About the NERRS

The National Estuarine Research Reserve System (NERRS) is a network of 30 reserves located in 25 states and Puerto Rico. Each site includes programs focused on land stewardship, research and scientific monitoring, training programs for the public and local officials, and education.

About the NERRS Science Collaborative

The NERRS Science Collaborative is a NOAA-funded program that provides grants and other support for user-driven collaborative research, assessment, and transfer activities that address critical coastal management needs identified by the reserves.

https://nerrssciencecollaborative.org

METHODS PILOT SUMMARY

CULTURAL ECOSYSTEM SERVICES IN ESTUARY STEWARDSHIP AND MANAGEMENT

A 2020 NERRS SCIENCE COLLABORATIVE CATALYST PROJECT

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BACKGROUND

In April 2022, representatives from the Heʻeia National Estuarine Research Reserve (Hawaiʻi) and the Kachemak Bay National Estuarine Research Reserve (Alaska) came together on Moku o Loʻe, Heʻeia, Oʻahu, for a Reserve Exchange convened in conjunction with the 2020 National Estuarine Research Reserve System (NERRS) Science Collaborative Catalyst project on "Cultural Ecosystem Services in Estuary Stewardship and Management." The purpose of the exchange was to deepen the sharing of knowledge and experiences on the topics of cultural ecosystem services (CES), community engagement, and long-term relationship building to advance estuary research and management in Heʻeia, Kachemak Bay, and across the reserve system. Through a series of activities and discussions held over the course of three days, the small group shared and compared questions, knowledge, and insights on CES in a peer-to-peer learning environment. Together the group piloted five distinct CES assessment methods (a subset of a longer list of methods distilled by the project team) to begin to evaluate each method's strengths, weaknesses, and applicability within each reserve. Below are key takeaways from the 2022 Heʻeia and Kachemak Bay Reserve Exchange.

Table 1. A comparison of methods piloted

What is this method especially good for?	How much time will it take? (for direct interaction, not including pre/post work)	What's needed?	What are some strengths?	What are some challenges?	How is it applicable in NERRS efforts?	How might one use the end products/results?
CREATIVE WRITING						
Conveying experiences and feelings, especially among audiences who may already be engaged in complementary creative writing activities or processes	No less than 30 minutes	• Supplies (pen, paper, laptop) • Template • Shared language (e.g., English) • Writing mode that appropriately matches audience (e.g., youth/adult) • Trust: in facilitator, for creative process, for comfort sharing	• Flexible for group sharing or individual submissions • Wide range of application • Can be a pleasant form of feedback/reciprocity • Allows you to learn more about your respondents	• Works well with specific audiences • Need to know the audience in advance and possibilities for mismatched modes and audiences • Need to create a quiet/reflective space • Intellectual property: need to clearly specify ownership, use, sharing permissions, etc. • Requires trust to meaningfully share/engage • Can require significant interpretation • Perhaps not good for oral traditions/histories	• Perhaps after partner relationship building • With other reserve staff to highlight similarities/differences in perspectives • With school groups, extending beyond experiential toward reflection • In cross-curricular educational programming • Of high relevance to the NERRS teachers in the Estuary Training Program • May support mentoring, local recruitment, and pathways • Useful for collecting more qualitative "data" on programmatic impact	• To show gratitude via sharing back of the final product • Empowering participants to share their stories • Outreach, recruitment, advocacy, communications • Recovering/filling gaps in histories that may have been lost • To share broader impacts with funders • As a meaningful grant/project product
PHOTOGRAPHY						
Visually oriented sharing and exchange, with potential for long-term memory and lasting impacts of the images	No less than 30 minutes	• Photos and/or photo-taking equipment • Equipment or other means to share the photos • Access to the photo composition and/or access to existing photos of composition	• Easily accessible: visual, little/no language barrier • Lasting impact of visuals • Broadly applicable with limited exceptions • Can encompass both present and historical compositions	• Inappropriate for visually impaired or technology limited audiences • Requires coordination for synchronous sharing of images • May create potential trade-offs in programming time management (i.e., easy for discussion and exchange to carry on) • Easier for audiences to be distracted browsing unrelated images (e.g., on phone) • Intellectual property: need to clearly specify ownership, use, sharing • Requires interpretation of stories	• In teacher learning reporting • Selectively with youth groups • To recruit citizen scientists • To create or otherwise support artists in residence programs • To create photopoints that demonstrate changes in images and values over time	• For broader outreach and sharing (e.g., art exhibits) • To communicate with advisory bodies • Potentially to inform recreational or aesthetic management metrics • Perhaps an area for further collaboration with photopost efforts in other reserves • Perhaps of high relevance for National Oceanic and Atmospheric Administration photo contests

Table 1. A comparison of methods piloted (cont.)

What is this method especially good for?	How much time will it take? (for direct interaction, not including pre/post work)	What's needed?	What are some strengths?	What are some challenges?	How is it applicable in NERRS efforts?	How might one use the end products/results?
TRANSECT WALK						
Field-based engagement technique that can involve diverse end user groups and has the potential to yield new/novel identification of CES	~Half day: 2-4 hour session	• Permission and/or ability to physically access a particular location • Host/guide with experience in a location • On-site coordination/logistics planning	• Supports reconnecting audiences to purpose (e.g., for decision-makers) • Useful to introduce people to place (e.g., students) • Enables meaningful inclusion of "daily engagers" (e.g., tour operators, land stewards, etc.) and resource users (e.g., fisherpeople) • Method can be applied via walk, boat, bike, and many other modes of transportation	• Many variables to manage: weather, access, physical abilities (for walking, swimming, etc.), group logistics • Time-intensive for respondents • Other observations during the activity may easily distract, requires facilitation	• Useful introduction and engagement tool for visiting researchers, graduate assistants, fellows, etc. • To identify overlaps and gaps in the reserve's priorities and surrounding community's(ies') priorities • Easily implemented if leveraging existing field trips • Highly applicable for the NERRS teachers in the Estuary Training Program	• Useful to identify CES across user groups (if/when breaking up into groups) • To illuminate novel CES and new possibilities (given open-ended format)
SURVEY						
Anonymous, rapid assessment method that can yield valuable qualitative and quantitative data	20 minutes or less	• Survey designer • Institutional permissions (e.g., Institutional Review Board approval) • Distribution plan/pathway • Additional time to pilot and refine	• Very specific questions • Potential to reach broad set of respondents • Easily added to existing evaluations • Enables anonymity • Respondents can opt out of a question • Potentially results in a large amount of data in a condensed period of time • Highly repeatable, reproducible	• Low response rate (as is often the case in surveys) • Being mindful of data gaps or interpretation that may not depict the full story • Difficulties navigating individual to group responses and/or aggregation across scales • Balancing qualitative vs. quantitative based on overarching data needs • An individual (not shared) experience with little/no discussion and shared learning with others	• Easy add-on for teacher and coastal professional evaluations (may also prevent the need for new institutional survey permissions) • Useful addition to the Education Sector and Coastal Training Sector Needs Assessment • Of relevance to the Conservation Action Education efforts	• Results could be quickly analyzed to produce quantitative data for the reserve • Provides a rapid assessment of end user needs • Useful for data visualization (e.g., visuals for decision-makers, managers, etc.) • Results are useful for evaluating, improving, and/or informing programmatic design
PARTICIPANT OBSERVATION						
Useful for long-term relationship building, for meaningful identification of services through observation and direct experience, and for contextual evidence of how services may aggregate across scales and user groups	Recurring half days	• An activity and materials/supplies associated with that activity • Ability and availability to participate hands-on alongside others • Requires existing background and/or situational awareness of CES (required for interpretation)	• Informal setting may create a meaningful space for exchange • Focus on relationship building • Autonomy: enables reflective/adaptive application of method • Space for spontaneity • Potentially less extractive, "safer," fewer power dynamics in place • Inclusive of both residents and visitors alike	• Requires an existing activity, invitation to that activity, physical abilities to conduct the activity, and permission to observe/discuss in this way • Timing of activity: invitations are often spontaneous, may be limited by busy field seasons • Could feel extractive if unable to fully participate • Could feel like you're in the way	• Of high relevance to many existing field-based activities (e.g., peat monitoring, invasive weed removal, food processing/harvesting, etc.) • Useful expansion of any existing community engagement activity or related programming and volunteer opportunities • Promotes civic science	• Useful to delineate CES across individual and larger scales • Useful to contextualize CES by experiencing them with multiple senses (e.g., activities resulting in strengthened sense of pride, accomplishment/fulfillment, identity)

ALTERNATIVE TERMINOLOGY AND/OR CONCEPTS THAT MAY RESONATE WITH CULTURAL ECOSYSTEM SERVICES

Leading into and during the Reserve Exchange, the project team reflected on the need for shared language and terminology to better understand and engage with the concept of CES. The group noted that there are many related efforts that may be supported by or, conversely, may deepen expanded explorations of CES. The following list represents terms and concepts that may resonate with CES. Concepts are not ranked in any way but have been reordered based on similarities.

- Well-being
- Relationships (including partnerships and collaborations)
- Connectedness
- Interconnectedness
- Circularity/Reciprocity
- Perspectives/Perceptions
- Values
- Value(s) Added
- Identity
- Sense of Place
- Sense of Belonging
- Mauli (Hawaiian language terminology literally translated as life/spirit/seat of life)
- Resilience
- Support
- Thriving
- Learning Outcomes, Impact, Intentionality, Awareness
- Scaling Across Individual to Group Experiences
- Conservation Action Education (relevant to NERRS Education Coordinators)
- Community Monitors (relevant to NERRS Research Coordinators)

The group also made note of specific terminology that may elicit negative reactions when used in CES-focused or related efforts. For example, the term stakeholder is widely used in many settings but often ignores the legacy and trauma of inequitable power structures and tensions surrounding resource stewardship, tenure, ownership, and the inherent rights of Indigenous Peoples. Alternative language should spell out the specific groups and individuals appropriate for the local context (e.g., advisors, interested parties, potential users, community members, consultants, collaborators, rights holders, knowledge holders, co-owners).

CREATIVE WRITING PILOT

In the creative writing pilot, participants were asked to reflect on a participatory service learning opportunity they attended in the Heʻeia wetlands for the first half of that day. After some initial discussion and clarification of the task, the group was given approximately 20 minutes to compose a poem (format of their choosing) that characterized how they felt about the morning's work. The method was loosely inspired by Fernández-Giménez (2015),[1] but the analysis method was adapted to incorporate aspects of grounded theory analysis—completed poems were randomly traded among participants, and each reader was asked to identify a theme for each stanza (or two stanza) of the poem.
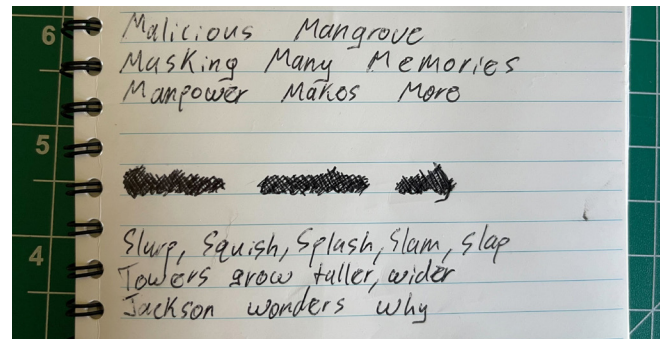
One poem that was composed during the writing pilot about an invasive wetland species in Heʻeia, was later gifted back to the hosts of the service learning activity as a form of gratitude and reciprocity. *Poem credit: J. Schloemer.*

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1   Fernández-Giménez, ME. 2015. "A shepherd has to invent": Poetic analysis of social-ecological change in the cultural landscape of the central Spanish Pyrenees. *Ecology and Society* **20**(4): 29.

Prompt Used in This Pilot:

Write a poem that describes what you saw and/or how you felt about today's work.

Example Themes (Useful to inform the subsequent distillation of CES):

- Connections/connectedness
- Relation
- Restoration/stewardship
- Gathering
- History and passage of time
- Lineage
- Strength
- Love
- Perception and observation
- Friendship and comradery
- Sharing, sharing stories
- Nostalgia
- Home place
- Humility
- Mortality
- Cycles
- Meaning
- Hope
- Pride, accomplishment, achievement
- Monotony
- Separation
- Confrontation
- Discomfort

Other Possible Modes of Creative Writing:

- Poetry: haiku, sonnet, redacted/blackout
- Postcard/letter/written sharing about your day
- Social media post (e.g., character-limited tweet)
- Song lyrics
- Myths/legends
- News article
- News headline
- Jingle/slogan
- Fill in the blanks (e.g., Madlib)

- Patchwork story writing (line-by-line composition, in rounds)
- Sensory list (freelisting based on each sense)

Group Reflections:

With the analysis methods used in this pilot, the group noted that a round-robin analysis of a single poem or multiple (two+) reviews for comparison may be of interest in future implementation. The group underscored the importance of clear instructions and explanation of plans for broader sharing to create and support a trusted environment conducive to creative writing. They used the term *facilitated vulnerability* to describe the safe space we created in this activity. While some composed poems in first person, others opted to select the viewpoint of another (human or non-human), which highlighted an important opportunity in creative writing to share and hear from multiple perspectives. While the modes of creative writing may vary, in coordinated programmatic efforts, creative writing about CES may yield a valuable opportunity for cross-curriculum coordinated lesson plans and projects.

Participatory creative expression can engage audiences of all ages and can be a useful addition to existing educational programming. *Photo credit: S. Rii.*

Photographs can help us to articulate values and benefits associated with specific places. Pictured: Ka lae o Kealohi and Paepae o Heʻeia. *Photo credit: D. Gentzler.*

PHOTOGRAPHY PILOT

In the photography pilot, the group was asked to select an existing photo from their phone photo library that they felt best characterizes what "makes you 'feel good' about living/working in the coastal ecosystem."[2] After taking approximately 10 minutes to select a photo, each individual was invited to reflect on and share about the questions outlined below.

Discussion Prompts Used[3]:

- What is the story behind your photo?
- What are the ecosystem services happening in your photo?
- Why did you take a photo of this?
- What are the threats to your way of life or your community in this photo?
- How can this photo provide opportunities to be better in the future?

Example CES:

All individuals were fully present in the sharing out about selected photos, and consequently no in-depth list of examples was documented. However, emergent themes included the value of time spent with family, the value of time spent in special places, the value of sharing stories with others, and the excitement that comes with thinking about what stories you might share with others in the future.

Group Reflections:

The group saw both pros and cons of having a scripted vs. unscripted opportunity to share about the selected photos—for example, in response to a specific prompt in contrast to sharing general reflections on the photo. We also discussed the pros and cons of using existing photos, which may reduce

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2   Informed by Dias ACE, Armitage D. 2020. Ecosystems, communities and canoes: Using photovoice to understand relationships among coastal environments and social wellbeing, in Gustavsson M, White CS, Phillipson J, Ounanian K eds., *Researching people and the sea.* Springer: 159–179.

3   Informed by Lim V-C, Justine EV, Yusof K, Wan Mohamad Ariffin WNS, Goh HC, et al. 2021. Eliciting local knowledge of ecosystem services using participatory mapping and Photovoice: A case study of Tun Mustapha Park, Malaysia. PLoS ONE **16**(7): 1–27. https://doi .org/10.1371/journal.pone.0253740.

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the time required for the activity, in contrast to guiding an activity that asks participants to take new photos, which could yield new information. In practice, this activity could be adapted based on the audience and/or in relation to other engagement activities that may be conducted during the same time period. The group valued the visually impactful outcome of this pilot, with images imprinted in memory. In settings where digital picture-taking devices may be unavailable, the group brainstormed options around disposable cameras or physical printed images as alternative options to implement this method. Finally the group reflected on how, if images are taken during the activity, the pictures may be a valuable give-back to host organizations and/or workshop conveners, as a token of appreciation.

TRANSECT WALK PILOT

In this pilot, the group adapted transect walk assessment methods originally described in O'Brien et al. 2014[4] and re-envisioned for a small boat tour in Kāneʻohe Bay and snorkeling at one of the patch reefs. Given the nature of the planned physical activity and exposure to the elements, real-time full group exchange was not possible. Instead, facilitators shared a series of prompts with the group before the tour, and all participants discussed responses together once back on shore. While participants were able to respond to the originally selected prompts, some remarked that there may be different ways to more meaningfully evaluate CES based on the shared experience. A list of alternative prompts to consider is also provided below.

Prompts Used (from O'Brien et al. 2014):
- What are the physical aspects of this site that you think impact on your health and well-being?
- What are the (social and personal) factors that enable you to access and use this site for health and well-being benefits?

- What, if anything, is the specific contribution of this site to health and well-being?

Responses:

Physical aspects: view plane of mountain ridges; complexity and depth, sensory aspects; taste, smell, sense of floating, feelings of weightlessness, physical reactions to weather; warm, chilly, observations of colors; of deep and shallow waters, of limited colored corals, absence of fish, absence of invasive algae

Social and personal factors: sense of change/discomfort; not knowing the families that occupy shoreline houses and sadness about impacts for sharing food across homes, connections to the reserve/host institution as an enabling factor for access; people, boats, gas, ecosystem of skill sets, sense of safety in a new place, multiple facets of privilege to access/engage, including pursuit of passions and environmental occupations

Specific contributions: inspiration, family memories, future memories/stories, appreciation for biodiversity, protection/safety, inspired curiosity, appreciation, gratitude, hope (linked to observations of fish recruitment), trust that others will follow the rules (e.g., commercial operators)

Following the April Reserve Exchange in Heʻeia, several members of the project team piloted the transect walk method in Kachemak Bay, Alaska. *Photo credit: J. Argueta.*

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4 O'Brien L, Morris J, Stewart A. 2014. Engaging with peri-urban woodlands in England: The contribution to people's health and well-being and implications for future management. *International Journal of Environmental Research and Public Health* **11**(6): 6171–6192.

Alternative Transect Walk Prompts to Consider:

- How does my/our presence impact non-human beings/kin?
- How does your frame of mind/value system impact what you are seeing or experiencing?
- How do you feel in this place?
- Are there landmarks or other places that you can see right now that are special? Why?
- Who would you like to share this with? Why?
- Would you do this again?
- What is observing you?
- What do you see? What sees you?
- How has this place changed?

SURVEY PILOT

Members of the project team crafted a two-page written survey before the meeting, which was adapted from different studies/question banks focused on better understanding cultural aspects of ecosystems (See Appendix A). The survey mixed open-ended, multiple choice, and ranking-type questions that have been previously encountered across other studies. Participants took approximately 25 minutes to complete the survey. Responses were not collected or aggregated; instead, discussions focused on how it felt to answer the various questions. While many of the existing prompts were identified as useful, the group also brainstormed a set of additional prompts that may be useful to incorporate in a CES assessment survey.

Additional Survey Prompts to Consider:

- Where do you want to go (e.g., to adventure, to gather, to spend time with loved ones)?
- Where do you want to spend time (e.g., special place)?
- Is there an experience you have had or want to have?
  - When you were a child…
  - When you think about later in life…

- What places or experiences would you want to share with others?
- Where do you like to go alone?
- Where do you want to take others?
- If you were going to call someone to tell them about this place, what would you share?
- If you were going to post on social media about this place, what would you share?

Reflections:

Written surveys were identified as a method that the pilot participants could easily incorporate into existing program evaluations and needs assessments conducted within/across NERRS sectors. That said, the group noted the importance of piloting and refining surveys before final distribution—survey design is a specialized field and many can benefit from the input of individuals with strong survey design and implementation experience. The potential for co-development of survey prompts was also raised as it may be useful to contextualize specific questions and units of response and also to be mindful of potentially sensitive topics/areas of historical trauma. For example, in some areas demographic questions on ancestry and genealogy may be easily answered, whereas in other instances surveyors may need to ask about "attachment to place through any of your family members" or "ties to place through family history." The group noted the importance of being inclusive of diverse connections/experiences in the survey design—for example, including questions about ceremonial values in addition to spiritual values and practices. While this particular survey was printed, other modes of transmission (oral, online, phone, etc.) may be useful depending on the setting.

Reserve exchange participants joined Heʻeia Reserve community partner Kākoʻo ʻŌiwi in service learning and practiced participant observation/participatory action research while removing an invasive plant species from the coastal wetland. *Photo credit: Heʻeia Reserve.*

PARTICIPANT OBSERVATION PILOT

In the participant observation pilot, the group attended a half-day service learning activity at a wetland restoration site led by one of the Heʻeia Reserve's non-profit community partners. As invited guests in the labor-intensive activity, it was inappropriate to bring along documentation equipment (e.g., paper, pen, phones, etc.), so all prompts were shared with the group in advance of the work and discussed together once everyone returned from the service learning site. Pilot participants were asked to be keen observers and good listeners and gently raise these questions with the hosts along the way but only if/as appropriate.

Participant Observation Prompts (derived from Bremer et al. 2018[5]):

- What about coming to this place do you value?
- What influences you to use this landscape in this way? How does Heʻeia stream sustain you and this ʻāina[6]?

Examples of Themes Observed/Discussed With Participants:

- Pride; pride in innovation, methodology
- Familial connections to place
- Sense of place
- In-depth knowledge of individual plants
- Genealogical connections impact/deepen/amplify connection
- Sense of accomplishment; guided by observation and experiences
- Being mindful and sensitive to environmental impacts (e.g., clearing by hand)
- Being part of the story, collective impacts, examples of collective action
- Family histor(ies) and opportunities to connect

Group Reflections:

In our post-activity discussions, the group noted that hearing the questions in advance was useful because several times the questions were answered without any prompting. While the prompts we used

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5   Bremer LL, Falinski K, Ching C, Wada CA, Burnett KM, et al. 2018. Biocultural restoration of traditional agriculture: Cultural, environmental, and economic outcomes of Loʻi Kalo restoration in Heʻeia, Oʻahu. *Sustainability* **10**(12): 4502. https://doi.org/10.3390/su10124502.

6   The Hawaiian language term '*āina* is often literally translated as "land." However, the concept broadly encompasses all aspects of the natural world that provide human sustenance—physical, spiritual, and other.

focused on a specific place, the group suggested the implementation of this method may be broadened by focusing instead on a specific activity (e.g., restoration outplanting of native species). There was also interest in an expanded comparison of this method—perhaps comparing information revealed through non-prompted observation against information shared when the respondent was more directly prompted. There was also interest in comparing results if a question was asked multiple times, in a different way each time. These are areas for further refinement and piloting.

KEY CONSIDERATIONS FOR IMPLEMENTATION

The methods pilot during the 2022 Heʻeia and Kachemak Bay Reserve Exchange revealed several key takeaways when considering the broader application of CES assessment methods within the diverse and distinct reserves across the NERR System. While the methods piloted were intentionally selected as a broad suite of options to consider, ultimately we found that each method is only as useful as the effort put into designing and implementing that particular method. For example, written surveys were described as an assessment option that was comparatively easy to implement and one that has potential to quickly convey qualitative and quantitative results. However, survey design, piloting, and subsequent refinement are key components of the development process in addition to developing and implementing a sampling strategy that reaches the desired set of respondents. Inadequate dedication of time and resources in the survey design and implementation stage will likely result in inadequate survey results (and vice versa).

We found that some of the methods piloted may be equally, if not more, valuable for relationship building and engagement than for identifying and assessing specific CES. For example, the transect walk was identified as a method many of the Reserve Exchange participants could implement almost immediately in their own work. Transect walk outcomes, including strengthened relationships among all involved, complemented transect walk outputs such as the identification of cultural values associated with specific places along the transect. It was also noted that outputs like the cultural values identified during a transect walk could be further contextualized, deepened, and/or expanded as the result of multiple group visits to a place. Photography may also be a good method for early engagement efforts with community partners and collaborators.

In contrast, we found that some methods may be difficult to use if implemented during initial outreach and engagement efforts. For example, during the creative writing pilot, participants expressed the need for "facilitated vulnerability," which was described as a space where authors could create and share freely among like-minded peers. If implemented during initial engagement efforts, it may be difficult to immediately create an environment of trust and willingness to share. This may also impact the breadth and depth of CES that are revealed through creative writing activities. Alternative options discussed included first piloting a specific method in a peer learning setting (as we did during the Reserve Exchange), then perhaps trying the method out with your reserve team, eventually working toward implementing the method with a set of existing collaborators and/or within an existing well-established project.

While these are some of the key discussion points raised by our small Reserve Exchange methods pilot group, experiences will certainly vary across sectors, reserves, and other communities of practice. More information on when and how one might use the methods we piloted are described in greater detail in the methods comparison table (See Table 1).

APPENDIX A

2022 Heʻeia/Kachemak Reserve Exchange CES Methods Pilot: Written Survey

This working draft survey was created by members of the 2020 NSC Catalyst project "Cultural Ecosystem Services in Estuary Stewardship and Management" to be piloted alongside other methods during the Heʻeia and Kachemak Bay Reserve Exchange (April 2022). The survey resonates with, and draws inspiration from, social and cultural aspects of the NOAA question bank being collated by J. Selgrath et al. at the time of the Reserve Exchange. Survey questions have been adapted from studies focused on better understanding cultural aspects of ecosystems and represent a mix of question formats (multiple choice, open-ended, likert, etc). While originally envisioned to be shared as a written survey, some of the questions may be better asked as part of an interview.

1. In [HeNERR or KBNERR], what are the names of places that you are connected to in different ways? Please name it or describe its location.

   _____ is my favorite place

   _____ is the place I interact with most often

   _____ is the place that is the most important to me

   OR

   ☐ None, I am not very knowledgeable about [HeNERR or KBNERR]

2. Are there particular experiences associated with [HeNERR or KBNERR] that you hope your kids or kids in your community will experience?" If so, please explain.

   _____

   _____

3. Please list a plant or animal species found in [HeNERR or KBNERR] that is of exceptional significance to your community. If the species has more than one local name, please write up to three common names for each species.

   _____

Explain the importance of this species to your community (material, non-material, economic)

   _____

   _____

4. How happy or sad would you be if you could not spend time near or in the ocean in [HeNERR or KBNERR]?

☐ Extremely happy   ☐ Sad

☐ Happy   ☐ Extremely sad

☐ Neutral (neither happy nor sad)

5. Indicate how much you agree or disagree with the following statements.

I interact with *[HeNERR or KBNERR]*:	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know/Not applicable
To connect and build relationships with the environment, place, resources, species, or people	1	2	3	4	5	DK/ NA
To connect to my sense of self, community, or personal identity	1	2	3	4	5	DK/ NA
To support my mental and physical health	1	2	3	4	5	DK/ NA
To share knowledge about the place/environment/ resources	1	2	3	4	5	DK/ NA
To connect to my culture and/or traditions	1	2	3	4	5	DK/ NA
To connect to my ancestry/genealogy	1	2	3	4	5	DK/ NA
To engage in ceremonial practices	1	2	3	4	5	DK/ NA
To connect to sacred places/resources/practices	1	2	3	4	5	DK/ NA
To connect to artistic or creative expressions	1	2	3	4	5	DK/ NA
To connect to my spiritual beliefs and practices	1	2	3	4	5	DK/ NA
To enjoy the scenery, smell, sounds, or other sensory experiences	1	2	3	4	5	DK/ NA
To restore the natural / cultural environment	1	2	3	4	5	DK/ NA
To acquire and contribute scientific information and knowledge	1	2	3	4	5	DK/ NA
Other: _____	1	2	3	4	5	DK/ NA