove (Restored)	Enhancement	Restored, remove from list.
76	High	Remove (Restored)	Restoration	Restored, remove from list.
77	Medium	High	Restoration	High ecological value for restoration.
78	Medium	Medium	Restoration	Same as original assessment.
79	Low	High	Restoration	Has "High" potential for ecological uplift with dike removal and remeandering of ditches; however likely use conflict with grazing and EFU.
80	Medium	High	Restoration	Good potential site for restoration. Could be moved to high priority.
81	Medium	Medium	Restoration	Has partially restored; leave as "Medium"
82	Medium	Medium	Restoration	Okay as medium priority.
83	Low	Low or Remove (Restored)	Restoration	Remain Priority of "Low" or remove is essentially restored by default due to larger culvert and removal of tidegate; culvert remains undersized
84	Low	Low	Restoration	Okay as "Low"
85	-	Medium	Proposed Site	Existing channels are <3'. Restoration would require dike removal, planting and channel remeander in conjunction with other connected parcels
86	-	Medium	Proposed Site	Existing channels are <3' would require dike removal planting and channel remeander in conjunction with other connected parcels
87	-	Low	Proposed Site	Higher than other nearby parcels, would require dike removal planting and channel remeander in conjunction with other connected parcels
88	Medium	Remove	Restoration	Upland berm provides waterfowl habitat; reducing to below tidal low value; remove from Mitigation list

ID	ORIGINAL PRIORITY	PROPOSED PRIORITY	ACTION TYPE	COMMENT
89	-	Medium	Proposed Site	Poor connectivity but has potential if Blossom Gulch school is ever removed/restored
90	-	Low	Proposed Site	Very high >14', riparian planting and or terracing may be only options
91	High	Low	Enhancement	Coos County installed new culvert in 2014; remaining benefit from restoration limited; Reduce Priority to low
92	High	Low	Enhancement	Currently functioning; removal of remaining dike low value; reduce to Priority of low
93	Low	High	Restoration	High potential for ecological uplift with dike removal/ install tidal channels. Possible use conflict with EFU. Priority to High.
94	Low	High	Restoration	This site has high potential for ecological uplift with dike removal/install tidal channels. May conflict with residential use. Move priority to High
95	High	Low	Enhancement	Perhaps some large wood debris additions and dike removal. Not high mitigation potential; recommend reduction to "Low"
96	Medium	Medium	Restoration	Same as original assessment.
97	Medium	Medium	Restoration	Same as original assessment.
98	-	Medium	Proposed Site	Breached dike open to tidal exchange. Additional restoration work has potential to increase tidal exchange
99	-	Medium	Proposed Site	Breached dike open to tidal exchange. Addtional restoration work has potential to increase tidal exchange
100	(x)	Medium	Restoration/ Enhancement	Install tidal channels, remove tidegates, and remove dike for full tidal influence. Good Coho/Chinook habitat post restoration.
101	High	Remove (Restored)	Restoration	Restored. Remove.
102	Medium	Medium	Enhancement	Super small site; highway inflow issues; these sites are tough for the cost/unit of acre; perhaps "Medium" okay
103	(x)	High	Restoration/ Enhancement	Install tidal channels, remove tidegates, and remove dike for full tidal influence. Good Coho/Chinook habitat post restoration.
104	Low	Medium	Restoration	Has partially self-restored and ODOT has plans to restore full function in 2018.
105	(x)	Remove (Restored; SSNERR Managed)	Enhancement	Has self-restored to a high degree. Also, sites are already being managed for conservation purposes by South Slough; DSL ownership creates conflict of interest so preferred not to use for mitigation.
106	High	Remove (SSNERR managed)	Restoration	While site needs restoration work, it should be categorized as mitigation sites since it is already being managed for conservation purposes by South Slough; DSL ownership creates conflict of interest so preferred not to use for mitigation.
107	Low	Medium or High	Restoration	High potential for ecological uplift with dike/tidegate removal. Possible use conflict with EFU. Priority to Medium or High.

ID	ORIGINAL PRIORITY	PROPOSED PRIORITY	ACTION TYPE	COMMENT
108	Medium	Medium	Restoration	High expense and low restorative value since channels in wetland are fine. Culvert under Hwy 42 undersized; Medium priority.
109	Medium	Medium	Restoration	Same as original assessment.
110	Low	Low	Enhancement	Low ecological lift; partially self-restored. Low priority OK.
111	Medium	Medium	Restoration	Same as original assessment.
112	Medium	Medium	Restoration	Same as original assessment.
113	-	Medium	Proposed Site	Tide gates look to be failing with significant wetland maturation already occurring, could be enhanced with meandering and planting
114	(x)	High	Restoration	Currently has failing tidegate; most of acreage below elevation 8.0ft; "High" Ecological Potential; currently EFU

MAP 6.3: TIDAL WETLAND LANDWARD MIGRATION ZONE PRIORITIZATION

As shown in Map 5.8 the Coos Estuary can expect increased inundation as sea-levels rise. The resulting sea level rise will lead to landward migration of tidal wetlands. The Midcoast Watersheds Council modeled the impacts of sea level rise (SLR) and mapped landward migration zones (LMZ) for 23 estuaries in Oregon including the Coos Estuary.

Map 6.3 details Landward Migration Zone Prioritization areas based on elevation and projected sea level rise of 4.7 feet by the year 2100 according to the West Coast Sea Level Rise Study (NRC 2012). The 4.7-foot scenario is the upper end of the projected SLR for the year 2100. This amount of sea level rise could occur earlier or later than that date. The 4.7-foot SLR scenario for was chosen for two reasons:[35]

1. Across many estuaries, this was the earliest scenario that showed a very distinct change in distribution of tidal wetlands compared to the current time; and
2. It represents a fairly long-range planning horizon, allowing adequate time for coastal groups to develop strategic plans and consider the range of potential approaches to conserving and restoring tidal wetland resources.

The analysis and data do not take into account rates of sediment accretion.

The study-analyzed data on five factors that influence the importance of conserving or restoring land within LMZs. The prioritization rankings are considered useful for those making land use decisions within the estuary. The prioritization factors are:

- Area of the LMZ at the 4.7-foot SLR scenario
- Area of higher LMZs at the 8.2-foot and 11.5-foot SLR scenarios

Table 33: Landward Migration Zone Prioritization for 4.7-foot SLR Scenario, by Jurisdiction

	COOS COUNTY		COOS BAY UGB		NORTH BEND UGB		STUDY AREA	
	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent
Low	228	0%	241	5%	107	0%	576	1%
Medium-Low	541	1%	47	1%	201	0%	789	1%
Medium	1,115	2%	128	3%	23	0%	1,266	2%
Medium-High	373	1%	4	0%	0	0%	377	1%
High	937	2%	39	1%	106	6%	1,082	2%
Total	3,194	7%	459	9%	437	0%	4,090	7%

Source: Data from Midcoast Watersheds Council; analysis by the Community Service Center.

[35] Midcoast Watersheds Council. Modeling sea level rise impacts to Oregon's tidal wetlands: Maps and prioritization tools to help plan for habitation conservation into the future. 2017.

- Land management (public vs private)
- Generalized Land use zoning
- Development status (number of structures)

See project report for detailed methods: http://www.midcoastwatersheds.org/landward-migration-zones/

The CSC calculated LMZ prioritization in acres by jurisdiction within the study area (Table 33).

Data used for map and analysis:

- LMZ Prioritization at 4.7-foot SLR scenario (Midcoast Watersheds Council)

Study Area

Within the Study Area there are 1,082 acres of high priority LMZs, which is 2% of land within the study area.

County

Within Coos County there are 937 acres of high priority LMZs, which is 2% of Coos County land within the study area.

Coos Bay

Within Coos Bay there are 39 acres of high priority LMZs, which is 1% of Coos Bay land within the study area.

North Bend

Within North Bend there are 106 acres of high priority LMZs, which is 6% of North Bend land within the study area.

MAP 6.4 AND MAP 6.5: ECONOMIC AREAS

Maps 6.4 and 6.5 display select economic special districts and economically important areas within the study area. The special district maps for this study are more general than the ORS definition.

Data Used for Maps:

- Urban Renewal Districts (Business Oregon, Port of Coos Bay, Coos Bay, North Bend)
- Enterprise Zones (Oregon Spatial Data Library Data Library)
- Foreign Trade Zone No. 132 (Port of Coos Bay, georeferenced by CSC)
- Opportunity Zones (Business Oregon, georeferenced by CSC)
- Terminals and Docks (Port of Coos Bay, georeferenced by CSC)

MAP 6.4 URBAN RENEWAL DISTRICTS

These funds are generated through "tax increment financing" or TIF funds from property taxes gained in an area which is usually an Urban Renewal District. These funds can act as a subsidy to promote economic development or improve utilities within an Urban Renewal District. These public funds are generated through property taxes within a district in which the funds are reallocated for improvement projects, thus increasing property tax values. TIF funds are usually used in "blighted" areas to help improve facades or property and spur new developments. These funds are managed by a city or county depending on the charter that was created when the URA was put in place. In Coos Bay the city has an urban renewal agency/board that is made up of the city council and city manager/staff who takes inquiries regarding the use of the URA funds for projects. A lot of time these funds are used in conjunction with a development agreement the City has for a project and an appropriate "ask" can be solicited of the urban renewal agency. Funds can be used to help connect/create infrastructure, incentivize development through "rebates or refunds", pay for right of ways, etc. essentially anything that might be needed and it is all up to a negotiation process with an Urban Renewal Agency.

URL - North Bay Urban Renewal: http://www.portofcoosbay.com/ccura/

http://coosbay.org/departments/urban-renewal

URL - North Bend Urban Renewal: http://www.northbendoregon.us/urbanrenewal

MAP 6.5 ECONOMIC ZONES

Enterprise Zones

The Bay Area Enterprise Zone exempts businesses from local property taxes on new investments for a specified amount of time. This zone allows for property tax abatements for approved traded sector projects as well as hotels/resorts. Enterprise Zone programs consist of a standard three-year abatement, in which all approved projects are eligible. Projects can apply for an additional fourth-year and fifth-year abatement; however, zone sponsors must agree to the extended timeline and the private business is required to pay 150% above the County average wage for the extent of the four or five-year abatement.

The Bay Area Enterprise Zone also offers an extended "long-term rural" enterprise zone, which offers a seven-year or 15-year abatement for major projects. The following criteria must be met for a project to qualify and be approved for a long-term Enterprise Zone:

1. A total facility investment cost greater than 1% of a county's total real market value by the end of the year when operations begin.
2. Within 3 or 5 years of commencing operations, the business must hire a number of new, full-time employees to work at the facility, at least 10, 35, or 50, depending on the county, to be maintained during the tax abatement period.
3. By the fifth year after the year when new facility operations commenced, average annual compensation (including benefits) for all workers at the facility must be at least 130% (if in a qualified rural county) or 150% of the county average annual wage, based on the latest, final figure, at which point for every subsequent calendar year over the rest of the exemption period:
    a. Average compensation needs to be at least that high relative to the county wage when first met.
    b. The average wages (taxable income) received by those workers also must equal or exceed the latest year's figure for the county average wage.

Projects seeking a long-term abatement program must also get approval by the Bay Area Enterprise Zone sponsors, which consist of the following public taxing districts: City of Coos Bay, City of North Bend, Coos County and the Oregon International Port of Coos Bay.

URL: https://ccdbusiness.org/economic-development/

Foreign-Trade Zones

Foreign-Trade Zones (FTZ) are designated areas within the geographic boundary of the United States that have been approved by the U.S. Customs and Border Protection (CBP) as being outside U.S. territory for purposes of duty collection – FTZ sites and facilities remain within the jurisdiction of local, state and federal governments or agencies. FTZs can include labor-intensive manufacturing centers that involve the import of raw materials or components and subsequently the export/entry of finished merchandise or products. Customs duty is determined when the merchandise leaves the zone. Foreign Trade Zones are essentially business islands within the United States. An FTZ is a designated area where merchandise, both domestic and foreign, receives the same treatment it would if it were outside the commerce of the United States. Importers, distributors, manufacturers, and other entities can utilize an FTZ to defer, eliminate, or reduce duties on imported goods. The three FTZ sites are listed below:[36]

#1 – 284 acres on the eastern shore of the central section of the North Spit Peninsula, Coos County, Oregon; accessed by TransPacific Parkway. This property is owned and operated by the Port and the Bureau of Land Management and is known as the North Bay Marine Industrial Park. Intended use is marine and heavy industrial development.

#2 – 520-acre parcel located on the northeast section of the North Spit Peninsula; also accessed by TransPacific Parkway. This property is owned by Roseburg Forest Products Co. and Weyerhaeuser. Existing buildings on the Roseburg property could be utilized for general-purpose warehousing. A portion of this site has railroad service.

#3 – 531 acres in five parcels located at four marine terminals and at Southwest Oregon Regional Airport.

Parcel 1 - Ocean Terminals in the City of North Bend, at Channel Mile 11.0, with rail and highway access.

Parcel 2 - Export Services in the City of North Bend, at Channel Mile 11.5, with rail and highway access.

Parcel 3 - Central Dock in the City of Coos Bay, at Channel Mile 13.3, with rail and highway access.

Parcel 4 - Coos Bay Docks near the City of Coos Bay, at Channel Mile 15.1, with rail and highway access.

Parcel 5 - Southwest Oregon Regional Airport; regular passenger and cargo flights, with adjacent business park.

URL: https://www.naftz.org/

Opportunity Zones

Opportunity Zones are a newly created federal tax abatement geared towards capital gains and reinvesting those in underserved population areas. These zones will be served by Opportunity Funds which can invest into a business or property within the Opportunity Zone. A maintained investment into an opportunity zone via an opportunity fund allows for a reduced tax on capital gains. A five-year investment allows for a 10% reduction, a seven-year investment allows for a 15% reduction and a 10 year investment allows for a 100% abatement of capital gains taxes. Coos County received two Low Income Community (LIC) Census Tract designations; LIC Tract 5.04 (Empire South to Tarheel Reservoir) and LIC Tract 3 (Southeast section of North Bend along Highway 101 bounded by Broadway and Virginia Avenue), picture below, green highlighted areas.

Note: At time of document publication these areas were just approved by Oregon and sent to the Department of Treasury for final federal approval.

URL: http://www.oregon4biz.com/Opportunity-Zones/

New Market Tax Credits

The New Market Tax Credit (NMTC) Program attracts private capital into low-income communities by permitting individual and corporate investors to receive a tax credit against their federal income tax in exchange for making equity investments in specialized financial intermediaries called Community Development Entities (CDEs). The credit totals 39 percent of the original investment amount and is claimed over a period of seven years.

URL: https://www.cdfifund.gov/programs-training/Programs/new-markets-tax-credit/Pages/default.aspx

Terminals and Docks

The Port of Coos Bay includes a United States Army Corps of Engineers (USACE) designed and maintained navigation channel that provides access to six marine terminals and seven deep-draft berths as well as a variety of barge facilities (Table 34).

[36] Midcoast Watersheds Council. Modeling sea level rise impacts to Oregon's tidal wetlands: Maps and prioritization tools to help plan for habitation conservation inTerminals & Docks. (2018). Retrieved from http://www.portofcoosbay.com/terminals-docks/. Accessed May 3, 2018.

Table 34: Detail of Terminals and Docks

ID	NAME	LOCATION	USE	NOTES/BERTHS
1	Cape Arago Dock/ Sause Bros.	Channel Mile 5.4	utility/work dock	1 - 505 feet/154 meters Private terminal
2	North Bay Marine Industrial Park	Adjacent to deep-draft navigation channel / TransPacific Parkway, North Spit	developable industrial and marine/industrial sites	Within Site 1 of Foreign-Trade Zone No. 132 Potential dock space
3	D.B. Western Inc.	Channel Mile 5.6/ TransPacific Parkway, North Spit	utility/work dock; vessel repair and construction	Within Site 1 of Foreign-Trade Zone No. 132 1 - dolphins 200 feet/ 61 meters; wharf 140 feet/ 42.6 meters
4	Southport Lumber Company/Southport Forest Products Sawmill & Barge Facility	Channel Mile 6.3 / TransPacific Parkway, North Spit	deadload barge slip. Capacity: 11,000 pounds per sq ft/37,535 kgs per sq meter	Within Site 1 of Foreign-Trade Zone No. 132 1 - 420 feet/128 meters x 120 feet/36.6 meters
5	Roseburg Forest Products Chip Terminal	Channel Mile 7.9/Jordan Cove Rd., North Spit	outbound woodchips	Within Site 2 of Foreign-Trade Zone No. 132 1 - dolphins 1,000 feet/305 meters; wharf 260 feet/79.2 meters
6	Ocean Terminals Dock	Channel Mile 11.0 / Foot of California Street, North Bend Use: inbound and outbound logs;	inbound and outbound logs;	Site 3/Parcel 1 of Foreign-Trade Zone No. 132 1 - 900 feet /274.3 meters; wharf 502.5 feet/153.162 meters
7	K2 Terminal	Channel Mile 11.5	Outbound bulk break logs	1' to 1000'/304.8 Meters Private Terminal
8	Tyree Oil, Inc.	Channel Mile 12.4 / U.S. 101 at Newmark Ave., North Bend	receipt of petroleum products; lighter barge moorage	1 - dolphins 300 feet/91.4 meters; wharf 200 feet/61 meters
9	Oregon Chip Terminal	Channel Mile 12.5 / U.S. 101 at Tower Street, North Bend	outbound woodchips	1 - dolphins 1,000 feet/305 meters Private Terminal
10	Bayshore Dock/ Sause Bros.	Channel Mile 12.7 / 2580	utility/work dock	1 - 700 feet/213.4 meters with dolphins Private Terminal
11	Citrus Dock	Channel Mile 12.9 /2100 Bayshore Dr. (U.S. 101), Coos Bay	utility/work dock	1 - dolphins 200 feet/61 meters; wharf 140 feet/42.7 meters Port of Coos Bay Utility/Work Dock
12	Dolphin Terminal	Channel Mile 13.1 / 1610 Bayshore Drive (U.S. 101), Coos Bay	outbound logs (in- water loading)	1 - dolphins 750 feet/228.6 meters; dock 60 feet/18.3 meters; floating pier 140 feet/42.7 meters Port of Coos Bay Utility/Work Dock
13	USCG Cutter Orcas	Channel Mile 13.2	Homeport for the USCG Cutter Orcas	Wooden Pier: 12 ft (3.66 m) x 160 ft (48.77m) Floating Dock: 130 ft (39.62 m) Facility: 3 wooden pile dolphins, gravel parking lot with concrete pad &storage trailer
14	U.S. Army Corps of Engineers Port of Coos Bay Moorage	Channel Mile 13.2 / 1460 N. Bayshore Drive (U.S. 101), Coos Bay	utility/work dock; government vessel moorage	1 - 350 feet/106.7 meters with dolphins; fixed dock 125 feet/38 meters, floating dock 100 feet/30.5 meters

ID	NAME	LOCATION	USE	NOTES/BERTHS
15	Pierce Terminal	Channel Mile 14.8 / 1 Mullen Street, Coos Bay	mineral processing	1 - 600 feet/183 meters Private Terminal
16	Georgia-Pacific	Channel Mile 14.9 / 1170Newport Ave., Coos Bay	outbound woodchips	1- (see Coos Bay Docks data)
17	Coos Bay Docks	Channel Mile 15.1 / 1190 Newport Ave., Coos Bay	breakbulk general cargo, primarily forest products	Site 3/Parcel 4 of Foreign-Trade Zone No. 132. 2 - 1,326 feet/404.2 meters (including chip terminal berth)
19	Knutson Log Yard Moorage	1.9 miles south of main channel in Isthmus Slough/1 Isthmus St., Coos Bay	inbound logs (landside unloading)	1 - dolphins 500 feet/152.4 meters

More information on terminals and docks can be found International Port of Coos Bay's website: http://www.portofcoosbay.com/terminals-docks/

APPENDIX A: METHODS

This appendix describes the methods, definitions, and assumptions used in conducting the land inventory of the study area. Specifically, this analysis:

- Classifies all land and estuary waters into generalized zoning and management unit categories;
- Identifies, at the tax parcel level, areas of improved and unimproved status;
- Identifies the economic and environmental properties and acreage of land within the study area at the tax parcel and/or management unit levels;
- Displays the results in a series of tables and maps.

METHODOLOGY

Estuarine land use inventories are not state mandated, as such there is no prescribed methodology for conducting a land use inventory of this nature. However, using Statewide Planning Goals 5, 7, and 16 as general guidelines, the CSC conducted this land inventory using the following methods:

- Step 1: Identify the study area boundary for the land inventory using the current CBEMP boundary and XXL Tsunami Inundation Zone boundary as the delineators.
- Step 2: Identify the tax parcels that fall within the study area boundary and the percentage of each tax parcel that is within the study area boundary.
- Step 3: To maintain the integrity of each tax parcel that is split by the study area boundary, the CSC verified and removed tax parcels that fell within the following thresholds:
  - Tax parcels that fall outside of the boundary with less than or equal to 3% inside the boundary;
  - Tax parcels that are greater than or equal to 200 acres and are outside of the boundary with less than or equal to 10% inside the boundary;
  - Tax parcels that are less than or equal to 5 acres and are outside of the boundary with less than or equal to 10% inside the boundary;
  - Tax parcels that are less than or equal to .01 acres and are within the boundary with greater than 99% inside the boundary.
- Step 4: Using the land base created in Step 3, the CSC overlaid the generalized zoning to identify the acreage of each zoning designation at the tax parcel level within the study area.
- Step 5: Identify the acreage of the economic and environmental conditions present at the tax parcel level within the study area boundary.
  - Economic conditions
    - Improvement Status
    - Improvement Value Ratio
    - Public Ownership
  - Environmental conditions
    - Environmental Constraints
    - Physical Constraints and Hazards
    - Estuary Features
- Step 6: The CSC also calculated the management units within the entire CBEMP, which includes both land and estuary waters. To understand how certain environmental and physical features are distributed throughout the CBEMP management area, the CSC calculated acreages based on the management units. The features analyzed at both the tax parcel and management unit levels are:
  - Oyster Plats and Beds
  - Aquatic CMECS
  - Biotic CMECS
  - Geoform CMECS
  - Substrate CMECS

GLOSSARY AND PARAMETERS

In conducting the Land Inventory Atlas, the CSC identified policy, economic, and physical features of lands within the study area. The features included in this atlas are the result of resources within Statewide Planning Goals 16 and 17 and consultation with the Partnership for Coastal Watersheds (PCW). The atlas identifies zoning and land use characteristics, economic features, and physical features.

Zoning and Management Units

Zoning for Coos County and the cities of Coos Bay and North Bend are reclassified into general zoning classifications. Coos County zones are reclassified into seven (7) zoning designations to remain compatible with Coos Bay and North Bend zoning. Management units are considered in a separate analysis. The reclassified zones are the following:

- **Agriculture and Forestry.** County zones designated as EFU or F.
- **Airport Overlay.** County zones designated as AO.
- **Employment.** County zones designated as C or IND. Coos Bay zones designated as C or I. North Bend zones designated as M-H, C-G, C-L, M-L, or A-Z.

Table A1: Generalized Zoning Designations

CSC DESIGNATIONS	COUNTY ZONES	COOS BAY ZONES	NORTH BEND ZONES
Agriculture and Forestry	EFU, F		
Employment	C, IND	C, I	M-H, C-G, C-L, M-L, A-Z
Mixed Commercial-Residential	CD, RD	MX	
Recreational	REC, Q-REC, BDR	UP, TL, W, W-H	
Residential	RR, UR	LDR, MDR	R-M, R-T, R-5, R-6,R-7, R-10
South Slough	SS, MES		
Airport	AO		

Source: Information retrieved from Coos County, Coos Bay, and North Bend Zoning Codes, categorized by the Community Service Center.

- **Mixed Commercial-Residential.** County zones designated as CD or RD. Coos Bay zones designated as MX.
- **Recreational.** County zones designated as Rec, Q-Rec, or BDR (Bandon Dunes Resort). City of Coos Bay zones designated as UP, TL, W, or W-H.
- **Residential.** County zones designated as RR or UR. Coos Bay zones designated as LDR or MDR. North Bend zones designated as R-M, R-T, R-6, R-5, R-7, or R-10.
- **South Slough.** County zones designated as SS or MES.
- **Management Units.** Management Units were divided into "Terrestrial" and "Aquatic" units as designated in the Coos County Comprehensive Plan. Those Management Units that fell within the Coos Bay or North Bend Urban Growth Boundaries were included as part of that city's zoning.
  - **Terrestrial.** Classified as Conservation, Natural, and Development.
    - **Conservation.** Conservation Shoreland
    - **Natural.** Natural Shoreland, Non-Water Dependent Shoreland, Rural Shoreland
    - **Development.** Development Shoreland, Urban Development Area, Urban Development Shoreland, Urban Water-Dependent, Water-Dependent Development
  - **Aquatic.** Classified as Conservation, Natural, and Development.
    - **Conservation.** Conservation Aquatic
    - **Natural.** Natural Aquatic
    - **Development.** Development Aquatic

Economic Features

Economic features within the study area are determined in this atlas using Statewide Planning Goals 16 and 17 and PCW input as guidelines. Improvement status, Improvement Value Ratios, ownership, special use districts, and employment features are all calculated at the tax parcel level for lands within the study area. The economic features of the atlas are included below:

- **Improvement Status.** The improvement status of land within the study area is determined at the tax parcel level using DLCD Workbook and Statewide Planning Goal 16 guidelines. Lands are classified as either "Improved" or "Unimproved" based on the following parameters:
  - **Unimproved.** Those lands with a PCLS designation of "vacant" and an RMV (Real Market Value) below the $10,000 threshold are classified as "Unimproved" lands which may be underutilized and open to future development.
  - **Improved.** Those lands with a PCLS designation of "improved" and an RMV above $10,000 are considered "Improved" and may be consistent with present and future zoning designations.
- **Improvement Value Ratio.** The ratio of the Real Market Land Value to Real Market Improvement Value. Values are between 0-1, with higher values indicating a higher improvement status.
- **Public Ownership.** Land that falls under public ownership and jurisdiction. For this atlas, tax assessor data was used to determine ownership using both the PCLSD and Ownership fields. Categories include:
  - Federal
  - Tribal
  - State
  - County

    - Cities of Coos Bay and North Bend
    - Special Districts
        - Water Board, Sanitary District, Fire District, School District, University of Oregon
    - South Slough NERR
    - Port of Coos Bay
- **Special Districts.** Special district boundaries within the study area are included in the atlas to show where potential future areas of growth may be accommodated given current conditions. Categories included in the atlas are:
    - Active and Inactive Diking districts
    - Fire districts
    - School districts
    - Water boards
- **Employment Features.** Data on employment within the study area is provided by the Quarterly Census of Employment and Wages. The CSC produced a heat map of broad categories of employment to comply with restrictions on how employment data can be reported. The broad categories include:
    - Commercial and Services: NAICS Codes 42, 44, 45, 51, 52, 53, 54, 55, 56, 61, 62, 71, 72
    - Manufacturing: NAICS Codes 31, 32, 33
    - Public Administration: NAICS Code 92
    - All Other: NAICS Codes 11, 21, 22, 23, 48, 49, 81

Physical Features

Physical features of the estuary and lands within the study area are included in this atlas to create an inventory of current conditions. These features are determined using Statewide Planning Goals 5, 7, and 16. Those physical features identified and analyzed for the land inventory are as follows:

- **Species of Concern.** This data accounts for both vegetative and wildlife species. Snowy Plover and Eelgrass are both used in this analysis to show areas within the study area they are found.
- **Oyster Beds and Clam Beds.** This data shows areas of the estuary that include oyster and clams beds for harvesting.
- **Floodplain Areas.** This data shows the FEMA Flood Insurance Rates Map (FIRM) designations for the .1% (100-year) and .02% (500-year) flood events.
- **Landslide Susceptibility.** This elevation data is converted into slopes, and a multi-pronged analysis process uses these slopes, geology, and mapped existing landslides to create this 10-meter raster. There are 4 classes of landslide susceptibility: Low, Moderate, High, and Very High.
- **Slope.** This data is generated using the SSNERR DEM to create slope classifications of 0% (no slope), >10% slope, 10 - 24% and =<25%.
- **Wetlands.** National and Local Wetland Inventory data from Coos County.
- **Sea Level Rise.** This data uses models to develop risk scenarios of future sea level rise. Data used in this analysis shows the areas modeled to be affected by the 75 cm by 2070 scenario.
- **Tsunami Inundation.** This data shows the tsunami inundation area for "T-Shirt Sizes" S, M, L, XL, and XXL using DOGAMI evacuation modeling.
- **Estuary Features.** This data includes information recreational boat access, parks and campgrounds, and levees.
- **Coastal and Marine Ecological Classification Standard (CMECS) Habitat Types.** CMECS data from DLCD shows habitat types within the Aquatic, Biotic, Geological, and Substrate types that is classified into a national standard of consistent descriptions for estuary and coastal features.
- **Dredge Disposal.** This data includes area of active, inactive, and potential dredge disposal.
- **Mitigation Sites.** This data provides information on wetland mitigation sites including potential new sites, and sites to be removed for having no value, or for having already reached their restoration potential. Sites that are managed the SSNERR are also shown.
- **Landward Migration Zone Prioritization.** This data shows the areas of tidal wetlands that may be impacted by sea level rise and areas of for conservation and restoration prioritization.
- **Economic Areas:** including Urban Renewal Districts and Enterprise Zones, Foreign Trade Zones, Opportunity Zones for Coos County, Coos Bay, and North Bend

DATA SOURCES

The inventory is based on analysis of a range of data sets provided by each jurisdiction, public institutions, and other data sources. The CSC used the input given from PCW members to be sure the most accurate, current, and reliable data sets were used in the analysis.

In completing the land inventory, the CSC research team used data from a variety of sources, including: Coos County, Coos Bay, North Bend, DLCD, DOGAMI, ESRI, Oregon Spatial Data Library Library, Oregon State University, and NOAA. The CSC did not generate any new data and based all analysis for the land inventory on existing data. Tables A.2 and A.3 below summarize the data sets used by CSC in the inventory:

Table A.2: Planning Data Sets

Data Set	Jurisdiction	Data Source	File Name	Description
Tax lot data	County, Coos Bay, North Bend	Coos County	December_2016_Parcels	Tax lots referenced with descriptive attributes. Polygon File
Current Zoning Data	County	Coos County	Coos_County_zoning_1_27_17	County Zoning. Polygon File.
	Coos Bay	Coos Bay	COOS_BAY_LAND_USE_2017 COOS_BAY_LAND_USE_OVERLAYS_2017	Coos Bay Zoning. Polygon File.
	North Bend	North Bend	Zoning_Districts_1-2017	North Bend Zoning. Polygon File.
Roads	County, Coos Bay, North Bend	Coos County, ESRI	Hwynet_2015	Clipped to major state highways within the study area. Polyline File.
	Coos Bay	Coos Bay	COOS_BAY_STREETS_CLASS	Local, collector, and arterial streets within the city limits. Polyline File.
	North Bend	North Bend	Exist_PAVED-17DSL	Paved Roads within the city limits. Polyline File.
DEM/Hillshade	County, Coos Bay, North Bend	Oregon Spatial	OR_Hillshade_10M.gdb	Hillshade File.
Enterprise Zones	Coos Bay, North Bend	Business Oregon		
Fire Districts	County, Coos Bay, North Bend	Oregon Spatial		
Urban Renewal Districts	Coos Bay, North Bend	Business Oregon		

Table A.3: Environmental Data Sets

Data Set	Jurisdiction	Data Source	File Name	Description
Landslide Susceptibility	County, Coos Bay, North Bend	DOGAMI	Oregon_LS_susceptibility	Scaled from low to high for the County. Polygon File.
Tsunami Inundation	County	DOGAMI	DOGAMI_ Tsunamievacuationzones_2013,S B379 Tsunami Line	S, M, L, XXL Inundation zones. Polygon file.
Floodplain areas	Coos Bay	DOGAMI, DLCD	Oregon_flood_zones WRB_ floodplains_100yr_500yr	FIRM 100 and 500 year floodplains. Polygon File.
Sea level rise	North Bend	OSU, NOAA	NHDPlusV21_PN_17_NHD PlusCatchment_02	Received from Laura Brophy (OSU). Shows a 75 cm sea level rise by 2070. Polygon File.
Local wetlands inventory data	County, Coos Bay, North Bend	County, Coos Bay, North Bend	Wetland_OR	State wetlands inventory dataset. Polygon File
CMECS	Coos Bay	South Slough	Cmecs_coosbay_export_20161018 sg_class2_f	Includes Endangered Species polygon files and other areas of natural concern.
Boat Ramps and Recreation Sites	North Bend	South Slough	Boat paddle launches	Point File of water access points Polygon file of state and local parks
State Parks	County, Coos Bay, North Bend	Oregon Spatial	LO_Parks	2014 State Park inventory clipped to Coos County.
Levee Protected Lands and Levee Inventory	Coos Bay, North Bend	Oregon Spatial	EstuarineLeveeProtectedLandsOCMP2011 LeveeInventory.shp	Polygon File of levee protected lands. Polyline file of levee inventory.
Habitat	County, Coos Bay, North Bend	US Fish and Wildlife, EPA	Sg_class2_f WSPlover_CritHab_USFWS_2005	Existing Eel Grass locations and Snowy Plover nesting sites.
Tide gates	County, Coos Bay, North Bend	South Slough	Tidesgates.shp	Polyline file of tidesgate locations.
Oyster Leases	County, Coos Bay, North Bend	South Slough	Oyster_Beds.shp SouthSloughOysterPlats.shp	Polygon file of oyster bed locations.

STAKEHOLDERS

Coos County

Coos County will use this information to help guide a possible future revision of the Coos Bay Estuary Management Plan.

City of Coos Bay

The City of Coos Bay will use this information for a revision of their own outdated estuary management plan, thereby reestablishing jurisdictional coordination between the city and the county.

City of North Bend

The City of North Bend will use this information to reestablish jurisdictional coordination between the city and the county.

Oregon Department of Land Conservation and Development

As Oregon's coastal management agency, DLCD has prioritized the modernization of local estuary management plans while maintaining compliance with the Oregon Statewide Planning Goals.

APPENDIX B: MAPS

The following pages contain maps referenced throughout this document.

Oregon Coastal Atlas. "Coos Bay Estuary." Oregon Coastal Atlas: http://www.coastalatlas.net/ (retrieved August 17, 2017).

Patnership for Coastal Watersheds. "Coos Estuary Land Use Inventory Project." Partnership for Coastal Watersheds: http://www.partnershipforcoastalwatersheds.org/coos-estuary-land-use-analysis-project/ (retrieved August 17, 2017).

National Oceanic and Atmospheric Administration. "National Esturine Research Reserves." NOAA: https://coast.noaa.gov/nerrs/. (retrived August 17, 2017).

South Slough Reserve. "South Slough National Estuarine Research Reserve Management Plan: 2017-2022." South Slough Reserve: http://www.oregon.gov/dsl/SS/Documents/SouthSloughReserve2017-2022ManagementPlan.pdf (retrieved August 17, 2017).

Oregon's Statewide Planning Goals & Guidelines. "Guidelines Goal 16: Estuarine Resources OAR 660-015-0010(1)." Oregon Statewide Planning Goals & Guidelines: http://www.oregon.gov/LCD/docs/goals/goal16.pdf

Department of Land Conservation and Development. "The Oregon estuary plan book." 1987. http://hdl.handle.net/1957/42391

Oregon's Statewide Planning Goals & Guidelines. "Guidelines Goal 17: Coastal Shorelands OAR 660-015-0010(2)." Oregon Statewide Planning Goals & Guidelines: http://www.oregon.gov/LCD/docs/goals/goal17.pdf

Ibid.

CBEMP, Vol. II, Part 2, Section 3.1.

Oregon Department of Geology and Mineral Industries. "Oregon Tsunami Clearinghouse." Oregon Department of Geology and Mineral Industries: http://www.oregongeology.org/tsuclearinghouse/pubs.htm (retrieved August 17, 2017).

Oregon Department of Land Conservation & Development. "Oregon's Statewide Planning Goals and Guidelines." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/docs/goals/oldgoal14definitions.pdf (retrieved August 17, 2017).

Oregon Department of Land Conservation & Development. "Coos Bay Estuary Management Plan Vol. II, Section 3." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/OCMP/docs/Public_Notice/Coos_CBEMP_EPs.pdf (retrieved August 17, 2017).

Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/OCMP/docs/Public_Notice/Coos_CBEMP_EPs.pdf (retrieved August 17, 2017).

Oregon Department of Land Conservation & Development. "Coos Bay Estuary Management Plan Vol. II, Section 3." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/OCMP/docs/Public_Notice/Coos_CBEMP_EPs.pdf (retrieved August 17, 2017).

Oregon Department of Land Conservation & Development. "Coos Bay Estuary Management Plan Vol. II, Section 3." Oregon Department of Land Conservation & Development: http://www.oregon.gov/LCD/OCMP/docs/Public_Notice/Coos_CBEMP_EPs.pdf (retrieved August 17, 2017).

Appendix A includes the uses and activities for each management unit type found in the Coos County Development Code.

Oregon Department of Land Conservation and Development. "Oregon's Statewide Planning Goals and Guidelines." Oregon Department of Land Conservation and Development: http://www.oregon.gov/LCD/docs/goals/oldgoal14definitions.pdf (retrieved August 17, 2017).

National Oceanic and Atmospheric Administration Fisheries. "The Importance of EelGrass." NOAA Fisheries: http://www.westcoast.fisheries.noaa.gov/stories/2014/04_11072014_eelgrass_mitigation.html

Clinton, P. J., D. R. Young, D. T. Specht, and H. Lee. (2007), "A Guide to Mapping Intertidal Eelgrass and Nonvegetated Habitats in Estuaries of the Pacific Northwest USA", U.S. Environmental Protection Agency, Washington, D.C., EPA/600/R-07/062 (retrieved January 2017).

"Oysters Are Habitat, Too!," last modified November 19th, 2012, http://www.habitat.noaa.gov/abouthabitat/oysters.html

Groth, S. and S. Rumrill. (2009). History of Olympia oysters (Ostrea lurida Carpenter 1864) in Oregon estuaries, and a description of recovering populations in Coos Bay. Journal of Shellfish Research 28(1): 51-58.

Cornu, C., Larson, E., and Johnson, C., "Clams and Native Oysters in the Coos Estuary," Partnership for Coastal Watersheds, 2006, accessed August 15, 2017, http://www.partnershipforcoastalwatersheds.org/clams-and-native-oysters-in-the-coos-estuary/

Oregon Department of Fish and Wildlife. "Shellfish and Estuarine Assessment of Coastal Oregon (SEACOR)." Oregon Department of Fish and Wildlife: http://www.dfw.state.or.us/mrp/shellfish/seacor/index.asp (retrieved September 5, 2017).

DLCD Natural Hazards. "Floods: Property Owners and Developers." DLCD Natural Hazards: http://www.oregon.gov/LCD/HAZ/Pages/propowndev.aspx (retrieved August 15, 2017).

DLCD. "Analysis of Land Use Efficiency in Oregon Cities." DLCD: http://www.oregon.gov/LCD/docs/rulemaking/UGB_RAC/UO_Report_LandUseEfficiency_FINAL.pdf (retrieved August 17, 2017).

Oregon Department of State Lands. "Waterways & Wetlands Planning." Oregon Department of State Lands: http://www.oregon.gov/dsl/WW/Pages/WetlandConservation.aspx (retrieved August 15, 2017).

Coos County. "Comprehensive Plan 4.10.030." Coos County: http://www.co.coos.or.us/Portals/0/Planning/AM-14-10/Chapter%20IV.pdf (retrieved August 15, 2017).

Oregon Department of State Lands. "Waterways & Wetlands Planning." Oregon Department of State Lands: http://www.oregon.gov/dsl/WW/Pages/WetlandConservation.aspx (retrieved August 15, 2017).

Coos County. "Comprehensive Plan 4.10.030." Coos County: http://www.co.coos.or.us/Portals/0/Planning/AM-14-10/Chapter%20IV.pdf (retrieved August 15, 2017).

NOAA Technical Report NOS CO-OPS 083. Global and Regional Sea Level Rise Scenarios for the United States. 2017. https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf

Oregon Department of Geology and Mineral Industries. "Oregon Tsunami Clearinghouse." Oregon Department of Geology and Mineral Industries: http://www.oregongeology.org/tsuclearinghouse/pubs.htm

Oregon Tsunami Clearinghouse. "Tsunami Regulatory Maps (Oregon Senate Bill 379) for the State of Oregon." Oregon Tsunami Clearinghouse: http://www.oregongeology.org/tsuclearinghouse/pubs-regmaps.htm

Oregon Spatial Data Library Library. "Estuarine Levee Protected Lands." Oregon Spatial Data Library Library: http://spatialdata.oregonexplorer.info/geoportal/details;id=c448ffe2e1dc4ca78506e64d83285a76 (retrieved August 15, 2017).

CBEMP, Vol. II, Part 2, Section 7

CBEMP Vol. II, Part 2, Section 8, p. 8.2-4

Midcoast Watersheds Council. Modeling sea level rise impacts to Oregon's tidal wetlands: Maps and prioritization tools to help plan for habitation conservation into the future. 2017.

Terminals & Docks. (2018). Retrieved from http://www.portofcoosbay.com/terminals-docks/. Accessed May 3, 2018.

APPENDIX F:

FOCUS GROUP RECOMMENDATIONS AND GLOSSARY OF TERMS

University of Oregon Institute for Policy Research and Engagement,
South Slough Reserve and Coos County Planning | February 2018

APPENDIX F: FOCUS GROUP RECOMMENDATIONS AND GLOSSARY OF TERMS

THEME	RECOMMENDATIONS – FEB. 20, 2018
Action Origin	Socio-Cultural Focus Group (SC) Natural Resource Protection and Restoration Focus Group (NR) Economic Development Focus Group (ED)

Land Use Requirements (1)	• All development, especially large-scale development, needs to take into consideration the general priorities of Statewide Planning Goals 16 and 17.
	  ◦ Statewide Planning Goal 16 general priorities are:
	  1. Uses which maintain the integrity of the estuarine ecosystem;
	  2. Water-dependent uses requiring estuarine location, as consistent with the overall Oregon Estuary Classification;
	  3. Water-related uses which do not degrade or reduce the natural estuarine resources and values;
	  4. Non-dependent, non-related uses which do not alter reduce or degrade estuarine resources and values.
	  ◦ Statewide Planning Goal 17 general priorities are:
	  1. Promote uses that maintain the integrity of estuaries and coastal waters;
	  2. Provide for (all) water-dependent uses (SC);
	  3. Provide for water-related uses;
	  4. Provide for non-dependent, non-related uses which retain flexibility of future use and do not prematurely or inalterably commit shorelands to more intensive uses (ED)
	  5. Provide for development, including non-dependent, non-related uses, in urban areas compatible with existing or committed uses;
	  6. Permit non-dependent, non-related uses which cause a permanent or long-term change in the features of coastal shoreland only upon a demonstration of public need. (NR)
	• Make research an allowed use throughout all estuary management units. (SC)
	• Amend relevant land use codes and ordinances to incorporate native vegetation and plantings when practical (based on growing conditions) whenever a land use approval requires landscaping. All landscaping plans should be consistent with noxious weed programs. (SC)
	• The County should amend all inventories to include the most updated data available for habitat protection including wetlands. If new data becomes available prior to a routine plan update there should be a process to introduce relevant habitat data. A process will need to be developed to ensure the data is acceptable. (NR)
	• Incorporate flexible development options such as variances to development standards (e.g., lot size, coverage, clustered development, etc.). The flexible development options can be used as incentives to promote education related to the estuary, open space, trails, emergency/research/recreational access points, education for historical/archaeological sites, and low-impact development (LID)/green infrastructure (GI) methods. (SC, NR)
	• Goal 7 hazards planning including resilience plans and post-catastrophic disaster recovery plans should be taken into consideration when reviewing waterfront development, tidal wetland restoration and mitigation actions (including long-term effectiveness of both), and zone amendments. (NR, ED)

THEME	RECOMMENDATIONS – FEB. 20, 2018
Continued **Land Use Requirements (1)**	• The impacts of sea level rise should be taken into consideration when reviewing waterfront development, tidal wetland restoration and mitigation actions (including long-term effectiveness of both), and zone amendments. (NR) • Include or update cumulative and historical impacts to the estuary consistent with Statewide Planning Goals 16 and 17. (NR) • Wetland mitigation and restoration: o Wetland protection processes including criteria should be consistent through the jurisdictions. (NR) o Update or clarify tiered approach of: 1. Avoidance of creating wetland impacts; 2. Minimize impacts if they cannot be avoided; and 3. Mitigate for impacts if they cannot be avoided or minimized. (NR) o When possible consider "like for like" mitigation as close to the development/redevelopment site as possible but should not conflict with Department of State Lands (DSL) requirements. (NR) • Encourage the maintenance or rehabilitation of existing derelict infrastructure to either preserve its use for future development needs or for when it has habitat significance. Otherwise promote removal. (SC) • Use Oregon Department of Environmental Quality (DEQ) storm water standards to develop low-impact development/green infrastructure land use requirements to compliment but not overlap DEQ storm water processes. (NR)
Document Narrative (2)	• Include or update Goal/Priority statements for the following: o Encourage education regarding the value of protecting the estuary for sustenance and food resources. (SC o List of benefits to provide historical information of a place. (SC) o Wetland restoration and mitigation to include education/outreach and historical background—examples include maps, and interpretive signage. (SC) o Support public/private/tribal partnerships as a way of promoting interpretive signage, and enhancements such as improved access and/or social, cultural, and visual attributes. (SC) o Protect natural resources and conserve scenic, archaeological, historic, and open space resources for past, present and future generations. These resources promote a healthy environment and natural landscape that contributes to our community's livability (SC). o Add the term "cultural" to the list of defined terms (recreation, industrial, commercial, etc.) identified in the updated CBEMP. (SC) o Best available scientific data shall be used in updates and when explaining why certain regulations apply. (ED) o Recognize that the health of the estuary and local economy are inter- related. (ED) o Develop a funding mechanism to sustain and support regular updates (i.e. Periodic Review). o Plan updates should start at the beginning of the seventh year after adoption to ensure updates are completed every ten years. Could include metrics (e.g. water quality changes) to consider earlier updates. The CBEMP will continue to be updated to meet any new laws that were passed. In between updates allow flexibility to allow recognized data sources to be used if they are more up to date than the inventories. (SC, NR, ED)

THEME	RECOMMENDATIONS – FEB. 20, 2018
Continued **Document Narrative (2)**	◦ Local jurisdictions should work with the Oregon Department of State Lands (DSL) to develop a mitigation bank or areas appropriate for mitigation in order not to duplicate or contradict other jurisdictional regulation and to help developers mitigate when necessary. This will help retain local credits to be used to promote economic development. (NR, ED) • Include or update narrative to explain the importance of the estuary including locations of natural resources, economic areas of importance and socio-cultural perspectives. (NR) • Include or update within the CBEMP narrative an environmental impact section that discusses the history of natural resources in the estuary. (NR) • Include or update in the narrative a description of the current health of the estuary and its role in the health of the local economy. (ED)
Document logistics, formatting and links to other resources (3)	• Create a supplemental reference guide for how to use the CBEMP and ordinance. (ED) ◦ Include a flowchart with all permitting agency information included. Include links to other agencies and resources that would be helpful when buying or developing property. This could also be used as an educational tool. (SC, NR, ED) ◦ Include a link to the Oregon Department of Environmental Quality (DEQ) Facility Profiler-Lite Interactive Viewer for industrial sites. (NR) ◦ Include links to other local sources such as chamber of commerce, tribes, parks department, watershed councils, etc. (ED) ◦ Include links in ordinance/code to the plan to help users of the document to understand social-historical context. (SC) • The plan and ordinances should avoid duplicative and contradictive processes between local, state and federal jurisdictions. (ED) • Any defined terms should be bold, highlighted or linked in some way to ensure they stand out and allow the reader to easily reference the definition. (ED) • Format the document in a way that makes it easier to update on regular intervals (See goal/priority section). (ED) • Glossary of terms needs to be updated as they are used within the plan (ED, NR)
Coos Estuary Map Atlas (4)	• Update the Atlas to include information on sites that historically and/or currently have had an industrial use. This may be covered through current zoning or a historical commerce section in the narrative. (ED) • Map historical shorelines (wetlands/marshlands) within the inventory atlas. (NR) • Include maps in the Atlas that depict wetland habitats within the estuary. This has been completed by Department of Land Conservation and Development and will be included in the estuary inventory update. (NR)

Glossary of Terms

Terms used in Recommendations document:

- **Access:** Physical contact with or use of the water;
- **Clustered Development:** Development located in a cluster leaving open space.
- **Coastal Shoreland:** Those areas immediately by oceans, and land next to estuaries.
- **Coastal Waters:** Territorial ocean waters of the continental shelf; estuaries; and coastal lakes.
- **Commercial Uses:** Privately-owned or operated facility or place of business open to the public for sale of goods or services.
- **Committed Uses:** The land subject to the exception is irrevocably committed to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable.
- **Credits:** Credits are from a mitigation bank or In-Lieu-Fee project. Banks and ILFs are larger-scale mitigation projects approved under a detailed agreement with DSL to sell credits within a certain area. Once an applicant purchases a credit, the mitigation obligation is satisfied and the obligation transfers to the bank or ILF sponsor.
- **Criteria:** A standard on which a judgment or decision may be based
- **Cultural:** The customary beliefs, social forms, and material traits of a racial, religious, or social group; also : the characteristic features of everyday existence (such as diversions or a way of life) shared by people in a place or time. OR The integrated pattern of human knowledge, belief, and behavior that depends upon the capacity for learning and transmitting knowledge to succeeding generations.
- **Cumulative Impacts:** Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the project.
- **Develop:** To bring about growth or availability; to construct or alter a structure, to conduct a mining operation, to make a physical change in the use or appearance of land, to divide land into parcels, or to create or terminate rights to access.
- **Ecosystem:** The living and nonliving components of the environment which interact or function together, including plant and animal organisms, the physical environment, and the energy systems in which they exist. All the components of an ecosystem are inter-related.
- **Encourage:** Stimulate; give help to; foster.
- **Estuary:** A body of water semi-enclosed by land, connected with the open ocean, and within which salt water is usually diluted by freshwater derived from land. The estuary includes: (1) estuarine water; (2) tidelands; (3) tidal marshes; and (4) submerged lands. Estuaries normally extend upstream to the head of tidewater.
- **Flexible Development:** Capable of being flexed with regards to density, setbacks or other siting standards to accommodate a use, development or activity.
- **Green Infrastructure:** When nature is used as an infrastructural system it is called "green infrastructure". The main components of this approach include stormwater management, climate adaptation, less heat stress, more biodiversity, food production, better air quality, sustainable energy production, clean water and healthy soils, as well as the more anthropocentric functions such as increased quality of life through recreation and providing shade and shelter in and around towns and cities. This approach can be used to provide important services for communities such as protecting them against flooding or excessive heat, or helping to improve air, soil and water quality.
- **Habitat:** The place or site where a plant or animal naturally lives and grows. HISTORIC: Of, relating to, or having the character of history.
- **Incentives:** A formal scheme used to promote or encourage specific actions or behaviors during a defined period of time.
- **Industrial Use:** The use of land and/or structures for the manufacturing or processing of primary, secondary, or recycled materials into a product, warehousing and associated trucking operations, wholesale trade, and related development.
- **Inventories:** Inventories include maps and data in which all decisions are based on. The maps include all resources designated for protections (habitats, natural hazards, historical/archeological, etc.).
- **Large Scale Development:** High density uses.
- **Like-For-Like Mitigation:** Mitigating in areas with highly comparable biodiversity components as those affected by a project, including species diversity,

functional diversity and composition, ecological integrity or condition, landscape context (e.g., connectivity, adjacent land uses, patch size, etc), and ecosystem services (including people's us and cultural values).

- **Local Jurisdiction:** In this document refers to the Coos County, Coos Bay and North Bend. These are jurisdictions that have jurisdictional authority over land use in Coos Bay Estuary.
- **Lot:** A unit of land created by a subdivision of land or a planned community. A lot lawfully created shall remain a discrete lot, unless the lot lines are changed or vacated or the lot is further divided as provided by this Ordinance.
- **Low-Impact Development (LID):** A type of green infrastructure, Low-Impact Development is a management approach that uses land planning and engineered designs that emphasize natural features to address stormwater management.
- **Estuary Management Unit:** A discrete geographic area, defined by biophysical characteristics and features, within which particular uses and activities are promoted, encouraged protected, or enhanced, and others are discouraged, restricted, or prohibited. Management units are delineated on the Plan map, and provide a framework for policy decisions embodied in Volume II, Part 1, Section 5.2 of the Coos Bay Estuary Management Plan.

  Aquatic Management Units include: Natural Aquatic Areas; Conservation Aquatic; Development Aquatic

  Shoreland Management Units include: Natural Shoreland Areas; Conservation Shoreland Areas; Rural Shoreland Areas; Urban Development Areas; Urban Water-dependent Areas; Development Shorelands; Water-Dependent Development Shorelands
- **Marsh:** A tract of land often periodically inundated and treeless and usually characterized by grasses, cattails, or other swamp like characteristics.
- **Metrics:** Parameters or measures that allow quantification to track performance or quality of plan.
- **Mitigation:** The creation, restoring, or enhancing of an estuarine area to maintain the functional characteristics and processes of the estuary, such as its natural biological productivity, habitats, and species diversity, unique features and water quality (ORS 196.830.
- **Mitigation Bank:** The creation, restoration, or under certain circumstances the protection, or an area of functioning wetland in advance of, and to offset anticipated wetland impacts within the same ecoregion.
- **Natural Hazard:** Natural occurring physical phenomena including: floods, landslides, earthquakes, tsunamis, coastal erosion, and wildfires.
- **Natural Hazard:** Air, land and water and the elements thereof which are valued for their existing and potential usefulness to man.
- **Open Space:** An open or enclosed lot parcel or tract of land set apart and devoted for the purposes of pleasure, recreation, ornamentation, or light and air.
- **Ordinance:** A document containing zoning regulations set out to implement the comprehensive plan.
- **Oregon Estuary Classification:** To assure diversity among the estuaries of the State, by June 15, 1977, LCDC with the cooperation and participation of local governments, special districts, and state and federal agencies shall classify the Oregon estuaries to specify the most intensive level of development or alteration which may be allowed to occur within each estuary. After completion for all estuaries of the inventories and initial planning efforts, including identification of needs and potential conflicts among needs and goals and upon request of any coastal jurisdiction, the Commission will review the overall Oregon Estuary Classification.
- **Oregon Statewide Planning Goals:** Oregon's state land use policies, expressed as a set of 19 goals.

  Goals 7: Areas Subject to Natural Hazards - To protect people and property from natural hazards.

  Goals 16: Goal 16: Estuarine Resources - To recognize and protect the unique environmental, economic, and social values of each estuary and associated wetlands; and To protect, maintain, where appropriate develop, and where appropriate restore the long-term environmental, economic, and social values, diversity and benefits of Oregon's estuaries.

  Goal 17: Coastal Shorelands - To conserve, protect, where appropriate, develop and where appropriate restore the resources and benefits of all coastal shorelands, recognizing their value for protection and maintenance of water quality, fish and wildlife habitat, water-dependent uses, economic resources

and recreation and aesthetics. The management of these shoreland areas shall be compatible with the characteristics of the adjacent coastal waters; and To reduce the hazard to human life and property, and the adverse effects upon water quality and fish and wildlife habitat, resulting from the use and enjoyment of Oregon's coastal shorelands.

- **Periodic Review:** The purpose for periodic review is to ensure that comprehensive plans and land use regulations remain in compliance with the statewide planning goals adopted pursuant to ORS 197.230, the commission's rules and applicable land use statutes. Periodic review also is intended to ensure that local government plans and regulations make adequate provision for economic development, needed housing, transportation, public facilities and services, and urbanization, and that local plans are coordinated as described in ORS 197.015(5).
- **Post-Catestrophic Disaster Recovery Plans:** A documented process of actions for communities to take to prepare for, respond to, and recover from a disaster.
- **Preserve:** To save from change or loss and reserve for a special purpose.
- **Protect:** Save or shield from loss, destruction, or injury or for future intended use.
- **Recreation:** Any experience voluntarily engaged in largely during leisure (discretionary time) from which the individual derives satisfaction:
- **Research and Educational Observation:** Activities such as sampling of water and vegetation, surveying, inventorying, trapping or taking of fish, birds or other animals for the purposes of scientific research or education.
- **Resiliency Plans:** Often called climate change planning, this is a document that guides communities as they adapt to changing conditions (e.g., sea level rise).
- **Restoration:** Replacing or restoring original attributes or amenities such as natural biological productivity and aesthetic or cultural resources which have been diminished or lost by past alterations, activities or catastrophic events. Active restoration involves the use of specific remedial actions such as removing dikes or fills, installing water treatment facilities, or rebuilding or removing deteriorated urban waterfront areas. Passive Restoration is the use of natural processes, sequences or timing to bring about restoration after the removal of reduction of adverse stresses.
- **Sea Level Rise (SLR):** An increase in global average sea level due to an increase in volume of water in the oceans. Sea level rise rates vary across locations from tides, tectonics, land subsidence, storms etc.
- **Shorelands:** Areas located between the Coastal Shoreland Boundary and the line of non- aquatic vegetation fringing the Coos Bay Estuary.
- **Shorelines:** The boundary line between a body of water and the land, measured on tidal waters at mean higher high water, and on non-tidal waterways at the ordinary high-water mark.
- **Sustenance:** Supplying one's self with nourishment.
- **Tidal Wetlands:** Land areas where excess water is the dominant factor determining the nature of soil development and the types of plant and animal communities living at the soil surface. Wetland soils retain sufficient moisture to support aquatic or semi-aquatic plant life. In marine and estuarine areas, wetlands are bounded at the lower extreme by extreme low water; in freshwater areas, by a depth of six feet. The areas below wetlands are submerged lands.
- **Urban Areas:** Urban areas are those places which must have an incorporated city. Such areas may include lands adjacent to and outside the incorporated city and may also:

  1. have concentrations of persons who generally reside and work in the area;
  2. have supporting public facilities and services.

- **Variances:** A device which may grant a property owner relief from certain provisions of the Ordinance when because of the particular physical surroundings, shape or topographical conditions of the property, compliance would result in a particular hardship upon the owner, as distinguished from a mere inconvenience.
- **Water-Dependent:** A use or activity which can be carried out only on, in, or adjacent to water areas because the use requires access to the water body for water-borne transportation, recreation, energy production, or source of water. The following definitions also apply:

  - **Access:** means physical contact with or use of the water;

- **Energy Production:** means uses which need quantities of water to produce energy directly (e.g., hydroelectric facilities, ocean thermal energy conversion);
- **Recreational:** e.g., recreational marinas, boat ramps and support;
- **Require:** means the use either by its intrinsic nature (e.g., fishing, navigation, boat moorage) or at the current level of technology cannot exist without water access;
- **Source of Water:** means facilities for the appropriation of quantities of water for cooling processing or other integral functions;
- **Water-Borne Transportation:** means uses of water access:
    - which are themselves transportation (e.g., navigation);
    - which require the receipt of shipment of goods by water; or
    - which are necessary to support water-borne transportation (e.g., access: means physical contact with or use of the water;

Typical examples of water-dependent uses include the following:

- **Aquaculture;**
- **Certain Scientific and Educational Activities** which, by their nature, require access to coastal waters: estuarine research activities and equipment mooring and support;
- **Commercial:** e.g., commercial fishing marinas and support; fish processing and sales; boat sales, rentals, and supplies;
- **Industrial:** e.g., manufacturing to include boat building and repair; waterborne transportation, terminals, and support; energy production which needs quantities of water to produce energy directly; water intake structures for facilities needing quantities of water for cooling, processing, or other integral functions.
- **Recreation:** means water access for fishing, swimming, boating, etc. Recreational uses are water- dependent only if use of the water is an integral part of the activity;

Examples of uses that are not "water dependent uses" include restaurants, hotels, motels, bed and breakfasts, residences, parking lots not associated with water-dependent uses, and boardwalk.

- **Water-Related:** Uses which are not directly dependent upon access to a water body, but which provide goods or services that are directly associated with water-dependent land or waterway use, and which, if not located adjacent to water, would result in a public loss of quality in the goods or services offered. Except as necessary for water-dependent or water-related uses or facilities, residencies, parking lots, spoil and dump sites, roads and highways, restaurants, businesses, factories, and trailer parks are not generally considered dependent on or related to water location needs.
- **Wetlands:** Areas that are inundated or saturated by surface water or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated conditions. Wetlands generally include swamps, marshes, bogs and similar areas.
- **Zone Amendment:** A change to the zoning status as originally defined in the comprehensive plan.

APPENDIX G:
PUBLIC OPEN HOUSE SURVEY

South Slough Reserve and
University of Oregon Institute for Policy Research and Engagement | April 2018

APPENDIX G: PUBLIC OPEN HOUSE SURVEY

COOS BAY ESTUARY MANAGEMENT (CBEMP) SURVEY

Dear Survey Participant,

The Partnership for Coastal Watersheds wants to know about your needs, concerns, and desires for the future management of the Coos Bay estuary. This survey is intended to give you an opportunity to provide feedback on preliminary recommendations developed by local stakeholders (via focus groups) for the Coos County Board of Commissioners, City of Coos Bay and City of North Bend to consider when updating the Coos Bay Estuary Management Plan (CBEMP).

Oregon Statewide Planning Goals 16 and 17 set out the basic regulations that are required to be included in an estuary management plan. Many of the recommendations that came from stakeholders aligned with the requirements of these Goals, and therefore have not been repeated in this survey. The recommendations in this survey go beyond basic requirements and we would like to know if you think these recommendations should be included in a CBEMP update.

Your responses will help to determine if the greater community agrees or disagrees with the proposed recommendations. Please include additional comments at the end of the survey as all information will be included in a final report.

To help with terminology, a glossary of terms is included at the end.

Thank you for your interest in helping the planning efforts for an updated CBEMP!

Knowledge of the Coos Bay Estuary Management Plan				
I have experience using the CBEMP	**Considerable Amount**	**Moderate Amount**	**Minimal Amount**	**None**
Select one				
I've used the CBEMP through this/these jurisdictions	**Coos County**	**City of Coos Bay**	**City of North Bend**	
Select all that apply (Skip if you have no CBEMP experience)				
I think the CBEMP needs to be updated.	**Yes**	**No**	**Don't Know**	
Select one (Skip if you have no CBEMP experience)				
My experience using the document was fine.	**Agree**	**Neutral**	**Disagree**	
Select one (Skip if you have no CBEMP experience)				

To help ensure we get a balanced response to this survey, we'd like to know something about you.

Please check the box next to the community interest category that most closely relates to your personal or professional interests. *Provide additional information on your interests in the comment space on page 7.*

- ☐ Economic Development— such as business (large and small), market forces, production (goods, services), consumption, wealth transfer, scarcity and material prosperity, and industry.
- ☐ Natural Resource Protection— such as ecosystem services, conservation, responsible extraction, depletion prevention, restoration, shoreland/estuarine processes, and renewability.
- ☐ Socio-Cultural Matters— such as human behaviors, customs, lifestyles, values, identity, history, education, social organizations, culture, attitudes, family, social roles, and traditions.

Please tell us how important the following statements are to include in an updated Coos Bay Estuary Management Plan (CBEMP).

Natural Hazards that should be included:	Agree	Neutral	Disagree	Don't Know
A. Planning should include resilience plans and post-catastrophic disaster recovery plans				
B. Natural hazards should be considered when protecting, restoring, and creating wetland biological habitats that are dependent upon an adjacent water body, plus other coastal shorelands and adjacent aquatic areas of biological importance				
C. Natural hazards should be taken into consideration when planning waterfront development and wetland restoration.				
D. Sea level rise should be taken into consideration when planning waterfront development and wetland restoration.				

Wetland Uses that should be included:	Agree	Neutral	Disagree	Don't Know
A. Wetland protection processes including criteria should be consistent through the local jurisdictions (i.e., county and cities).				
B. Update or clarify tiered approach for protecting wetlands: 1. Avoidance of creating wetland impacts 2. Minimize impacts if they cannot be avoided 3. Mitigate for impacts if they cannot be avoided or minimized.				
D. When possible consider "like for like" mitigation as close to the development/redevelopment site as possible (without conflicting with Department of State Lands requirements).				
E. The County should amend all inventories to include the most updated data available for habitat protection including wetlands.				

Document Narrative should include the following:	Agree	Neutral	Disagree	Don't Know
A. The importance of the estuary including locations of natural resources, economic areas of importance and socio-cultural perspectives.				
B. An environmental impact section that discusses the history of natural resources in the estuary.				
C. A description of the current health of the estuary and its role in the health of the local economy.				
D. Add the term "cultural" to the list of defined terms (recreation, industrial, commercial, etc.) identified in the CBEMP.				

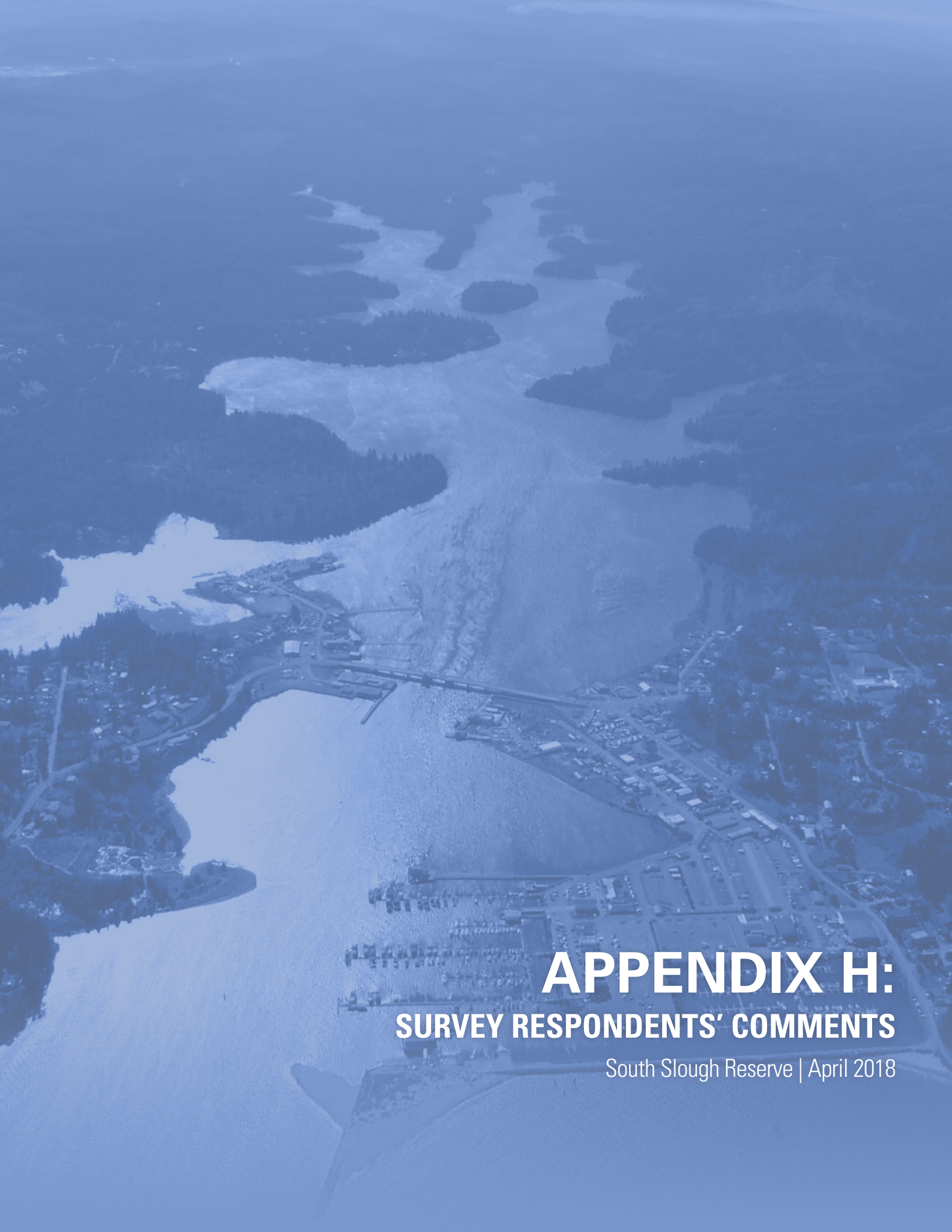
Please tell us how important the following statements are to include in an updated CBEMP				
Other Land Use Requirements that should be included in the update:	**Agree**	**Neutral**	**Disagree**	**Don't Know**
A. Make research an allowed use throughout all aquatic and shoreland management units.				
B. Allow non-dependent, non-related, and temporary uses that allow flexibility for future uses.				
C. Amend relevant land use codes and ordinances to incorporate native vegetation and plantings when practical (if not already addressed).				
D. Encourage the maintenance or rehabilitation of existing derelict infrastructure when it serves as placeholder for replacement or has habitat significance. Otherwise promote removal.				
E. Incorporate flexible development options such as variances to development standards to promote education related to the estuary, open space, trails, emergency/research/recreational access points, education for historical/archaeological sites, and low-impact development/green infrastructure methods.				
F. Use Oregon Department of Environmental Quality (DEQ) storm water standards to develop low-impact development/green infrastructure land use requirements to compliment but not overlap				
G. The plan should include or update cumulative and historical impacts to the estuary.				

Other Land Use Requirements that should be included in the update:	Agree	Neutral	Disagree	Don't Know
A. Encourage education regarding the value of protecting the estuary for sustenance and food resources including historical and future availability.				
B. List of benefits to provide historical information of a place and a strategy to include historical information in development plans.				
C. Wetland restoration and mitigation to include education/outreach and historical background (e.g., maps, and interpretive signage).				
D. Support public/private/tribal partnerships as a way of promoting interpretive signage, and enhancements such as improved access.				
E. Protect natural resources and conserve scenic, archaeological, historic, and open space resources for past, present and future generations, to promote a healthy environment and enhance community livability				
F. Use the best available scientific data shall be used in updates and when explaining why certain regulations apply.				
G. Emphasize the health of the estuary and local economy are inter-related.				
H. Develop funding mechanisms to support regular updates.				
I. Allow flexibility in the plan to submit current data sources to be used if they are more up to date than the inventories.				
J. Delineate mitigation/restoration areas to help developers mitigate and to encourage retention of local credits to promote economic development.				

Please Provide Additional Comments Here:

Thank you again for your assistance.

Finished surveys can be mailed to: Coos County Planning Department, Attn: PCW, 250 N. Baxter St., Coquille, OR 97423.



APPENDIX H:
SURVEY RESPONDENTS' COMMENTS

South Slough Reserve | April 2018

APPENDIX H: SURVEY RESPONDENTS' COMMENTS

- This governance plan needs to address the process and time frames for ACTIVE PLANS AND PROJECTS with regard to specific estuary areas. Adding project action plan process will help guide and steer community and agency input
- There should be a framework built in to the plan for the development of salmon habitat.
- I think it's very important to have mechanism to manage and account for the cumulative impacts to the environmental quality of the estuary of land use changes and of development proposals.
- The recommendations should include increased access to water for the public.
- I think the recommendations should maintain the current resource protection policy 18.
- Since this has taken 30+ years please make a commitment to make progress as soon as possible
- Plan to OK industry that would benefit the environment - not destroyit
- Consider the already apparent effects of global warming
- Update long overdue!
- As landowners we are particularly concerned that the plan should address future sea level changes, storm surge increases and Cascadian subsidence issues. Our dikes protect our pastureland and every important cultural resource. We want to be sure that the plan will address these likely changes of increasing threats to private and public resources. The plan should have a mechanism to predict & manage for these changes and be very restrictive of any management that might exacerbate these concerns (such as additional dredging)
- Look at recreational uses consistent with high environmental preservation standards.
- Seek to look at broad range of development impacts not just estuary development area
- The "new" plan should take into account the post 1980's understanding of tsunami/earthquake potentials and plan for the inevitable sea level rise and its impacts on structures, dikes, tide gates and wetland restoration/retreat
- As part of update include timeline for any project changes, costing, and develop action groups to incorporate actions included intimeline
- The county commissioners should adopt an order to updating the change the current CBEMP. This will allow additional comments from the public to be vetted in a reasonable public forum by the land use process.
- There are benefits in adapting a more user-friendly streamline plan like Lincoln's County. The current CBEMP is designating almost site-specific spot zoning in places. A more generalize approach should be took using natural, conservation, ordevelopment zones.
- The existing data should be used as training data to compare with remote sensing data for identifying missing data gaps in habitat layers before final adoption.
- The health of the people living along the estuary (C.B.) is inextricably linked to the overall health of the estuary.
- I'm very concerned about Ocean Acidification. Highly polluting industrial project that emit high levels of CO2 should be addressed in Coastal management.
- I would like to see collaboration with the Confederated Tribes of the Coos, Lower Umpqua and Siuslaw Indians for this plan. Common practices and U.S. systems over the last few generations have led to an unsustainable lifestyle for people by way of pollution, over-harvesting, and a lack of understanding the delicate balance of the environment, and many other factors. I am optimistic that with this new plan, we, as a whole community, can start to address these issues and be an advocate for a more holistic approach to our lands and waters so that our children can utilize these resources for generations and generations to come.
- Well done!!
- Ditto
- I would like additional info on opportunities to comment on updates to CBEMP or other informational meetings or open houses