

The background of the cover is a composite image. The top half shows a kelp forest with green blades and brown stalks. The bottom half shows a sea otter floating on its back, surrounded by fish. The entire image is overlaid with a semi-transparent dark blue rectangle containing the title. The title is in white, bold, sans-serif font. The subtitle is in a smaller, italicized, sans-serif font. The text is centered within the rectangle.

VISIONING THE FUTURE  
OF KELP FOREST, SEA OTTER  
& HUMAN INTERACTIONS

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*WORKSHOP SUMMARY REPORT*

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## PARTNERS

This workshop was a component of Coastal Voices, an initiative in partnership with the Nuu-chah-nulth Council of Ha'wiih, Nuu-chah-nulth Tribal Council, Haida Hereditary Chief's Table, Council of the Haida Nation, Heiltsuk Hemas, Heiltsuk Tribal Council, and the Sugpiaq Village Councils of Port Graham and Nanwalek.



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# STEERING COMMITTEE, CULTURAL ADVISORS & RESEARCH TEAM

Steering Committee of Hereditary Chiefs  
and knowledge holders represent 19  
coastal First Nations and Tribes.

## Map Legend

Home of Committee  
Members & Research Team



## STEERING COMMITTEE

## RESEARCH TEAM

HEREDITARY CHIEF



Skil-Hillans  
*Haida*

HEREDITARY CHIEF



Gitkinjuaas  
*Haida*

HEREDITARY CHIEF



Wigvilhba Wakas  
*Heiltsuk*

KNOWLEDGE HOLDER



Nick Tanape Sr.  
*Sugpiaq*

HEREDITARY CHIEF



Hup-in-Yook  
*Nuu-chah-nuulth*

HEREDITARY CHIEF



Wii-tsts-koom  
*Nuu-chah-nuulth*

RESEARCH TEAM &  
CULTURAL ADVISOR



kii'iljuus  
*Haida*

RESEARCH TEAM &  
CULTURAL ADVISOR



Qixatasu, Geetla  
*Heiltsuk*

RESEARCH TEAM



Anne Salomon

RESEARCH TEAM



Jenn Burt

RESEARCH TEAM



Laurie Wood

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## COVER PAGE CREDITS

*Kelp Forest off Haida Gwaii*  
Photo By: Rowan Trebilco

*Salmon People Print*  
Artwork By: Arianna Augustine

# EXECUTIVE SUMMARY



ILJA HERB

In June 2014, Hereditary Chiefs, knowledge holders and Indigenous resource managers, representing 19 coastal First Nations and Tribes, along with natural and social scientists, artists, journalists and videographers gathered on the central coast of British Columbia to reimagine the relationships between people, sea otters and kelp forests along the northeastern Pacific coast. Through the lens of traditional knowledge and western science, forty-one participants from Alaska, through British Columbia, to California, all experiencing different stages of sea otter recovery, discussed the social-ecological challenges and opportunities triggered by the recovery of this notorious, previously endangered, keystone predator.

**By reducing shellfish numbers and size, and simultaneously increasing the extent of productive kelp forests, sea otter recovery elicits strong feelings and trade-offs.**

Highly valued, hunted, managed and traded by Indigenous people for at least 12,000 years, sea otters and humans along North America's northwest coast share a deep history of interactions. Yet with the 18th and 19th century maritime fur trade, the extirpation and contemporary recovery of sea otters has generated profound changes in coastal ecosystems, food systems, cultural traditions, economies and thus peoples' lives. By reducing shellfish numbers and size, and simultaneously increasing the extent of productive kelp forests, sea otter recovery elicits strong feelings and trade-offs. While enhanced rockfish habitat, increased carbon sequestration and

reduced coastal erosion are associated with kelp forests and thus sea otter recovery, these benefits come at the expense of reduced sea urchin, crab, clam, cockle and endangered abalone populations, all of which are important and ancient sources of food, cultural traditions and livelihoods.

Yet the 18th and 19th century commercial trade in sea otter pelts not only caused the local elimination of this predator, it opened the door to European settlement and laws. With this came the colonial dispossession of well-established Indigenous governance systems, trade networks, spatially explicit marine tenure systems, and environmental stewardship principles and practices. Consequently, the recovery of sea otters in the unceded territories of coastal First Nations in British Columbia challenges current federal approaches to ocean and fisheries governance, emblematic of environmental challenges occurring across Canada today. While a remarkable conservation success story, the recovery of sea otters and the social-ecological trade-offs they generate illuminates conflicting federal legislation, opposing conservation objectives, and divergent worldviews among people. Ultimately, these challenges beg the larger question: who holds the responsibility and has the authority for environmental decision-making in Canada?

Fortunately, with these challenges comes a tremendous opportunity to transform environmental governance of Canada's oceans towards approaches that are more ecologically sustainable and socially just. Vast opportunity exists to incorporate traditional and western knowledge into ocean management plans and shift environmental decision-making authority to a place that is more equitable. When it comes to people and sea otters, some solutions are quite simple, "We both have the right to food," explained kii'iljuus Barbara Wilson. It was with this optimism and opportunity in mind that participants gathered in 2014 with the goals to:

**"WE BOTH HAVE THE RIGHT TO FOOD"**



LINDA TOLLAS  
STEF OLCEN

*Gaaying'uhlas Roy Jones Sr. on Haida Gwaii harvesting red sea urchin. A sea otter with an endangered northern abalone in its paw. Shellfish are an important source of food for people and sea otters.*

**1 LEARN FROM OUR PAST**  
Share information on ancient use and forms of management designed to sustain the relationships between people, sea otters and kelp forest related fisheries.

**2 UNDERSTAND OUR PRESENT**  
Synthesize data on contemporary sea-otter induced impacts.

**3 VISION OUR FUTURE**  
Envision and collaboratively develop future ecologically sustainable and socially just strategies to navigate the profound transformations that occur with the recovery of this predator.



GRANT CALLEGARI & ILJA HERB

Mask belonging to host Hereditary Chief Wigvilhba Wakas, Heiltsuk Nation.

Participants met in Waglisla (Bella Bella), British Columbia and following Heiltsuk protocol witnessed the canoe entrance and welcome by our host, Hereditary Chief Wigvilhba Wakas Harvey Humchitt, head Chief of Yalakli (Goose Island), the location of the first raft of sea otters reported on BC's central coast in 1989. After witnessing his family's masks, dances and songs and the protocol responses by Haida, Nuu-chah-nuulth, Sugpiaq Hereditary Chiefs and Robert T. Paine representing the scientists, we

continued south to the Hakai Institute on Calvert Island. There, we exchanged knowledge and worked together for five days guided by the Indigenous principles of Yahguudang dljjuu (Respectful Acts), Dlaang (Being Whole), Heshook-ish Tsawalk (Everything is One), and Isaak (Respect with Caring), all important Gvi'ilas (Laws of the Ancestors). Participants generously shared their expertise through a combination of short catalyzing talks, small focus group discussions, larger group reflections, field trips, video interviews, plenaries, activities and dialogues on the dock and by the campfire. This report synthesizes these exchanges, grouped into key themes that mirrored our collective objectives.

Welcoming ceremony included songs, dances, family crests and masks shared by host, Hereditary Chief Wigvilhba Wakas, Heiltsuk Nation.



ALL COLLAGE PHOTOS BY: GRANT CALLEGARI, ILJA HERB, & JENN BURT

# 1 | Learning From Our Past

Participants looked to the past for evidence of how humans interacted with and managed their relationship with sea otters specifically, and coastal resources more broadly. At the end of the Pleistocene, following deglaciation, the assembly of coastal ecosystems and the peopling of North America's northwest coast occurred concurrently. Multiple lines of evidence point to a consistent, expansive and heavy human presence along this coastline from the early Holocene onwards. Humans played an important functional role in coastal ecosystems from their outset. Complex governance practices and social rules guided ancient forms of marine management designed to sustain coastal resources and their equitable distribution among people. Foremost among them was the proprietorship of discrete ocean spaces by Hereditary Chiefs that was contingent upon their sustainable use and management. The potlatch system legalized, regulated and confirmed access rights and responsibilities, and distributed wealth within and among clans. Local experts monitored resources and people's use of them, while a system of authorizations and repercussions held resource users accountable to traditional principles, embodied in laws, songs and stories. These principles were designed to guide people's behavior with the natural world, including sea otters. Protocols enacting the foundational principle of reciprocity built resilience into these coupled-human ocean systems in the event of local shortages in one area and surpluses elsewhere.

Hereditary Chiefs managed the relationships among sea otters, their prey and people with the specific goals of protecting both shellfish food sources and sea otters themselves. Spatial hunting policies, habitat enhancements like the creation of clam gardens, active deterrents, negotiations with other neighboring Chiefs and trade of shellfish, finfish and seaweed between communities were ways by which these Chiefs intentionally regulated sea otter impacts. Midden records from the Aleutian Islands provide evidence of sea otter-free areas close to village sites and viable sea otter populations far from them. This combination of practices likely created a mosaic of kelp forests and shellfish beds along northwest coast shorelines.

**Hereditary Chiefs managed the relationships among sea otters, their prey and people with the specific goals of protecting both shellfish food sources and sea otters themselves.**

Pictographs of sea otters and marine mammal hunting from Kachemak Bay, Alaska. Drawn by Janet Klein

## 2 | Understanding Our Present

Participants turned to the present to illuminate the barriers and opportunities in managing and adapting to sea otter-induced changes today. As major architects of change, sea otters are well known to trigger a cascade of effects that ripple across coastal ecosystems and elicit complex trade-offs that communities grapple with today. Where sea otters are absent, sea urchins, crabs, clams, and abalone flourish, supporting food and commercial fisheries. Where otters are present, shellfish numbers and size drop substantially, including the abundance of grazing sea urchins. When these herbivores are in low numbers, kelp forests flourish, providing food and habitat to a diversity of animals, sequestering carbon, reducing coastal erosion and offering safe passage. However, there is often an inequitable distribution

**Controlled spatial management of sea otters combined with ecosystem-wide monitoring and trade of marine resources between communities, as was done traditionally, could improve people's ability to adapt to sea otter recovery.**

of these trade-offs such that those who ultimately bear these costs, specifically coastal Indigenous communities experiencing sea otter recovery first hand, are either not direct recipients of the benefits (like blue carbon dividends associated with kelp forests) or may prioritize access to food over broad-scale, less tangible ecosystem benefits. Fortunately, ideas to catalyze solutions to this challenge can be found in the past. For example, controlled spatial management of sea otters combined with ecosystem-wide monitoring and trade of marine resources between communities, as was done traditionally, could improve people's ability to adapt to sea otter recovery.

Dialogue among participants about sea otter hunting also revealed fundamental differences in peoples' values that result in divergent views of how sea otter recovery should be managed today. While, there was consensus that sea otters should be allowed to recover, participants differed in their level of acceptability regarding hunting as a component of sea otter, shellfish, and kelp forest management. Only some participants emphasized that hunting was needed to ensure sea otters do not deplete important invertebrate harvesting sites. Dialogue revealed that these differences stem from fundamentally different worldviews among participants. Traditionally, sea otters were, and continue to be, highly valued by Indigenous communities and are viewed as kin. Moreover, people are viewed as components of nature. Sea otters were hunted by people throughout the Holocene without evidence of extirpation. Yet, sea otter conservation and recovery planning today, is playing out within a political and scientific context driven primarily by colonial worldviews and values which tend to consider humans as external disruptors of an otherwise pristine nature.



*Wii-tsts-koom, Kii'iljuus, and Anne Salomon sharing ideas on West Beach, Calvert Island.*

Indigenous participants shared that their ability as a Nation or Tribe to adapt to sea otters, and the profound social-ecological changes they trigger, was influenced by the length of time their community had been exposed to sea otter recovery, their degree of authority to make marine management decisions, and the way in which sea otters recovered; sudden intentional translocation by centralized colonial governance systems versus slow natural range expansion which provided forewarning and time to prepare.

To improve their ability to adapt to sea otter recovery Indigenous participants identified two essential actions; reclaiming authority in marine resource decision-making and taking an active role in developing and implementing adaptive ecosystem-based management plans. Other strategies proposed included bridging western science with Indigenous knowledge, acquiring more insights about traditional management practices, improved communication and partnership building among communities experiencing sea otter recovery.

**Sea otter conservation and recovery planning today, is playing out within a political and scientific context driven primarily by colonial worldviews and values.**

# 3 | Visioning Our Future

Looking to the future, participants identified concrete ways to enable community-based collaborative management of ocean spaces, marine resources, and sea otter recovery specifically. First among them was the need to uphold the rights of Indigenous people to access, manage and economically benefit from coastal fisheries. Indigenous participants emphasized that this would require the devolution of power and decentralization of fisheries management to support local management and local enforcement. Developing policies that strengthen the accountability among all decision-makers was also identified. Several participants emphasized that enabling this governance transition will require strong leaders with long-term interest and direct connections to the land. Participants suggested that the implementation of locally designed marine use plans could facilitate collaborative governance on the ground, as would having access to high-value fisheries to provide the revenue to support community-based co-management.

To sustain coastal fisheries and the recovery of sea otters specifically, participants suggested experimenting with traditional management practices, adapted to today's environmental

## Experimenting with traditional management practices, adapted to today's environmental conditions, to create a spatial "mosaic" of sea otter occupation.

conditions, to create a spatial "mosaic" of sea otter occupation, with sea otters existing along shorelines away from human settlements and excluded from the proximity of villages. This would require specifying spatially explicit recovery goals at unprecedented small scales so that sea otters could be managed at a local scale by local communities while monitoring the ecosystem-level implications of these management experiments. This would also require accounting for today's climate drivers and global economic demands. Ultimately, and perhaps the largest challenge is that this vision would require transforming current legislative frameworks and gaining public acceptability. Participants suggested that

educational campaigns teaching children and the public about the plurality of worldviews and the role and responsibilities of humans as a part of nature, as opposed to apart from nature, would be an important step forward.

This workshop became a 'collective conversation' where people from different walks of life, with divergent perspectives and ways of knowing shared openly, listened with interest



NADINE SCHODERER

*While sea otters have been functionally absent from Haida Gwaii since the mid 1800s, occasional sightings of lone individuals, like this one in 2010 floating behind a pack of sea lions, reminds us that sea otter range expansion is just a matter of time.*

*Wii-tsts-koom Anne Mack and Erin Rechsteiner on a field trip to observe sea otters in Hakai Pass.*



GRANT CALLEGARI & ILJA HERB

and had constructive dialogues. Participants respected each other's knowledge and were inspired when commonalities across unique ways of knowing were discovered and when weaving diverse sources of knowledge led to new revelations. Mutual respect and understanding led to participants finding 'common ground' on the strategies to navigate the social-ecological and political challenges and opportunities triggered by the recovery of sea otters. This workshop also kickstarted a larger collaborative initiative we call, Coastal Voices (CoastalVolces.net), a diverse group of Indigenous leaders, knowledge holders, scientists and artists from British Columbia and Alaska. Together, through the lens of traditional and Western knowledge, we are working to collect and share information and support respectful dialogues to better equip coastal communities and policy makers with ecologically sustainable and socially just strategies to navigate the profound changes triggered by the return of sea otters. If you are interested, please join us!

*"The concept we are trying to spread is the idea of preparing for the arrival of sea otters by protecting and sharing our food sources. Our goal is to figure out what role humans played in the past and what role are we going to play in the future in protecting our coastal ecosystems. How do we adapt to and prepare for the arrival of sea otters?"*

- Hup-in-Yook Tom Happynook



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GRANT CALLEGARI & ILJA HERB

*"The scouts are coming back to our waters around Haida Gwaii. It is going to happen. It is inevitable. We need to learn how to cope with and adapt to this change by drawing from the experiences of all the other Nations that have been through this change. The recovery of sea otters and their impacts need to be considered in the marine management plans that our nations and the government are currently working on."*

- Kii'iljuus Barbara Wilson





KEN LERTZMAN

# HOW COASTAL VOICES CAME TO BE

In 2013, we established a Steering Committee of hereditary Chiefs, representing 17 Coastal First Nations in British Columbia and 2 Alaskan Native Tribes. This committee co-designed and guided the research goals and outcomes of this project from its very inception. We worked with hereditary Chiefs in British Columbia because they are the rights holders to their unceded territories and are ultimately responsible for the stewardship of their lands and sea. By recognizing and upholding Indigenous governance protocols and authority that have been in existence for millennia, this approach models a new way to co-produce both legitimate and relevant marine conservation science in Canada and beyond. Shared decision-making and respectful partnerships built the trust that was, and continues to be, critical to our work together.

Our Steering Committee was established by presenting the idea of this project to Hereditary Chief Councils along the coast, asking for their consent, and if granted, their participation and guidance. Each Hereditary Chief council discussed and voted on whether they wanted to participate in the project or not, after which, each Nation nominated and selected a Hereditary Chief to our Steering Committee. This Steering Committee vetted and guided the specific deliverables of this project via in-person meetings, conference calls, and field visits to facilitate knowledge exchange among Nations. Working within pre-established, Nation-specific hereditary governance institutions and protocols, all of which have unique pre-established protocols of interfacing with their elected Chief councils, gave our team both the authority and legitimacy to conduct the work we did. This approach was both the glue and the magic that makes this initiative powerful and leaves a legacy beyond this project's funding horizon.

Following this 2014 workshop, we produced a short documentary film and digital learning platform, [www.CoastalVoices.net](http://www.CoastalVoices.net), which we continue to add content to. Please visit our "Project Timeline and Updates" page on our website for a detailed account of how this project unfolded (visioning, key meetings to seek free, prior, and informed consent, acquiring funding, establishing steering committee, etc.). At this website you will also find many more resources, publications, and information on ongoing work and collaborations.

## SYNTHESIS OF WORKSHOP DIALOGUES

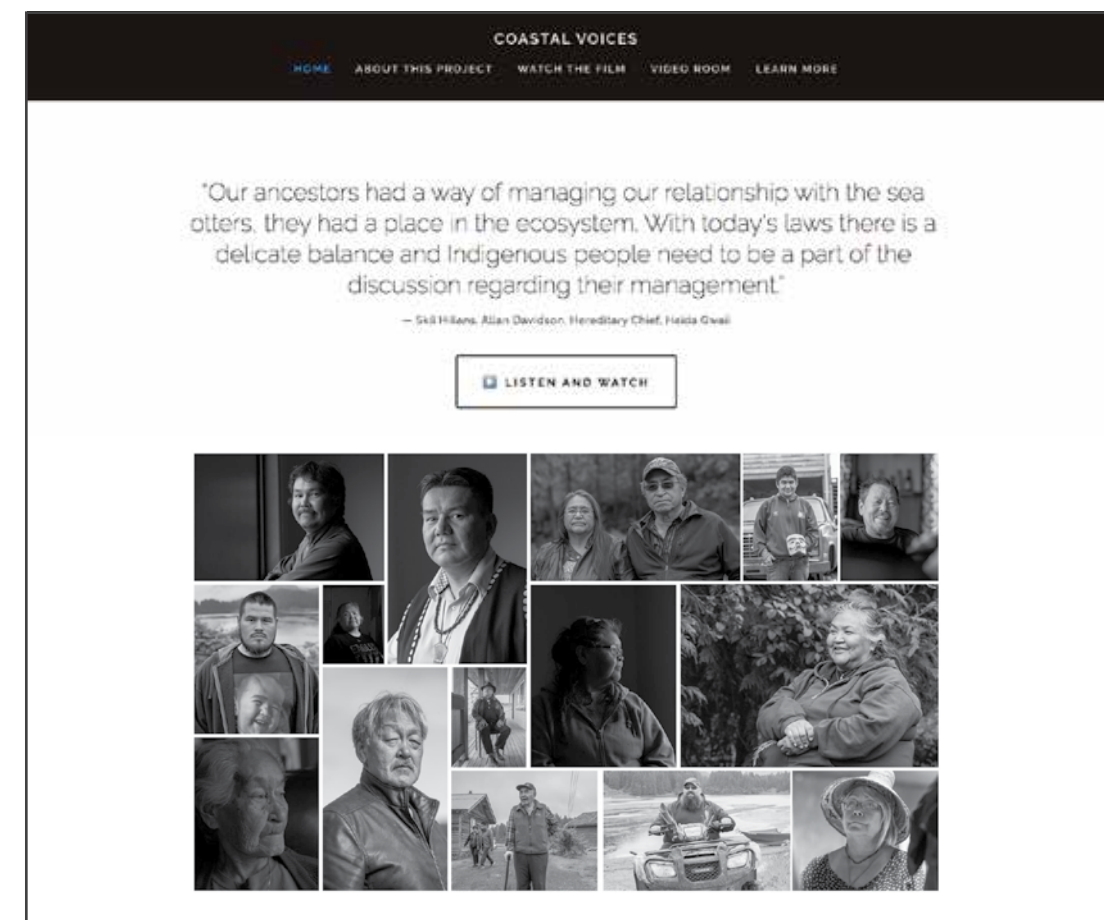
Below is a synthesis of the transdisciplinary dialogue that occurred at the 2014 workshop, stimulated by research talks, group exercises, and field trips, emphasizing the voices of the participants through their direct quotes. Navigating the relationships between people, sea otters and kelp forests requires learning from our past, understanding our present, and visioning the future. Workshop discussions were structured in this way to provide a more complete understanding of the complex and varied human relationships with sea otters and coastal ecosystems throughout time. To see each research talk, watch videos interviews, view our documentary film, or read our published papers, you can visit our learning platform at [www.coastalvoices.net](http://www.coastalvoices.net).



*Workshop participants presenting, listening to, and discussing ideas.*



[www.coastalvoices.net](http://www.coastalvoices.net)



# 1 LEARNING FROM OUR PAST

ANCIENT INDIGENOUS USE AND MANAGEMENT OF COASTAL RESOURCES

## QUESTION 1.1:

**How populated were northwest coast seascapes in ancient times? How long were these settlements established? What might these coastal seascapes have looked like through deep time?**

### The assembly of coastal ecosystems and the peopling of North America occurred concurrently.

At the end of the Pleistocene, some 17,000 years ago, deglaciation of North America's northwest coast created a dispersal corridor for people, plants and animals. The assembly of coastal ecosystems and the peopling of North America occurred concurrently, with the first humans to reach the Americas at least 14,500 years ago and likely earlier. A Heiltsuk story tells of people who went to sleep and woke up to sea, ice and rock. They went to sleep again and woke up to green grass and people. "This happened three or four times, perhaps reflecting transitions over the past 10,000 years" shared Heiltsuk archaeologist Geetla Elroy White, now Qixatasu. And yet, "A

lack of [archaeological] evidence due to sea level rise, is possibly rewriting deep time history of how long we have been here in this area of the world. Our stories talk about Raven pushing Haida Gwaii away from the mainland when the ocean was rising," shared Kii'iljuus Barbara Wilson. While the precise timing remains a mystery, North America's rich marine, estuarine, riverine and terrestrial ecosystems provided a diversity of foods, tools and medicine for people and people, in turn, developed technologies and protocols to guide their use and relationships with the natural world. Humans, therefore, have played an important functional role in coastal ecosystems from their outset.



Chief Maquinna (mukwina) and his brother Callicum of the Mowachat First Nation, cloaked in robes made from the furs of sea otters (from Mears, 1790).

**Humans, therefore, have played an important functional role in coastal ecosystems from their outset.**

Workshop participants discussing the antiquity of sea otter use with archaeologists Iain McKechnie and Skil-Hiilans Allan Davidson.



Thousands of kilometers of deep shell midden found along shorelines from Alaska through British Columbia, and old stories held by Indigenous knowledge keepers reflect a substantial human population, thousands of settlements and widespread human presence along the coast. "There were bigger populations, huge by comparison to today and yet we could feed them," recounted Wickaninnish Cliff Atleo. According to archaeologist Iain McKechnie, Indigenous knowledge, oral histories, ethnographic records and archaeological evidence all point to "consistent heavy human presence from the early Holocene onwards". According to Roger Dunlop, in Nootka Sound, "every flat spot had people on it". Jane Watson surmised that "the coastal



landscape was as populated as the seascape would support. It was occupied at carrying capacity." Estimates of human population are up to 30,000 on Haida Gwaii and 50,000 in Barkley Sound alone. Heiltsuk Hereditary Chief Mark White shared that, "Bella Bella had 20,000 people. There are 50 names along West Beach", those names referring to specific places and families that would have access rights and responsibilities to the resources associated with that place.

This expansive spatial and temporal presence of people, however, should not be confused for the permanence of people and animals in place. Rather, local use of animals and plants varied based on seasonality and local conditions, as revealed by the unique assemblage of faunal remains in midden sites along the northeastern Pacific coast and Indigenous knowledge of seasonal hunting, harvesting and management practices. Geetla Elroy White talked about seasonal movement of people to inland inlets in winter, to the inner islands in spring, followed by outer coastal islands in summer. Moreover, different family groups would have had different seasonal and settlement areas.

Archaeological excavation in Huu-ay-aht territory showing shell layers and dirt floor of a traditional big house dating 1500 to 400 years before present.



## QUESTION 1.2:

**What forms of ancient marine management and conservation existed in the past to sustain coastal resource use? What social rules, governance practices and marine technologies were used to reduce human impacts on coastal resources? What were the barriers and enablers to effective management?**

Respectful relationships between humans and their environment were maintained by a number of governance practices and social rules. Proprietorship of coastal ocean spaces by hereditary Chiefs was a defining feature of sustainable resource management. Specifically, territories were under the responsibility of village and/or clan Chiefs. *Ʒii'iljuus Barb Wilson* shared that on Haida Gwaii, "territories were defined and owned." Chiefs would take care of both local resources such as streams, clam beds, rocky shorelines, rockfish and halibut fishing areas, as well as transient resources such as salmon and herring that would be available at different times of year.

**"TERRITORIES WERE DEFINED AND OWNED."**

In addition to Chiefly territories, sophisticated protocols and practices were developed and used by Nuu-chah-nulth, Heiltsuk and Haida Hereditary Chiefs to manage the relationships between people, animals and plants. On the west coast of Vancouver Island for example, Chiefs would provide permission ('T'aaq-wiihak') to harvest within their "discrete areas", explained fisheries manager Roger Dunlop. This way they knew what was being harvested by whom in their territory. If permission was not sought or if rules were broken, people were held accountable and punished. Beach keepers and river keepers monitored the resources and

*Archaeologist Geetla, now Qixatasu, Elroy White points out pictographs that identify family fishing areas.*



ANNE SALOMON

reported back to the Chiefs. According to Wickaninish Cliff Atleo, "Everything is connected to our house. We had experts on every river. They looked after it and knew it and reported back to the Chiefs. They would predict returns. They did that with everything. You only harvested internally unless you had permission or it came as part of a dowry, for example."

Governance institutions, such as the potlatch system, protocols and ceremony provided the mechanisms by which resource access rights and responsibilities within and among clans were designated, recognized and regulated, while wealth redistribution systems and the principle of reciprocity ensured everyone was fed and looked after, even in the event of local shortages. Critically, proprietorship of Chiefly territories was contingent on their sustainable management. Among the Nuu-chah-nulth, the wolf ritual, similar to a potlatch, was where and when local governance and business occurred, and desired items were bartered for and traded. Among the Haida "the potlatch was a legal mechanism for doing business," shared *Ʒii'iljuus Barbra Wilson*. *Guujaaw* elaborated, "It is important that you understood who everyone was, and you married among each other to make sure leadership was strong. Potlatches were how they regulated that. It is how they passed on names. The Chiefs gained respect from how much they gave away. It is a good system. It would put them into debt and cause other Chiefs to go into debt to do potlatches to reciprocate. It was expected that you would be sustainable."

In fact, a key component of the ancient social seascape and the well-being of communities was connectivity and interconnectedness. There were connections between family members, clans, communities and their local resources, made through marriage, negotiation, travel and trade. Connectivity was a way to deal with the unexpected. According to Wickaninnish; "You had options available with other resources. You could trade with other houses." This was echoed by other participants, "You may trade [a territory's] surplus with other territories' abundance. Maintaining abundance and balance was important. If you take too many salmon for example, nutrients do not get re-dispersed and you would go hungry."

*Guujaaw, now Gidansda, and Wickaninnish share their knowledge of traditional governance practices.*

**"EVERYTHING IS CONNECTED TO OUR HOUSE."**



GRANT CALLEGARI & ILJA HERB

*Wickaninnish discussing traditional environmental governance protocols and practices.*

**"Chiefs gained respect from how much they gave away... It was expected that you would be sustainable."**



GRANT CALLEGARI & ILJA HERB



Right: Haida and western researchers observing and discussing fish weir technology on Haida Gwaii.

Below: One of the wooden stakes from this fish weir.

Accountability among Chiefs and resource users was enforced. According to Guujaaw, "There are stories about people taking things badly [i.e. overharvest or disrespecting rules] and then there was retribution. We were just responsible and regulated. On rivers – you go to fish a river –

any grandmother would look in and assess and decide how many females and males to take. You would take only what you needed and what would ensure future availability." Kii'iljuus Barbra Wilson further explained that individual salmon were selected very methodically. The principle behind this was to take the smaller salmon and allow the larger, stronger salmon to continue up stream to spawn to ensure the vigor of previous generations. Similar stories exist among the Nuu-chah-nulth. "As soon as we veer off good governance, a solid foundation, we get into trouble. We have a story where one of the wives of the Chief was going against the law and people said 'no you can't do that'. Law of ha'houlthee [Chiefly territories]. People warned but they ignored and so their heads were cut off. We take that seriously. As soon as you go against that governance, it goes crazy. Salmon, sea otters – doesn't matter what. You have to be strict," shared Wickaninnish Cliff Atleo. This was echoed by Wameesh Ken Watts, "When someone did something wrong, there were consequences for them."



With respect to sea otters, Chiefs managed the relationships among kelp forest animals, sea otters and people with the specific goal of protecting different food sources, such as shellfish, and sea otters themselves. As Kii'iljuus Barbara Wilson contended, "People were managing sea otters to protect different food sources. There would have been natural ups and downs in that time also - shifts in abundance. There would be negotiations between areas to offset resource imbalances." Archaeological evidence and Indigenous knowledge suggest that people and sea otters co-existed along our coast. It was proposed

## People and sea otters co-existed along our coast.

that Chiefs intentionally regulated sea otter impacts on shellfish by way of spatial hunting policies, negotiations with neighboring Chiefs and trade of shellfish, finfish and seaweed between communities.

The regulation of sea otters and their impact on valuable prey was part of a diversity of spatially explicit coastal management and stewardship practices along the northeastern Pacific coast. Participants shared that tribes in Alaska practiced sea otter control, as did Nuu-chah-nulth Nations on the west coast

Kwakiutl woman gathering abalone c1910.



## "MY GRANDFATHER SAID PEOPLE WOULD KILL TWO SEA OTTERS AND PUT THEM OUT IN THE BAY TO DETER OTHER OTTERS FROM COMING INTO THE AREA."

of Vancouver Island. Hup-in-Yook Tom Happynook shared that, "my grandfather used to say that abalone and shellfish harvesting areas were defended vigorously. People would kill two sea otters and anchor them out in the bay in front of the village to deter other otters from coming into the area." In the Sitka area, people would have specific boundaries and either hunt or scare sea otters if they came within those boundaries. Midden records from the Aleutian Islands in Alaska indicate that this intentional regulation of keystone predation by sea otters likely created a spatial mosaic of kelp forests and shellfish beds. By hunting otters selectively, Chiefs were able to maintain sea-otter-free areas close to village sites and viable sea otter population elsewhere. In fact, it was suggested that there were possibly more 'game' animals present at the boundaries between Chiefly territories.

Many examples of ancient active management and conservation of the land and sea exist and some remain observable along the coastal landscape today. Examples include; burning areas to increase berry production and attract deer for improved hunting, fertilizing berry gardens with fish guts, and breaking buds off berry bushes to make them grow bigger. Ancient clam gardens, intertidal rock walled terraces built and maintained by people throughout the Holocene, are a clear example of deliberate and active marine management. Within a territory, people had different places where resources were harvested or used each year so that they could ensure resources were plentiful.

Traditional laws and stories guided people's behavior with the natural world and made them accountable for their actions. Dolly Garza shared that in Sitka, Alaska, "Clans and families monitored their actions. This was enforced through stories and taboos and the way that you were raised. In Sitka, one group owned the rights to the herring. The taboo was that you could never fish at night. A man newly married into the clan and wanted to impress his wife so kept fishing through the night. In the morning, the canoe with herring in it was found but the man was gone. People found a large rock that was the man who was turned into the rock which is still there today. Those stories with the conservation ethic in them are incredible. Share properly, be respectful. Some of those [principles] we are forgetting, and we have to start living that way again."

## Traditional laws and stories guided people's behavior with the natural world and made them accountable for their actions.



Hup-in-Yook Tom Happynook describes his grandfather's knowledge of how the Huu-ay-aht people managed their relationship with sea otters.



Wii-tsts-koom Anne Mack and Dolly Garza.



Violet Yeaton explains to Hup-in-Yook Tom Happynook how the Sugpiaq harvest bidarkis, the black leather chiton.

Similarly, ƙii'iljuus shared that old Haida stories describe the need to use resources respectfully or else they will be taken away. Misuse of a resource would result in it being diminished. Her great grandmother, Susan Williams, was in charge to

looking after the fish basket in a stream. She would select the smaller jacks and smaller sized fish to keep, and let the bigger fish go upstream. She would then open the gate of the basket in the middle of the stream, woven with branches and cedar. Bob Paine reflected that there is western science to support the traditional practices and technique Barb referred to. This practice would contribute to keeping larger individuals with greater chances of survival in the population. In fact, there is scientific evidence to support that larger females may be more fecund and produce offspring that have higher rates of survival.

Traditional governance, laws and protocols, such as Heiltsuk Gvi'ilas, which embodies the ethic to "take what you need and use what you take" is absent from contemporary management of fisheries driven by western cash economy and market forces. Today's western management does not contain the same environmental safeguards, "There is no social structure in western management that says don't take everything," shared fisheries scientist Steve Munch. Yet these are principles engrained in First Nations culture because "we are living it" explained Guujaaw. As a lived experience, the dynamics of ecosystems become more acute and their management more essential.

Evidence of lived experiences, their transmission and role in learning and the formulation of governance and management practices can be found in oral history. Cliff believed that the nature of storytelling reinforces good governance through repetition: "We know our history because we heard it over and over again. We didn't have a 'save' button or notepad so we had to repeat the story so people would remember it. Think about that good governance. You can't modify for convenience and storytelling helped reinforce that." Storytelling was a knowledge-holding system for the generations to come.



Margaret Edgars, ƙii'iljuus Barbara Wilson and Bonnie McCay on West Beach, Calvert Island.

### QUESTION 1.3:

What are the knowledge gaps that ecologists, fisheries scientists, archaeologists and traditional knowledge holders need to address to better understand prehistoric baselines of coastal ecosystems?

The knowledge gaps identified to better understand prehistoric baselines were diverse. More extensive archaeological evidence of sea otter use and management was highlighted, especially in coastal areas that are less well-documented and studied. The value of archaeology lies in its ability to offer a window into deep time. Cross-cultural education, another commonly mentioned priority, was identified as a way to break down silos of information. Other important knowledge gaps identified included the need to understand relevant scales of management today, amass more traditional knowledge of sea otters and human interactions, and synthesize data on current and past densities of sea otters, and the effect of climate change and commercial licences on the entire system.



Stone fish trap on Triquet Island, nearby the location of one of the oldest known human settlements in North America.

### QUESTION 1.4:

What other forums and / or mechanisms could be used to enable these diverse groups of experts to come together, learn from each other, and re-discover prehistoric baselines and ancient coastal management strategies?

The importance of enhancing the fluidity of information sharing between experts was highlighted. Meetings such as these would gather people together to share their perspectives. Reflecting on Bonnie McKay and ƙii'iljuus Barb Wilson's thoughts on education, Jane Watson noted that children are crucial to exchanging knowledge. Mark White thought that one way to do this could be to display traditions and culture in a video format. Finally, ƙii'iljuus Barb Wilson said that any method that could "re-instill a sense of stewardship over local resources" would be useful. "[We] need to start to water the garden so that our ideas can grow and be nurtured".

**"[WE] NEED TO START TO WATER THE GARDEN SO THAT OUR IDEAS CAN GROW AND BE NURTURED".**

# 2 UNDERSTANDING OUR PRESENT

VALUES, PREFERENCES AND ADAPTING TO CHANGE

## QUESTION 2.1:

**Thinking back to earlier discussions and prehistoric baselines, when sea otters return to our coast, do they cause coastal ecosystems to change into entirely new states, or back to previous states experienced by people in the deep past?**

When sea otters return to our coast today, they trigger changes that were previously not experienced in ancient, precontact time. This consensus emerged as participants agreed that the role humans play as top predators today has vastly changed. In British Columbia, people

**“If you take out the sea otter, things change. But when you bring them back, if you leave out the humans, things aren’t the same as they used to be.”**

no longer hunt marine mammals to the degree that was done traditionally. Consequently, as explained by Guujaaw, “If you take out the sea otter, things change. But when you bring them back, if you leave out the humans, things aren’t the same as they used to be.” Kii’iljuus Barb Wilson echoed this statement, “People’s expectations are very different today because people are not allowed to control the sea otter the way they used to.” Jane Watson agreed, “The coastal seascape now and the coastal seascape in historic times are so different. For example, I don’t think that otters would have eaten butter clams in the past because there were so many people and village sites that they wouldn’t have gotten close to those sites.” Both the direct effect of hunting and the fear of being hunted would have reduced sea otter numbers, made them more furtive, and caused their distribution and the indirect ecosystem-level effects they trigger to be spatially patchy compared to today.

Similarly, the abundance of other marine mammals and sea otter prey within coastal food webs would have looked very differently in deep time compared to now. As Tim Tinker postulated, “Other constituents of the food web were probably very different, such as Steller sea cow [which are now extinct] and fur seals [which are now fewer].” Moreover, harbour seals and Stellar sea lions are in higher abundances today compared to pre-contact times due to a lack of hunting. There is increased evidence of killer whales preying on sea otters in Alaska and Stellar sea lions off Haida Gwaii, while sea otter prey such as abalone are now depressed due to previously unregulated commercial fisheries. Violet Yeaton emphasized the

Spawning northern abalone off Haida Gwaii.



ANNE SALOMON

role of contemporary commercial fisheries in the serial depletion of shellfish, such as tanner and king crab in Alaska, rendering a return to a previous state following sea otter recovery practically impossible.

Changing human relationships with the sea broadly and the sea otter specifically also mean that new social-ecological system states and trajectories will arise with the recovery of sea otters today. “Sea otters in the past were more important for clothing, furs, and trade items. Whereas today, they are seen more as competitors. We’ve lost some of our cultural attachment to their use,” shared Violet Yeaton. People are no longer on the shore tending clam beaches or enhancing eelgrass beds via hemlock twisting poles suggested Nancy Turner. Instead, national and international markets are driving the demand for shellfish as commodities rather than a local food source. “We aren’t going back to the original state,” contended Ginny Eckert. Geetla Elroy White expanded this idea, “Today, people are competing with sea otters for both sea urchins and for kelp for the spawn on kelp fishery. But once we got into commercial market [for the commercial spawn on kelp fishery], it changed how kelp was managed. Before we used feather boa kelp so we are new to eating giant kelp.”

**“WE AREN’T GOING BACK TO THE ORIGINAL STATE,”**

Moreover, human-induced climate change is driving ocean acidification, rising mean sea temperatures and the increased occurrence of marine heat waves, all of which impose new influences with unknown effects. Consequently, the ocean today is vastly different from the ocean of yesterday. As highlighted by Bonnie McKay, “Ocean acidification conditions are also unpredictable with regard to their effects on shellfish and other carbonate-dependant creatures - so that influences the system as well.”

While things will not revert back to exactly the same system that existed in ancient times and uncertainty in species interactions amid climate change remain, there is a coarse level of predictability in the dynamics associated with sea otters. And yet, those ecosystems are always changing. “We can’t imagine it was a constant system.” stated Jim Estes. “[In the Aleutians] when sea otters began to recover, they stabilized to about 2,000 then declined. Then they adapted to eating fish and they increased in populations. The point is that the system is dynamic, it is still in the process of recovery.” “I expect them to come back within my lifetime, certainly within 30-40 years. When they come back, they will change everything,” explained Norm Sloan.

## QUESTION 2.2:

**The recovery of sea otters has caused remarkable changes to marine systems, generating profound shifts in kelp forest ecosystems, coastal economies and cultures. How do you value coastal systems with and without sea otters? How and why do these values and preferences differ among us?**



*Wúm'akḡ Mel Innes and Wickaninnish Cliff Atleo sharing ideas on West Beach, Calvert Island.*

While a diversity of values for coastal ecosystems with and without sea otters were shared by participants, balancing the needs of people and nature within coastal ecosystems was a value held by all participants. Traditionally, sea otters were and continue to be highly valued by Indigenous communities. “We brought out Harvey’s sea otter mask. His chieftainship comes from Goose Island and sea otters are important to his family, his name and story,” shared Elroy White. Archaeological evidence clearly shows sea otters were hunted throughout the Holocene without evidence of extirpation. Yet, following the BC wide elimination of sea otters by the European fur trade and their reintroduction by federal agencies in the 1970s, those

values are playing out within a political context driven primarily by colonial worldviews and values. “We are adapting to that [sea otter recovery] now,” shared Elroy White. “There has been a shift. Change has almost become a threat.”

Generally, there was consensus among participants that sea otters should be allowed to recover, but only some participants emphasized that they also needed to be hunted to ensure that they do not deplete invertebrate harvesting sites. “I think sea otters are good if they are managed. We’ll share our food with them if they’ll share it with us,” explained Hup-in-Yook Tom Happynook. Techniques

involving purposeful and deliberate management, such as keeping sea otters out of certain areas by hunting and deterring them would serve to spatially regulate populations and would place humans back into the ecosystem. There would be coastlines “some with sea otters and some without,” envisioned Roger Dunlop. There is a place for sea otters in the ecosystem, argued Cliff Atleo, in

**There is a place for sea otters in the ecosystem, argued Cliff Atleo, in numbers that allow Indigenous people to achieve security, independence and sovereignty in their food systems.**

numbers that allow Indigenous people to achieve security, independence and sovereignty in their food systems. “We are concerned about our ability to stand on our own feet. We were sustainable, self-sufficient. Every time we went out trapping, we caught sea otters. I value simplicity. Just look after the whole. It doesn’t have to be complicated. We just need to look

after things like we used to before. I have a problem with our people not being able to access shellfish. There wasn’t a culling exercise, there was a value exercise. We need to value the place for sea otters. Our evidence is 1000s of years of living sustainably. We need to value every part of the system.”

The main crux of the conflict among people surrounding sea otter recovery and conservation stems in part due to differing values. “Some love sea otters and some do not. Some want shellfish, some do not. Those are the main values,” stated Jim Estes. Linda Nichol shared the values held by some conservationists, “[To some people] culling seems awful because [by reintroducing the sea otter] we tried to recover and restore things to the way it was. People are feeling a sense of what we have lost and hold on to that and have great sadness. Profound human-caused damage has occurred, and many people want to restore or make it better.”

The notion of values goes beyond sea otters themselves and to the ecosystems, productivity and resilience they indirectly cultivate. “Do people value the indirect services that kelp forests provide such as fish habitat?” asked Jim Estes. Roger Dunlop did not think so, “Very few people see the indirect services. We need to educate people about them.” For fishermen, sea otters offer benefits in terms of the valuable juvenile fish habitat they indirectly help produce. Carbon sequestration by kelp forests has also been shown to be a significant benefit of sea otter occupied environments. Yet, the beneficiaries of carbon credits differ depending on who owns the kelp forests. As pointed out by Violet Yeaton, “in Alaska, up to the high tide is owned by the State. So coastal communities wouldn’t be the benefactors of a carbon credit system [associated with sea otters and kelp forest recovery].” Ultimately, the benefits one gleans from coastal ecosystems differ depending on your objectives. “Whether you are living in a coastal community using shellfish for sustenance and food, or whether you are an urbanite using coastal systems for different benefits such as tourism or recreation,” explained Jane Watson.

Beyond divergent objectives, the degree to which participants valued sea otters varied due to fundamental differences in worldviews. Whether one views humans as ‘a part of’ or ‘apart from’ nature was clearly revealed in this discussion. Many Indigenous participants viewed humans as a part of coastal ecosystems and considered animals, including sea otters, as kin. Looking after the whole is a value of the ha’houthlee and critical to the Nuu-chah-nulth culture. Most scientists viewed humans as distinct from ecosystems and did not think of animals as related family members. This fundamental difference in worldviews helped explain the divergent values participants held and their variable level of acceptability with the notion of hunting sea otters.

*Wahmeesh Ken Watts,  
Vice-President,  
Nuu-chah-nulth  
Tribal Council.*



*Steve Munch and Linda Nichol discuss divergent worldviews and values surrounding sea otter recovery and conservation.*

## LOOKING AFTER THE WHOLE IS A VALUE OF THE HA’HOUTHLEE.





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*Sugpiaq youth, Josh Anahonak from Port Graham, Alaska, shared that in his village "humans have adapted because otters are hunted and kept away from the village and good foraging sites."*

Though First Nations participants advocated for controlled hunts and protecting shellfish resources, it was pointed out that context-specific relationships with sea otters exist in their territories. On Haida Gwaii for example, as of 2014, sea otters had not returned to the territory. In Port Graham sea otters have been present longer than in most other territories- since the late 1950s- so perhaps the Sugpiaq are more likely to have a positive relationship to the otter because they have adjusted to that way of life explained Josh Anahonak, a Sugpiaq youth. "There are different viewpoints on [sea otter recovery] and it depends on how you're raised and what your current ecological timeline in the reintroduction of the sea otters is. We are a little ahead on the ecological

timeline in Port Graham. Sea otters are neither a benefit or a detriment." Bob Paine offered an insight that contested the binary nature of "with and without otters". He observed that many First Nations did not appear to think in these terms, and instead adjusted to the conditions at any given time and place. "It is a perfect story that ties together our history, our biology, our future and our changing attitudes toward the sea," Norm Sloan concluded.

## "WE ARE A LITTLE AHEAD ON THE ECOLOGICAL TIMELINE."

*Sea urchins are universally the most important temperate reef herbivore, capable of controlling the distribution, diversity and productivity of entire kelp forest ecosystems.*



MARK WUNSCH

### QUESTION 2.3:

**How has your community adapted to the recovery of sea otters and the sudden changes they trigger? What were the barriers or enablers to adaptation?**

## "ADAPTATION WAS FORCED BECAUSE NEW LAWS HAD INVALIDATED OUR OWN LAWS."

Adaptation responses to sea otter recovery varied over time and were nation and tribe specific. In Port Graham, Alaska where Indigenous people hold a waiver from the Marine Mammal Protection Act, "humans have adapted because otters are hunted and kept away from the village and good foraging sites," shared Josh Anahonak. "Initially, people were upset by sea otters and they were culled in the 1990s." In contrast, people in Kyuquot, British Columbia, where sea otter populations have been recovering for 45 years and are nearing carrying capacity, people have not been able to adapt to sea otter recovery as effectively. People became upset as their clams were cleaned out by sea otters. Because the intentional sea otter translocation to Nuuchahnulth territories "came very suddenly" with no consultation, "we didn't have time to adapt," shared Hup-in-Yook Tom Happynook. They tried to adapt by gathering sea urchins from adjacent areas for their elders. Geetla Elroy White shared that for the Heiltsuk community, "adaptation was forced because new laws had invalidated our own laws." Tensions have been at play between the two governance systems because of this.

The suggested conditions, mechanisms and tools to support adaptation to sea otter recovery were diverse, spanning the bridging of knowledge systems, learning traditional management practices, reclaiming authority in decision-making, economic and occupation diversification, developing a management plan and improved communication and partnership building. For example, Geetla Elroy White suggested that, "Community-based work can be effective when science and traditional knowledge come together." Moreover, traditional management practices can be revealed with archaeology which can help reveal "the record of what ancestors did and what they used," shared Ian McKechnie.

Steve Munch suggested that changing one's dependence on certain resources could represent a form of adaptation. Sea otter tourism is one example, as it moves some of the economic dependence away from shellfish and onto the growing population of sea otters. Roger Dunlop provided one success story from a Kyuquot man where a shift in occupation led to a shift in attitude towards otters. "A guy in Kyuquot hated otters – they ate all his food. He talked with Jane and started ecotourism and now he loves sea otters."



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*Geetla Elroy White describes the tensions between Indigenous and colonial governance systems.*

**"Community-based work can be effective when science and traditional knowledge come together."**



Violet Yeaton, from Port Graham, Alaska, grew up with sea otters in her ocean home. She stressed the importance of having authority in designing and implementing a management plan.



GRANT CALLEGARI & ILIJA HERB

**"You have to have a seat at the table. You need to have a voice. You need to be an active part of that management plan."**

Norm Sloan and Violet Yeaton discussed the value of developing a management plan. Violet emphasized the importance of having authority in designing and implementing that plan: "You have to have a seat at the table. You need to have a voice. You need to be an active part of that management plan." Hup-in-Yook Tom Happynook suggested an approach of such a plan, "Today we think about how much we can take – how many trees can we take, for example. But in the past, my grandfather [told] me, we used to think about how much should be left. That needs to be brought back into management thinking." Bonnie McKay emphasized the importance of thinking about management activities as experiments, "Where there are a lot of unknowns, it seems like there is a need for more experimentation in terms of management practices." And yet it's not always about planning and adapting. One can contest change too. "To me, adaptation is about having to give up something and I resist that. We like having what we have," stated Violet Yeaton.

Finally, Jennifer Walkus identified the importance of communication and partnership building. "When science is done and then results are brought back into the community, partnerships get built." She highlighted the need for a communications person "who is not a scientist so they can put it in a way that the general public can digest". In the case of sea otters, Jennifer

continued, "[We need to] get more information out. If you have less shellfish, you can have more finfish habitat. If they can see this trade-off, they may have more patience with otters." And yet more fish habitat does not necessarily mean more of all fish. As Bob Paine reported, "For 50 years, [I have] fished for rockfish and lingcod [off Tatoosh Island]. I have had the same level of success before and after the otters."

Adaptation strategies will depend on how the systems change and what we can learn from other places and other times. "What are the sea otters teaching us right now? What is the teaching? We have to figure out what that is," said Hup-in-Yook Tom Happynook.

*Jennifer Walkus from the Wuikinuxv Nation describes the importance of research partnerships and understanding the multiple trade-offs linked to sea otter recovery.*

**"If they can see this trade-off, they may have more patience with otters."**



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## QUESTION 2.4:

**Sea otter recovery can create complex ecological, socio-economic and cultural trade-offs. Can communities find win-win solutions?**

While some species win and others lose with the recovery of sea otters, a solution could emerge if one considers a large enough area, said Bob Paine. In ancient history a win-win solution was achieved through spatial management, noted Tim Tinker. Here, "we have the best opportunity to figure it out. Control of small-scale habitat use [by sea otters] is possible." Moreover, the system itself changes through time as sea otter recovery rolls out. After shellfish numbers and size decline locally, sea otters expand their range to find new sources of prey and local population growth rates slow down. After that, the local system starts to recalibrate itself. According to Tony Hansen from Kyuquot, "We have seen some recovery of our seafood in the last few years. We are now seeing crabs again as well. Otters are leaving some of the food behind in the crevices where they can't reach. In Kyuquot, there are some abalone, some urchin, some recovery of both. Some abalone are in the low intertidal."



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*Tim Tinker discusses the possibility of spatially managing sea otters as was done in the past.*

**"Control of small-scale habitat use [by sea otters] is possible."**

*Hup-in-Yook, Tony Hansen, Tim Tinker, Anne Salomon and Bonnie McCay imagine how to spatially manage the relationship between people and sea otters.*



JOSHUA ANAHONAK

# 3 VISIONING OUR FUTURE

COMMUNITY-BASED CO-MANAGEMENT OF COASTAL MARINE RESOURCES

## QUESTION 3.1:

### What are the barriers and enablers of community-based co-management of marine resources in your community?



Wigvilhba Wakas Harvey Humchitt Sr. discusses the key barriers to co-management in Canada.

### “Even though there is an aboriginal right, and successful court cases, DFO continues to manage without acknowledgement of those situations”

Consequently, a deep lack of trust between Indigenous Leaders and the Department of Fisheries and Oceans and exists, stemming from inequities in decision-making, unequal distribution of benefits that flow from commercial fisheries, systemic racism and the perception that DFO managers lack local knowledge of the ecosystem and community objectives. “DFO are the enemy. They are not open to working with us. The hierarchical structure and racism inherent in DFO’s policies are challenging barriers to dismantle,” shared Cliff Atleo. Moreover, there was a general perception that many DFO managers do not have enough familiarity with the coast to plan management policies that confer sustainability.

The primary barrier to community-based co-management conveyed by the participants was the centralized control of fisheries by the federal government. Among Indigenous fisheries management systems, decision-making was socially and culturally bound to local spaces. The entire management system was predicated upon families having local control over certain areas and managing that area for “benefits of whole and all people”, explained Hup-in-Yook Tom Happynook. The shift from Indigenous to federal control has come at a cost to the functioning of native communities. “The relationships between Nations have changed from one where people would trade openly between Nations, to one where it is more closed-minded,” shared Mel Innes. Today, strong tensions exist between Federal and Indigenous governments over how the Department of Fisheries and Oceans (DFO), approaches and implements fisheries management due to inconsistency and hesitancy in upholding the rights of Indigenous people to access, manage and economically benefit from fisheries. “Even though there is an aboriginal right, and successful court cases, DFO continues to manage without acknowledgment of those situations,” explained Harvey Humchitt.

“Even though there is an aboriginal right, and successful court cases, DFO continues to manage without acknowledgment of those situations,” explained Harvey Humchitt.

## WITHOUT COORDINATION BETWEEN THE DFO AND NATIVE GOVERNANCE, POLICIES WILL NOT BE EFFECTIVE.

The lack of accountability was also identified as a barrier to successful co-management. Without coordination between the DFO and native governance, policies will not be effective, agreed Wigvilhba Wakas, Wickaninnish, and Anne Salomon.

Global economic markets and non-resident license holders with no connection to place or community were identified as additional barriers to the co-management of ocean resources and spaces. There was general agreement that non-resident license holders disconnected from place, have no long-term interest in the sustainability of the local ecosystem or community. Rather, their decisions are driven by economic pressures and market demands, explained Guujaaw. “A major barrier is money. In the past, you used to get rights to access [fisheries] via apprenticeships instead of money. You would get access because you have spent time and learned and tried to understand the system.” Today’s cash economy poses complex challenges to Indigenous communities that need to operate within our current capitalistic and technocratic system. “Economic barriers such as the cost of gas exist for small-scale Indigenous fisheries,” explained Mel Innes. Moreover, Mel continued to explain, “The depletion of resources in general are a barrier. Modern technologies, alcohol, and a lack of interest in traditional ways are social barriers.”

To enable co-management of marine resources on our coast, many participants pointed out the need for local knowledge, management, enforcement, and policies that strengthen the accountability among all decision-makers. “[local] people with the greatest vested interest running management is the most logical approach. They have to live with the consequences, both good and bad,” suggested Guujaaw. Participants were strongly in favor of the notion of community-based, co-managed areas akin to the co-operative Territorial Use Rights for Fishing (TURFs) in Baja, California, described by Bonnie McKay, primarily because they resembled the traditional way ocean spaces were managed in the past by coastal First Nations across BC. “The Co-operative systems in Baja’s nearshore fisheries are remarkably similar to Indigenous traditional management here in coastal BC and could present a modern way forward, as it promotes responsibility at each level,” suggested Roger Dunlop. Yet, several participants emphasized the importance of enforcement, without which, community-based co-managed areas would be vulnerable to poaching by non-native and native fishermen who don’t have permission to hunt or fish. Fortunately, Indigenous governments today have laws and can issue tickets and fines. In some communities, one needs a harvesting card for fishing, hunting, and gathering. That harvesting card will be taken away, individuals fined, and gear confiscated if laws are broken. These kinds of repercussions can support compliance. Moreover, community enforcement today is possible via initiatives like the Coastal Guardian Watchmen, a network of coastal First Nations that uphold traditional and contemporary Indigenous laws and ensure that rules and regulations are followed. However, training and money are limiting factors to their effectiveness, as is the slow speed of co-management processes in general.



Bonnie McKay describes reasons behind successful fisheries co-management in Baja, California.

Wigvilhba Wakas Harvey Humchitt Sr. describes the value of the Heiltsuk Marine Use Plan.



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## “We do hope to gain some management power through that plan.”

Effective enablers of community-based co-management of marine resources include strong leaders, those with a long-term interest in a project and direct connection to the land. “Leadership is really important; leaders take responsibility and consult carefully with community before making final decisions. Apprenticeships are also important such that young people are involved right from the start and future leaders are trained from early age in ethics and values of leadership.” Proposed Guujaaw.

Practical suggestions for enabling community-based co-management included the implementation of locally designed marine use plans that emphasize decentralization. “We do hope to gain some management power through that plan,” said Harvey Humchitt. “Having access to high-value fisheries would provide the revenue to support community-based co-management,” suggested Jennifer Walkus. The same applies for terminal fisheries, by reducing the uncertainty of which population is being harvested at sea.

There was broad agreement that the collective First Nations assertion of rights and title is the ultimate enabler of community-based co-management. Broadly speaking, having negotiating power enables co-management.

Radical actions, like protests outside of the court, were also suggested. At a larger scale these actions would need to be accompanied by nation-nation agreements and consistent and frequent data collection, some of which has been initiated in communities. The political power and influence of First Nations, harnessed for these purposes, has the potential to provoke change. Ultimately, explained Cliff Atleo, “Our enablers are First Nations’ assertion. Our rights and title still exist. The optimism is never going to go away.”

## “Our enablers are First Nations’ assertion. Our rights and title still exist. The optimism is never going to go away.”

Gitkinjuaas holds the paddle he made that epitomizes Haida carving and seafaring technology.



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## QUESTION 3.2:

### What strategies can be used to overcome barriers and/or catalyze enablers?

Participants presented a diverse set of strategies that could be used in concert to overcome barriers and catalyze the collaborative management of marine resources. Guujaaw and Roger Dunlop discussed the benefits of simultaneously taking legal action, including court cases, and local direct action. Guujaaw described the highlights and turning points from the 1985 Lyell Island (Athlii Gwaii) blockade which led to the process which culminated in the creation of Gwaii Haanas, emphasizing the need to take action that was defensible and supportable. He also described the more recent co-management arrangements for BC’s coastal temperate rainforests signed with the provincial government. “[The] reason they did it is because we snarled them up. They could not beat us in court. We were prepared to stand and stop them. It was not because they wanted to sign these things. We left them no way out.” Jim Estes described the way South Africa overcame apartheid was not in the courts, but by defying discriminatory rules and going to jail. To which Iain McKechnie responded “Well, most of the court cases here actually start with someone going to jail.”

To gain support for co-management from the federal government and Canadian public, part of the strategy may also require an economic argument highlighting the value of the services provided by restoring and co-managing coastal treasures. Lastly, the idea of experimenting with pilot place-based projects such as community conservancies or tribal parks was also suggested as a new way to look after the coast. As described above, the marine use plans created by BC’s coastal First Nations offer a concrete way forward.



MARK WUNSCH

An opalescent nudibranch attacks an orange cup coral in Gwaii Haanas.

## QUESTION 3.3:

### How similar are the place-based community co-operatives in Baja to traditional First Nations clan-based chiefly territories discussed on day 2? How are they different? Are there advantages to either and if so, how can we benefit from them?

The co-operatives in Baja, California, described by Bonnie McKay share some similarities with traditional First Nations chiefly territories and yet are distinct in several key aspects. Cliff Atleo pointed out that the governance processes guiding each system were different. Community co-ops in Baja are managed by democracy, while chiefly territories were governed by hereditary leaders. “There were chiefs that made the decisions informed by designated people,”

## “There were chiefs that made the decisions informed by designated people.”

explained Cliff Atleo. Today, elected and Hereditary systems within Indigenous communities are distinct yet many Nations along the BC coast have established their own protocols within which these two governing bodies interact. Among the Heiltsuk Nation, as described by Harvey Humchitt “there is a functional relationship between the elected tribal council and the hereditary chiefs. In our system we have the house system.”

When it comes to regulating commercial and food fisheries among Indigenous communities today, various arrangements exist along the BC coast, some of which have characteristics akin the community co-operatives in Baja. According to Wickaninnish Cliff Atleo from the Nuuchahnulth Nation, for clams “in our territory, there is commercial and home-use. There is a chief that is responsible for all the beaches, he advised to open a quarter of the home-use.” For clam fisheries among the Heiltsuk Nation, “the commercial fishery is regulated by a group of clam diggers. It is somewhat cooperatively managed and is working more or less,” reported Wigvilhba Wakas Harvey Humchitt.

The feasibility of managing marine resources today by way of traditional chiefly territories was debated among participants. Returning to spatially explicit areas regulated by Chiefs by “breaking up the coast into territories” could be a “nuisance” because marine resources tend to be open access such that “everyone uses everything”. Furthermore, the aboriginal right to food, social and ceremonial (FSC) fisheries is a collective right, not an individual right, therefore it would be “difficult to employ the old chiefly system” to keep specific groups of individuals out of some areas while allowing others in. “[It] does not mean you can keep others out, but may mean you can come up with the rules and regulations about what will happen there.” For example, Nations could develop internal protocols for tribal access “so people can reciprocate for resources used.”

Lastly, “Aboriginal right comes with responsibility. People have to agree to internal regulation to look after things.”

The perils of Indigenous communities’ acquiring rights to specific commercial fisheries from the federal government by way of the courts was also discussed. “Say we won. So, give us some licenses. We have always had the right to fish. Establishing that right actually reduces the right that you already have. It allows DFO to say what you are and are not

allowed to do. Fisheries can stonewall you. You need to set up your own system.” “Our rights are still being overridden by DFO.”

## “OUR RIGHTS ARE STILL BEING OVERRIDDEN BY DFO.”



INTEGRATING TRADITIONAL AND CONTEMPORARY MANAGEMENT TOOLS TO BALANCE THE NEEDS OF PEOPLE AND NATURE

“This head piece is trimmed with sea otter fur. It depicts our interconnection to all parts of our world including our supernatural ancestors who came from the ocean.” *ƙii’iljuus Barbara Wilson.*

### QUESTION 3.4:

**Can traditional governance and management practices be used today and into the future? Where are the opportunities for their use and where are the barriers?**

Participants broadly agreed that traditional governance and management practices should be used today and into the future, if certain requirements were met, challenges overcome, and modern global drivers of change accounted for. “It is important that our ancient management knowledge come forth in current practice because our people live there. Connection to place [is required] to effectively manage,” shared Hup-inYook Tom Happynook. “Traditional forms of governance can work because they are based on respect and the inclusion of people. You want to manage and bring together all stakeholders to reach consensus about the best way forward,” stated Violet Yeaton. To put traditional governance and management practices into place today however, Indigenous governments would need shared and equal decision-making authority with federal agencies. The continued use and trade of marine resources, including the hunting and use of predators like sea otters would also be a requirement. Another critical aspect to the successful use of traditional governance and management is the transmission of knowledge to the next generation, as are the protocols that ensure accountability among resource users and decision-makers. Collectively, local communities would need to be brought into a meaningful relationship with all resource users in the territory. Individually, ‘newcomers’ will need to be willing to embrace the changes that would come with a transformation in environmental governance.

Both the benefits and challenges of reinvigorating traditional governance and management practices were discussed. Nancy Turner highlighted that Indigenous knowledge systems offer practical insights into seasonal harvesting practices, such as what is good to eat and when. These systems also offer practical methods of transmitting and sharing knowledge among generations, such as the apprenticeship model, where the younger generation learns by doing and formal instruction. Importantly, Indigenous knowledge is based on underlying values and belief systems

**“It is important that our ancient management knowledge come forth in current practice.”**

**Indigenous knowledge systems offer practical insights.**

where species are embraced as living beings and kin. And yet, the reluctance of DFO to share decision-making authority was voiced by many participants. “DFO has such a powerful hold on our resources so we do not have the power to manage.” “We do not have control over the resources in our territory.”

Moreover, global drivers of change, from increasingly warmer and more corrosive sea water to global economic markets, affect local management. “There are bigger factors, global concerns that cannot be addressed locally but will affect local conditions. We need to somehow translate local common sense into global common sense,” shared Bob Paine. There are more people and less fish, so its harder to keep everyone fed with one river.

**“There are bigger factors, global concerns that cannot be addressed locally but will affect local conditions. We need to somehow translate local common sense into global common sense.”**

Fortunately, a diversity of pathways to reinvigorating traditional practices within a contemporary context were suggested. For example, bringing traditional knowledge and science together, “side by side, moving together.”

The transmission of traditional knowledge can come through oral histories and songs and dances. Another way to integrate traditional management into current use would be to form partnerships akin to early contact times, where canneries worked with tribes to uphold their territory requirements for local engagement in proposals and developments.

*Jim Estes and Bob Paine reminiscing about the inception of their research on predator dynamics off the Aleutian Islands in Alaska and on Tatoosh Island in Washington State.*



GRANT CALLEGARI & ILJA HERB

## QUESTION 3.5:

**Given the ecosystem effects of sea otters, what traditional and contemporary ecosystem-based management strategies can we use or modify to sustain coastal shellfish and finfish fisheries and balance the needs of people and nature?**

To sustain coastal fisheries and the recovery of sea otters, many participants suggested experimenting with traditional management practices, adapted to today’s conditions, to create a spatial “mosaic” of sea otter occupation, with sea otters existing along shorelines

away from settlements and excluded from the proximity of villages. If selective otter harvesting was enabled in BC, then communities could safeguard regions of shellfish harvest while allowing the continued growth of sea otter populations. According to Tim Tinker, “Otters could definitely be kept out of a local area. It can be done.” This would require specifying spatially explicit recovery goals at unprecedented small scales so that sea otters could be managed at a local scale by local communities while respecting mother nature and Isaak; paying attention to everything, not just sea otters. Monitoring the ecosystem-level implications of these small-scale spatially explicit experiments would be essential. Yet, it was also suggested that while mechanistically possible, this management strategy may be politically unfeasible.

The application of traditional management faces several challenges. First, sea otters are currently listed in Canada as a species of special concern, rendering their selective hunting for the purposes of safeguarding shellfish fisheries logistically impossible under current federal law. Second, Canada’s centralized federal fisheries agency and Species-at-Risk Act policies are designed and implemented at the national scale, while recovery targets by way of traditional management would require spatially explicit, locally managed spaces (Group A, Group B). This would require a major legislative and ideological shift,” explained Roger Dunlop. Alternatively, this ‘experiment’ would have to happen in a Nation-led context, without a lot of publicity, with Nations exercising their traditional rights. Another set of challenges lie in the designation and enforcement of sea otter-free areas. “You would have to harass them lethally,” noted Tim Tinker. Roger Dunlop agreed; “Otters learn. The otters know which boats are the ones that have shot at them and they avoid those boats. They know the sound of those boats.” Tim Tinker continued that line of evidence, “The otters avoid our boats also because they know that we catch them.” Ultimately, one would need “local fisheries with local people out on the land as watchmen to chase sea otters out of local areas.”

**A spatial “mosaic”, with sea otters existing along shorelines away from settlements and excluded from the proximity of villages.**



GRANT CALLEGARI & ILJA HERB

*“The lesson goes back to Indigenous management systems,” shares Nancy Turner. “There is a mosaic of different habitat and production areas for different resources.”*

Beyond transforming legislative frameworks, a major obstacle lies in public acceptability. Any management experiment involving sea otter hunting would have to be paired with an education and awareness campaign, one that includes educating children and the public about the plurality of worldviews held by people on the role and responsibilities of humans as a part of, in contrast to apart from, coastal ecosystems. As expressed by Guujaaw, "If you use language like eradicate and kill, the public will be down on it so quickly, the otters will be rescued before we can do anything. We need this to be seen as a natural function of the ecosystem."



Sea otter co-management should be informed by traditional and western science, paired with educational programs.

### QUESTION 3.6:

**How could place-based community co-operatives, like those in Baja, be used in today's governance setting and marine spatial planning processes along BC's coast as a tool to meet multiple ecosystem, social and cultural objectives?**

Community based co-operatives, like those in Baja, could facilitate locally designed strategies that better meet social, cultural, economic and ecological objectives here in BC. This is because, akin to traditional Chiefly territories, local communities can monitor and manage marine resources more effectively than federal managers located in offices far away from the system they are designated to manage. One major challenge however, in implementing this model in BC is that the fisheries co-operatives in Baja generate revenue for coastal communities. In the minds of most Canadians, the Food, Social, and Ceremonial designation for fisheries to which Indigenous people have priority rights excludes deriving an economic benefit. Yet, the creation and maintenance of any society includes the economy. Unfortunately, Supreme Court of Canada cases such as Sparrow and Gladstone that uphold the rights of Indigenous people to access and derive financial benefits from fisheries are limited to a single community and single fishery.

Today, ancient clam gardens like this one seen from above, are being restored by coastal communities to meet social, cultural, ecological and economic objectives.



### QUESTION 3.7:

**Does your community have the management tools, exclusive access rights and legal authority to manage shellfish and finfish resources in response to the ecological and socio-economic changes associated with sea otter recovery? If so, what are they? If not, what should they look like?**

While First Nation communities in BC have the tools to manage their own marine resources and legal rights to fisheries for Food, Social and Ceremonial (FSC) purposes, their inherent responsibility to protect local resources is hindered by their lack of exclusive access and legal authority to manage shellfish and finfish in their territories. Currently, First Nations in BC cannot selectively hunt sea otters for the purpose of reducing their impacts on shellfish. In Sitka, Alaska, Indigenous people are exempt from the Marine Mammal Protection Act which specifies that Alaskan natives can hunt sea otters in a 'non wasteful manner for purposes of creating and selling authentic native articles of handicraft and clothing'. However, the purpose of hunting sea otters has also included the specific aim of reducing their impacts on shellfish. Dolly Garza shared that in Sitka, the Department of Fish and Game "told hunters to hunt those [razor clam] areas first if they saw sea otters there. Fish and Game could not do anything themselves so [they] 'suggested' hunting by First Nations in the area. I don't know if it worked."

Gaining exclusive access rights and legal authority over coastal resources requires federal governments to share decision-making authority with local Indigenous government. Yet, collaborative management exists for only a limited number of fisheries in British Columbia and Alaska. For example, the Heiltsuk and Haida Nations have a co-management agreement for clams in their respective territories, but similar collaborative arrangements have not been extended to other fisheries. First Nation communities in BC are however creating marine use plans for how to move forward with co-management. These plans, which are from the communities, can be taken to the table, rather than the other way around. Amplifying indigenous authority by reviving and adapting ancient practices would push progress towards shared and equitable governance practices. Some participants shared even more extreme views suggesting that the federal government needs to be taken out of the equation to make the opportunity for local management. "We have the moral authority and legal right and should just get busy and do it instead of waiting for DFO to acknowledge that. The species-at-risk act (SARA) cannot obstruct our food, social and ceremonial (FSC) need so long as [the resource] is not sold and is sustainable."

**"WE HAVE THE MORAL AUTHORITY AND LEGAL RIGHT AND SHOULD JUST GET BUSY AND DO IT."**



Sea otter eating a red sea urchin around Hakai Pass, British Columbia.

Participants discussed the lack of clarity surrounding Canada's Species-At-Risk Act (SARA) designation of sea otters as a species-of-special concern. Specifically, they did not know if SARA included an allowance or permitting process for hunting sea otters. Linda Nichol

## “DECISIONS ABOUT WHAT CONSTITUTES ‘A TAKE’ IS A PROCESS WITH DFO AND JOINT MANAGEMENT PLANNING.”

provided some clarity, “Decisions about what constitutes ‘a take’ is a process with DFO and joint management planning. DFO makes recommendations on the maximum take and a communal license can then be issued with a certain allowable take. A management plan is needed before hunting takes place.” Dolly Garza described the different situation in Alaska. “[This] is very different than what happens in Alaska. There are two paragraphs [in the Marine Mammal Protection Act] that allow [sea otter hunting] and its written in simple language (see Appendix). It does not allow Fish and Game or National Marine Fisheries Service to impose regulation until they feel there is a conservation issue. First Nations just hunt and take what they need. They have not affected the population of sea otters. There has never been an overharvest of sea otters [by Indigenous people] in Alaska, but it has been close for harbor seals, so people talked about it and cut back on hunting. Beluga hunting in Cook Inlet did have to be reduced due to marine transportation risks and other risks. If this [sea otter hunting] becomes co-management, tribes should say this is how we want to do it.” Dolly Garza continued “[You] have to tag and tan every animal. There is a limited number of tanners around. Otters are primarily tagged by tribal taggers and they have a good relationship with the Fish and Wildlife Service. At the end of year, the Fish and Wildlife Service can do a quick and easy summary of how many sea otters have been taken from where. They also do the same with polar bears and it seems to work for monitoring the total take. Not that many tribes have already created management plans including shellfish protection areas for subsistence users. This was done in Sitka and it worked. They identified priority areas where hunters would hunt sea otters first.”

When it comes to sea otters and the myriad indirect effects they have on coastal ecosystems, it was suggested that Indigenous leadership in BC try a diversity of mechanisms that have been used before, such as transplanting sea urchins and experimenting based on the

knowledge they collectively have. As shared by one participant “[I] believe we can get along with the sea otter because we did before.” The importance of monitoring the consequences of these experimental management actions was also emphasized. Lastly, traditional stories about responsible resource management provide the moral underpinnings of these practices today.

*Violet Yeaton picking beach grass on West Beach, Calvert Island.*



JOSHUA ANAHONAK

### SLIDING BASELINES AND RECONCILING WORLDVIEWS



## QUESTION 3.8 & 3.9:

**If our management objective is to ‘restore coastal ecosystems’, what is your baseline? How do our baselines differ among us? Why?**

**What is ‘Natural’? Are humans a component of natural ecosystems? How can we reconcile different worldviews?**

Are humans a component of natural ecosystems? If so, or if not, how does your belief affect your perception of the recovery goal for ‘natural’ sea otter populations and coastal ecosystems? Do your baselines of sea otter population size and coastal ecosystems include human relationships with sea otters and such as hunting, harvesting, and ancient stewardship practices like clam gardens? When identifying recovery targets for sea otter populations and the coastal ecosystems they shape, do we consider humans as a natural component influencing those baselines we are aiming to restore? These questions led participants to reflect and consider their fundamental ideologies and worldviews from which their values and epistemologies about sea otter-human-and kelp forest relationships are shaped. Spanning multiple academic disciplines, from ecology, archaeology, sociology, and anthropology, to political science and philosophy, these questions helped cut to the core issues behind the current and future management of sea otter, kelp forest and human relationships along our coasts. In the large group discussion, each participant had the opportunity to speak their mind, exploring whether and if so, how we could reconcile differences among our unique worldviews.

Indeed, participants held varying worldviews on “what is natural” and whether humans are a part of ecosystems. “I am a natural phenomenon, just as much as a seal,” expressed Guujaaw. While it made sense to Linda Nichol that people could be viewed as part of the ecosystem, she struggles with seeing herself in that way when most

**“I AM A NATURAL PHENOMENON, JUST AS MUCH AS A SEAL.”**

of the spaces she occupies are built and industrial in nature. “I have trouble thinking about myself, in my community, driving down the road going to the mall, as part of the ecosystem and whether accepting that makes things any better. I struggle to see myself as part of the ecosystem.” But Guujaaw contended that people are still natural components of ecosystems, whether or not they feel that they are, and that these differences in fundamental worldviews is the root of the larger problem and conflicts on how to manage the relationships between people, sea otters and coastal ecosystems.

## Differences in fundamental worldviews is the root of the larger problem and conflicts on how to manage the relationships between people, sea otters and coastal ecosystems.

So, what defines a natural way of being? Nancy Turner offered the notion that we as humans are “neither natural or unnatural” but our contemporary lifestyles encompass a “range of living in a natural way”. This could be defined by the degree of connections that people have to local ecosystems. “People who live in urban areas without connections to natural processes and only distant connections with food they eat would be living in a less natural way. People who live in the city can come back to home communities to participate in the natural processes around us,” reflected Nancy Turner. To which Guujaaw remarked “Civilization has always been measured by how far from the natural world you can get.”



Haida Elder, Margaret Edgars.

The conversation turned to the reality that many people are moving further away from what they perceive as ‘natural’. Haida Elder, Margaret Edgars contended that Indigenous people are an ‘endangered species’ because they no longer eat the food they used to eat or live off the land as they used to. Rather, store bought processed foods are “making people sick.” Violet Yeaton commiserated and mourned the waning connection to the land and how this connection is put at risk when sea otters deplete local shellfisheries. “What we are talking about is our culture, traditions and ties to everything that is connected to the land. If the food goes away, we lose the sense of who we are. That is what is going to go extinct. Culture. A sense of being. To me, that’s that I think of going extinct. Not growing numbers or populations [of sea otters] but our connection to the land”. Wii-tsts-koom Anne Mack agreed. Access to healthy food, marine resources and housing has become a major problem among coastal First Nations due to colonial policies surrounding sea otter recovery specifically and fisheries more broadly. According to Wii-tsts-koom Anne Mack, communities are losing access to the healthy resources that they once had: “Our people would be home and healthy if they had the choice”. Mel Innes agreed that First Nations communities are poor because, in part due to DFO policies, there is no longer anything [fisheries] in the area that can serve as an economic base. And yet, this was not always the case. Wickaninnish Cliff Atleo remembered a time when he was growing up when there was no unemployment or issues securing housing. He reminded the group of the simplicity of ‘hahouthlee’ (chiefly territories) when everything was regarded with care, and that this may re-emerge if these values are shared as often as possible.

Remarkably, specific baseline numbers for sea otter populations were not discussed, and this in its own right was significant. As Wickaninnish stated, “It would be useful to consider the

baseline as everyone being looked after and everything being looked after, whatever form or number or shape that takes”. If sea otter management and conservation policies are to consider the worldview that humans are a natural component of ecosystems, then current recovery targets for sea otters and other marine mammals would need to change. Currently, in the US, recovery targets are based on an ‘optimum sustainable population’, the number of animals which will result in the maximum productivity of the population or the species, given the carrying capacity of the habitat in which they form a constituent element. According to Jane Watson, Canada does not have specific recovery targets for sea otters that are implemented via our Species-at-Risk Act. Instead, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) gauges a species’ status against its abundance and distribution over the previous 10 years or three generations, whichever is longer. “Once sea otters are seen to be out of risk, they will be down listed It is an entirely different process which does not have anything to do with historical baselines.” To which Kii’iljuus Barbara Wilson remarked, “If we allow sea otters to eat everything, what about people? We become at risk too. Who [designates] us at risk?” To which Guujaaw quipped, “Barb thinks we should be listed!”



Jane Watson, marine biologist.

To what degree does the abundance and distribution of sea otters over the past 3 generations reflect the abundance and distribution that would have existed along our coastline pre-contact? “The answers lie in archaeology. The labour of the ancestors is in the ground. Archaeological evidence points to the consistency of hunting practices across a region. It was an enduring part of ecosystem,” shared Iain McKechnie. Consequently, the US and Canada’s current measures of conservation status are inconsistent with the evidence that marine mammal hunting has gone on for thousands of years before contact. In Canada, “What’s needed is clear clause that says aboriginal people have a right to hunt,” expressed Guujaaw.

**“What’s needed is clear clause that says aboriginal people have a right to hunt.”**

Federal single-species conservation and management plans designed without considering human use of those species were identified as the largest political barrier to transforming the governance of coastal resources, including sea otters and the profound social-ecological changes they trigger. Single species approaches to management, premised on the last century of sea otter recovery, are not representative of the ecosystem’s deep time structure and processes. Humans played an important functional role along the northwest coast of North America following deglaciation at the end of the Pleistocene, actively using and interacting with marine mammals, including sea otters. Consequently, marine mammal populations, and the ecosystems in which they were embedded, co-evolved with humans, were likely below carrying capacity, and likely varied spatially in the past. Looking to the future, Wickaninnish summed up the dialogue, “No doubt we have challenges, but we need to turn this positive thing on and not be weighed down by negativity. All things are possible and there is always a way. We just need to share that everywhere we go. Respect all living and nonliving things. Just think how far we could go.”

**“RESPECT ALL LIVING AND NONLIVING THINGS. JUST THINK HOW FAR WE COULD GO.”**





## REFLECTIONS ABOUT THE WORKSHOP

*"The scouts are coming back to our waters around Haida Gwaii. It is going to happen. It is inevitable. The Haida Nation needs to plan by learning from other Nations that have already gone through this. We need to learn how to cope with and adapt to this change by drawing from the experiences of all the other Nations that have been through this change. The recovery of sea otters and their impacts need to be considered in the marine management plans that our nations and the government are currently working on. We need ideas to get ready. The transition can happen when people are well informed."*

- ƙii'iljuus Barbara J. Wilson, Haida Matriarch, Pacific Institute for Climate Solutions (PICS) fellow, co-investigator and cultural advisor to Coastal Voices.

*"There is a loss of transferable knowledge about sea otters because they had been gone for so long. Information on our use of sea otters exists, but much of it is hidden in museums and historical documents. There is still some information in the communities and we need to collect it."*

-Mike Reid, Marine Manager, Heiltsuk First Nation.

*"What impressed me the most was how compatible First Nations traditional knowledge of sea otters, their ecological role and cultural significance was with university-based studies of otter dynamics. This meeting identified a common ground based in mutual respect and understanding. The tribal leaders' pride and deep knowledge of their traditions, often expressed with humor, was important. One word summarizes my take-away message: inspirational."*

- Dr. Bob Paine, marine ecologist from University of Washington. Bob first described the notion of a keystone species back in the 1960s.

*"...somehow, perhaps by all being housed together, perhaps because everyone shared the same love of the coast, perhaps a common purpose, I am not sure what - but the meeting became a collective conversation; it was like walking down the dock in the summer and talking with folks about the things we know and care about. We shared knowledge and ideas in a conversational tone - no one was consulting or being consulted. We were all experts and we were all learning."*

Dr. Jane Watson, kelp forest ecologist from Vancouver Island University. Jane has been studying sea otter and kelp forest interactions on British Columbia's coast since the 1980s.

*"When I explain our project to people at home on Haida Gwaii, many people look at me blankly. We have been out of contact with sea otters for so long that nobody seems to remember them."*

- Gitkinjuaas, Hereditary Chief and Haida artist, and member of this research partnership's steering committee. Gitkinjuaas is well known for the sea otter and sea urchin logo he designed for the Gwaii Haanas National Park Reserve and Haida Heritage Site specifically to symbolize the eventual return of both ecological integrity and Haida culture to this remarkable place.

*"It was so surprising to me that so many senior scientists didn't really consider humans as part of an ecosystem."*

- Hup-in-Yook, Head Hereditary Whaling Chief of the Huu-ay-aht First Nation and member of this research partnership's steering committee.

*“The archaeological record on this coast is a vast archive documenting millennia of human experience with and management of coastal ecosystems. Scientists and First Nations can usefully explore this record to learn more about past environments and the development of governance practices which enabled coastal communities to thrive off the coast for generations.”*

- Dr. Iain McKechnie, anthropologist at the University of Victoria and collaborator on this project.

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*“I now see the connection between sea otter recovery, the return of kelp forests and the role of these underwater forests in drawing down carbon pollution from our atmosphere. Who would have thought that predators, like sea otters, can indirectly reduce the effects of climate change.”*

- ƙii'iljuus Barbara J. Wilson, Haida Matriarch, Pacific Institute for Climate Solutions (PICS) fellow, co-investigator and cultural advisor to Coastal Voices.

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*“Only by understanding our past can we intentionally redefine our future. By bringing together the vast archive of knowledge and expertise held by coastal First Nations with contemporary ecological, archaeological and social science, we hope to illuminate adaptive strategies for the future.”*

- Dr. Anne Salomon, marine ecologist at Simon Fraser University and co-investigator on this research partnership.

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*“A tension between predators and people occurs throughout our planet as competition for prey on the one hand and habitat loss on the other. This workshop was remarkable for the constructive dialogue it inspired over both the ecological importance of sea otters and how these animals might be managed to provide for future welfare of the otters, their coastal ecosystem, and the people who have traditionally lived there.”*

Dr. Jim Estes, Professor, University of California at Santa Cruz. Jim was one of the first scientists to document the cascading effects of sea otters back in the early 1970s along the Aleutian archipelago of Alaska.

*“This project is helpful for us to wrap our heads around the issues so we can prepare for the inevitable return of sea otters rather than scramble and react to it.”*

- Skil-Hiilans Allan Davidson Haida Hereditary Chief, elected Haida Nation representative and member of this research partnership's steering committee.

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*“The depth and scope of both traditional and scientific knowledge present was staggering. But perhaps even more impressive was the cross-cultural sharing — and acceptance — of these diverse epistemologies.”*

- Ilja Herb - videographer and director of the Coastal Voices film.

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*“This workshop was an incredible knowledge exchange and produced a rich dialogue that, now documented, can provide an important foundation for ongoing collaboration to collectively navigate sea otter recovery.”*

- Jenn Burt, co-investigator on this research partnership.



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# WORKSHOP PARTICIPANTS



## JOSHUA ANAHONAK

*Sugpiaq Youth and Professional Artistic Photographer*

Camai everyone, my name is Joshua Anahonak. I am Sugpiat Alutiiq and I was born and raised in Port Graham, Alaska, a small community on the tip of the Kenai Peninsula. I grew up bidarki picking, salmon fishing in the rivers, and helping my family hang, dry and process the salmon. After high school I spent a year and a half attending Brooks Institute for Visual Journalism. During my last semester at Brooks I was chosen to travel Southern India for a yearly documentary program. I am currently studying for my BA in Business Management in Santa Barbara, California.



## JENN BURT

*Marine Ecologist and Hakai Scholar*

My name is Jenn Burt, and this week I feel like a mermaid! Me and my team are diving everyday right now in the beautiful kelp forests and rocky reefs around Hakai - surveying sea urchin grazing on kelp. I am a PhD student working with Anne Salomon at SFU with research focusing on kelp forest ecology and marine planning in British Columbia. In addition to my interests in understanding shifts in key ecological processes and the spatial dynamics of kelp forests, I am really interested in how coastal communities value rocky reef ecosystems, what shapes peoples values of rocky reef ecosystems, and how these values interface with marine management. Prior to working with Anne at SFU, I have worked on several marine planning processes in BC, done research on Fraser River sockeye salmon, and worked in marine education and outreach. I was born and raised in Vancouver, BC, and developed a love for the ocean through coastal camping trips with my family, kayak journeys, and learning to scuba dive.



## GRANT CALLEGARI

*Videographer, Hakai Beach Institute*

My name is Grant Callegari. I am a cameraman/videographer and a full time Tula Foundation employee. I document the many interesting projects that take place at Hakai. We are currently filming a series documenting our resident Hakai sea otters population. When I'm not filming, I am working on trail blazing, remote cabin construction and building fish weirs to count salmon. In the evenings you can often find me on West Beach surrounded by wood shavings while attempting to replicate some of the amazing early technologies of the Northwest Coast. This includes making various fishing equipment such as steam bent halibut hooks, harpoons and spears. The latest undertaking is to build a bentwood fishing tackle box.



## ROGER DUNLOP

*Nuu-chah-nulth Fisheries Manager*

My name, Uupiihaa, was given to me by the Mowachaht/Muchalaht and Hesquiaht Ha'wiih (Chiefs). I arrived in Canada from England when people still travelled on ships. I attended Lethbridge Community College to learn about freshwater and terrestrial ecosystems then after a while went to UVic to learn a bit about oceans. Since then I have been learning from the Nuu-chah-nulth and others living with sea otters in the WCVI environment. I assisted the Sea Otter Recovery Team, organized some oil spill response training, and counted a sea otter or two. For years I have been staring at a graph on the wall of my office showing the mollusc remains from pre-2300 BC through the fur trade era up to 1966 excavated at Friendly Cove where this all started in BC. I have three wonderful children that continue to amaze me. I spend a lot of time harvesting much of my own food when I can. I wear a signet ring, which is the crest from a coat of arms that I have the right to bear.



## GINNY ECKERT

*Benthic Marine Biologist*

Ginny is an Associate Professor in the School of Fisheries and Oceans Science at the University of Alaska Fairbanks and the Associate Director of Research with Alaska Sea Grant. She received her B.A. from Dartmouth College, her M.S. from University of Florida and her Ph.D. from University of California, Santa Barbara. Her research is driven by the belief that we can sustainably manage living marine resources and that population and early life history ecology can contribute to this process



## MARGARET EDGARS

*Elder, Haida Nation*

Margaret Edgars grew up in Massett, learning to gather from the lands, shores and seas. She has been involved in planning, erecting and monitoring areas fenced off to see what types of plants are resilient in spite of the continual grazing of the Sitka Black-tailed Deer and the Beaver. The annual harvesting rounds find her each year gathering berries, seaweeds as well as seafood. Margaret is a vital member of her community and family, as she stays involved with the daily concerns. She has a concern - what will be left for the next generations if we do nothing.



## QIXATASU, FORMERLY GEETLA, (ELROY WHITE)

*Cultural Archaeologist, Heiltsuk First Nation*



## JAMES ESTES

*Kelp Forest Ecologist*

An athletic injury early in life turned my dreams from baseball to biology. As a consequence of this and several other fortuitous events, I wound up spending much of the last 50 years exploring, together with students and colleagues, the intimate ecological interplay between sea otters and kelp forests in the North Pacific Ocean. I'm presently a professor of ecology and evolutionary biology at the University of California at Santa Cruz. Unashamedly, I like to fish and hunt. I'm looking forward to the upcoming workshop--to sharing what I've learned and to learning from your diverse backgrounds and perspectives on people and nature.



## GIT KINJUAAS (RON WILSON)

*Hereditary Chief, Haida Nation*

Git Kinjuaas (Giitsxaa AKA Ron Wilson) was born oldest nephew to the late Git kinjuaas Cumshewa (Charles Wesley) of the St'awaas XaaydaGaay. His father, Niis Wes taught Ron about the ocean and the place we occupy, when he was a small child. Ron continues to be a harvester of our foods from the ocean. Ron was taken to Alberni Indian Residential School as a young boy. There he used the carving to connect himself to home. Giitsxaa has been carving most of his adult life. He has carved monumental sized articles down to pins and earrings in most mediums. The subjects he portrays in his career as an artist reflects the ancestors, the Supernatural beings that came out of the ocean. Git Kinjuaas has hosted two potlatches, one to honor his late uncle and one to legalize his inheritance of the position he was born into. He has one son, two grandsons and one granddaughter.



## DOLLY GARZA

*Member, Alaska Sea Otter Commission*

Haida/Tlingit weaver, seaweed gatherer. Professor Emerita, University of Alaska, Fairbanks. Retired about 7 years ago from Marine Advisory Program, part of Sea Grant and UAF Fisheries Dept. Focus on marine education and wise use of marine resources



## GUUJAAW

*Hereditary Chief, Gidansda, Skidegate Regional Representative and Past President, Council of the Haida Nation*



## TONY HANSEN

*Kyuquot Cheklesah Representative*

Tony is the Director of Natural Resources with the Kyuquot Cheklesah Nation part of the Nuuchahnulth tribal group located on the West Coast of Vancouver Island. He is one of eight siblings from his parents, Michael (late) and Hilda Hansen. He attended residential school in Mission, BC and secondary school in Campbell River, BC. He was a commercial fisherman for much of his life and prior to becoming the Director of Natural Resources for Kyuquot, he was the Fisheries Manager



## MARK HUME

*National Correspondent, Globe and Mail*

I am attending as an observer and will be carrying a cultural artifact . . . a notebook, into which dates, names, quotes and other facts are entered. I still use old fashioned paper and ink to keep notes because it somehow seems right to me. I am a National Correspondent with The Globe and Mail and my job is to write stories about British Columbia. I focus, not exclusively but a lot, on First Nations, environment and increasingly energy development, subjects which are inextricably interwoven. I was born in BC and have traveled from Paris to Patagonia on assignment, with three years in the Arctic thrown in, but have yet to find anywhere as cool as the West Coast.



## ILJA HERB

*Videographer*

My name is Ilja (sounds like il-ya). As part of a small video team, I'll be joining you all to help document what promises to be an outstanding gathering on the coast. I hang my hat--and a whole bunch of camera gear--in Victoria, where I live aboard Foxy, a 41-foot cutter-rigged sailboat who came into my life suddenly a few years ago. Foxy and I have been up and down the BC coast a few times over the last few summers shooting photos and video projects focused on culturally specific perceptions of land and resource use. I am honoured and thankful to be part of this group, see you soon!



## HUP IN YOOK (TOM HAPPYNOOK)

*Head, HUU-ay-aht Hereditary Whaling Chief*

Tom Happynook is the head Hereditary Whaling Chief of the HUU-ay-aht First Nations, which is a tribe within the Nuuchahnulth Tribal Group located on the West Coast of Vancouver Island. Tom is the narrator of both films, Heart of the People and Return of the River, and has been integral in fostering the cultural revival and rebirth of the HUU-ay-aht First Nations, arising from the forest and fisheries restoration efforts of the Sarita River. Chief Treaty Negotiator for the HUU-ay-aht First Nations, Tom Happynook was an integral participant in successfully negotiating the Maa-nulth Final Agreement. He is deeply involved in all aspects of the social, cultural, spiritual and economic recovery of the HUU-ay-aht through the BC treaty process. Tom has also been deeply involved in the HUU-ay-aht First Nations' forestry efforts to become part of the local, regional, national and international forest industry and economy. In addition, Tom Happynook was the founding chairman of the World Council of Whalers. An international non-governmental organization that provided a collective voice for Indigenous and Coastal whaling peoples around the world. As well, Tom was the chairman for Uu a thluk (Council of Ha'wiih) a forum for building and strengthening relations between the Nuuchahnulth hereditary chiefs; governments and their agencies; and between the Ha'wiih and the Nuuchahnulth Tribal Council. Furthermore, Tom Happynook was the chairman of the Nuuchahnulth Seafood Development Corporation (NSDC); a corporation designed to bring the Nuuchahnulth Nations back into the fishing industry, including the shellfish industry. Tom is also a lecturer presenting at many Universities around the world bringing to the forefront the HUU-ay-aht / Nuuchahnulth culture and traditional ecological knowledge that has been passed down through his family. A firefighter for 16 years, Tom retired as a Deputy Platoon Chief (Captain) in 1998. He has been married to Katherine Ann Happynook since 1979. They have two adult sons, an adult daughter, a grandson and granddaughter.



## BRENDA HUMCHITT

*Former Bella Bella High School Principal*



## JUDE ISABELLA

*Science Writer*

I'm part of the small video team documenting this exciting gathering. As a journalist for over 20 years, my focus has been on science, health, and the environment. I write for a diverse audience, from grownups interested in archaeology to young readers interested in space. I spent almost four years researching salmon and marine biodiversity on the coast — with lots of time spent on the Central Coast — for a Master's degree in anthropology and writing at the University of Victoria. The result is a book that will be published this fall called *Salmon, A Scientific Memoir*. After a dozen or so field trips, I can remove otoliths from juvenile salmon and clean my face in the bush without soap (thank you Anne!).



## BONNIE MCCAY

*Fisheries Social Scientist*

I am Bonnie McCay, a professor of human ecology at Rutgers University, New Jersey, USA. I was trained in anthropology and ecology, and my major interest has been how people manage the places and resources that they cherish and use “in common” with others. My research on this has taken place in Newfoundland and Nova Scotia, Canada; along the Atlantic seaboard of the US; and on the Pacific coast of Mexico, with special focus on fishery cooperatives. Many years ago I also had some linguistic training and research experience with Coast Salish groups, particularly Musqueam, under the leadership of Wayne Suttles.



## KII'ILJUUS (BARB WILSON)

*Matriarch, Haida Nation*

Returning to Haida Gwaii as a young person opened the door to a world I hadn't really experienced since I was an early teen. Over the years I have been blessed to meet and learn from several knowledgeable people - my elders and others from away. In my education, I have wanted to learn lots about all aspects of my world. Plants, mammals, the land, the ocean and people. All have presented an interesting puzzle which I have attempted to understand and in my mind - organize it in a respectful, making sense way. I am a M.A. candidate starting only this past month. My passion is to pass on my knowledge to the youth of Haida Gwaii, and hope that my experience of not knowing can be avoided for young Haidas. I am excited to see this project FINALLY materialize. Haawa to all who have worked so diligently to see it to this place and time.



## IAIN MCKECHNIE

*Archaeologist and Hakai Scholar*

Iain is an archaeologist who studies the history of fishing and hunting in coastal BC using the bones and shells of marine animals recovered from ancient Indigenous settlements. He is interested in how this record of sustained human use over millennia can both extend and contextualize contemporary ecological baselines. He received a PhD in anthropology from UBC and his doctoral fieldwork was conducted in Nuu-chah-nulth territories (Tseshaht & Huu-ay-aht) in Barkley Sound on SW Vancouver Island. He is currently a post-doctoral researcher with the Hakai Network at SFU and the University of Oregon. He grew up in Northern California near the Russian fur-trading post, 'Fort Ross', and has been involved in archaeology in coastal BC since 2001.



## LYNN LEE

*Marine Ecologist, Hakai Scholar*

Lynn Lee is a marine ecologist and artist who lives on Haida Gwaii, engaging in marine and land resource management and conservation for over 20 years. She is currently working on a PhD in Dr Anne Salomon's Coastal Marine Ecology and Conservation Lab, exploring the complex relationships between people, sea otters, abalone, sea urchins and kelp forests. As a child, she dreamt of breathing underwater and has now logged over a thousand dives in BC waters. Home is in Tlell but often she is found on the family ex-troller, MV Victoria Rose, with her wonderful spouse, skipper and marine biologist Leandre, and their energetic son Taimen - co-conspirators in exploration and endless enthusiasm for all things marine.



## DUNCAN MCLAREN

*Archaeologist*

My name is Duncan McLaren. I am an archaeologist with the Hakai Beach Institute. I have been directing a project looking at long-term environmental change and human land-use and occupation on the Central Coast since the last Glacial Maximum. I wrote a paper about sea otters when I was in Grade 8 and was hoping to bring it with me ... if I can find it. I look forward to meeting everyone.



## STEVE MUNCH

*Fisheries Ecologist*

I am a 'Fisheries Ecologist' with NOAA in Santa Cruz, California. My research primarily focuses on population dynamics, evolution on short time scales, and how the environment (primarily temperature) influences how animals grow, when they mature, and how long they live. I grew up on Long Island, NY where I spent most of my summers mucking around in intertidal marshes, catching fish and crabs while waiting for my father to fix our perpetually broken boat. I am thrilled to be participating in this workshop.



## LINDA NICHOL

*Sea Otter Biologist*

My enthusiasm for nature and marine ecology developed as a child exploring the seashores of the Sunshine coast and southeast Vancouver Island where I have lived all my life; my grandmother was a huge influence. I obtained a M.Sc. in Zoology (UBC) studying killer whale foraging ecology and I have had a career as a biologist researching marine mammals, coastal marine birds, and intertidal invertebrates over the past 25 years on the BC coast. Since 2002 I have led Fisheries and Oceans Canada's sea otter research program and have had the privilege to explore much of the rugged exposed coast by small boat, from the air, and by clambering out on reefs and small islets with telescopes and binoculars while studying the species and its ecology. I have two sons to whom I hope I have imparted values about caring for the earth, kindness, the importance of place and remembering history. I look forward to meeting everyone and I am very much looking forward to this workshop.



## ROBERT PAINE

*Ecologist*

I was born in Cambridge, MA, squandered my undergraduate education at Harvard, served 2 years in the U.S. Army, got a PhD. at the University of Michigan, and have spent my entire academic career at the University of Washington. Fifty years of intertidal research on the Makah Indian Reservation has been a privilege for me. I look forward to sharing this knowledge with the group



## ERIN RECHSTEINER

*Research Associate, Hakai Beach Institute*

My name is Erin Rechsteiner and I am a Research Associate with the Hakai Beach Institute, investigating sea otter foraging behaviour, habitat use, and their roles in seagrass and kelp forest communities - along with an incredible team of researchers and technicians. At Hakai, I am also working with a team of humpback and forage fish researchers investigating whale and fish interactions in Fitz Hugh Sound. My interest in ecology was sparked as a mountaineering and sea kayaking instructor working at various outdoor schools throughout Canada and the USA, about 15 years ago. When I decided to attend university, I was lucky to have great mentorship from the marine mammal community locally on Vancouver Island, and have had many opportunities to conduct research alongside these people in recent years. I am very much looking forward to this workshop, learning about other peoples' perspectives on the complexities of sea otter interactions, and sharing my observations of the sea otters and ecosystems on Calvert Island and in the surrounding area.



## ANNE SALOMON

*Applied Marine Ecologist*

Like many of you, my life, intuition and imagination are shaped by the rhythms of the sea. Having worked with and learned from so many of you, in Alaska, California, Washington and now back home in BC, I remain convinced that innovative solutions to many of our pressing coastal conservation problems lie in the insights gleaned through the lens of western science, traditional knowledge and deep time. I am passionate about the pressing need to design effective marine policies that balance the needs of people and nature. As a marine ecologist at SFU, my students and I study the cascading effects of predator depletion and recovery, ecosystem-based management strategies, and the characteristics that support resilient coupled human-ocean systems. I am also a soccer fan who will be rooting for her ancestral home team of Argentina during the World Cup and I am going to be 7 months pregnant at this meeting, so my rain pants might be a bit tight!



## SKIL-HIILANS (ALLAN DAVIDSON)

*Hereditary Chief and Vancouver Representative,  
Council of the Haida Nation*

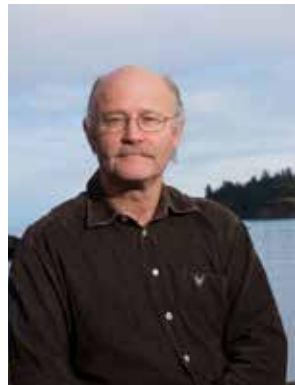
I'm new to the program filling in for Vern Brown. Nevertheless, my ancestral hereditary name is Skil Hiilans (Allan Davidson), I was born and raised on Haida Gwaii and I hold a BA - Anthropology from Vancouver Island University (formerly Malaspina University/College). My professional focus was on Haida Gwaii archaeology research with Daryl Fedje (Parks Canada) Quentin Mackie (UVic), and Trevor Orchard (U of T). Later consulting work for the Sechelt Indian Band with Peter Merchant, and temporary work with the Provincial Archaeology Branch as a Permitting Officer. Since 2010 I have chosen to learn the art of my ancestors with Jay Simeon and others, my work has been predominantly engraving precious metals, but will broaden my focus and experience to woodwork and argillite in the near future. Haw'aa (thank you).



## TIM TINKER

*Sea Otter Biologist*

My name is Tim Tinker and I am a research biologist with the US Geological Survey Western Ecological Research Center, and an adjunct professor of ecology and evolutionary biology at University of California at Santa Cruz. I've been lucky enough to work with a very amazing group of people over the last 20-some years (some of whom will also be attending this workshop), studying the population biology and community ecology of sea otters in near shore ecosystems of the North Pacific, from Russia to Alaska to British Columbia to California. I think I continue to be drawn to this system because it ties together so many different aspects of scientific inquiry - from individual behavior to complex food web dynamics - while at the same time encompassing some really interesting social and cultural challenges and even philosophical questions. I look forward to discussing all of these subjects at the upcoming workshop, and to deepening my own understanding of these issues based on the exceptional breadth and depth of knowledge and experience of all of you. Oh yes, I am also a Canadian who grew up in rural Ontario and Nova Scotia but was accidentally translocated to California.



## NORM SLOAN

*Benthic Marine Biologist*

I was born and raised in Vancouver and spent his summers along the dry Douglas fir/Garry oak shoreline of the Salish Sea where I committed to marine biology. After receiving my Ph.D. from the University of London (UK) in 1977, I fulfilled a dream of experiencing tropical marine biology in the western Indian Ocean (Seychelles) and in the Atlantic (Bermuda). Before joining Gwaii Haanas as their marine ecologist in 1998 - my best gig, and I'm still on it - I had worked for DFO as a shellfish researcher and in the private sector with the BC forest industry, the Exxon Valdez oil spill and coastal zone planning in Indonesia.



## NANCY TURNER

*Ethnobotanist*

I'm a botanist and student of First Peoples' botanical and environmental knowledge here in British Columbia. I hold the Hakai Chair in Ethnoecology, through the School of Environmental Studies at the University of Victoria. I have had some of the best teachers ever, and have been studying ethnobotany and ethnoecology in BC for over 45 years. Of course I love wild berries, seaweed, kelp and sea otters, and exploring the cultural landscapes and seascapes of the west coast.



## TALTMX (MARK WHITE)

*Chief*

'Yísdaítbv - People of 'Yísda - 4th Tribe. Translation by Connie Tallio and Evelyn Windsor



## WAHMEESH (KEN WATTS)

*Vice-President, Nuu-chah-nulth Tribal Council*

Wahmeesh is a member of the Tseshaht First Nation and is the elected Nuu-chah-nulth Tribal Council (NTC) Vice-President. He has served as Vice-President since 2012 and prior to that he worked in his own community as Operations Manager for several years. Wahmeesh has 3 children, which he shares with his lovely wife Priscilla who all reside in Port Alberni on his Nation's territory.





## JENNIFER WALKUS

*Marine Stewardship and Coastal Planning, Wuikinuxv Nation*



## WIGVILHBA WAKAS (HARVEY HUMCHITT SR.)

*Hereditary Chief, Heiltsuk Nation*

My Ancestral Name is Chief Wiquilba ~ Wakas. My Chieftainship was passed on to me from my Father Leslie Humchitt. My Creation Story for my Chieftainship comes from my Ancestral Area at Goose Island and includes the outer islands of the Heiltsuk down to the bottomed of Calvert Island. My English name is Harvey Humchitt. I was born in Bella Bella. I attended Vancouver Technical Secondary School in the mid sixties and began my working career as a fisherman at an early age and self taught in many fields and with other training programs brings me to my present positions as a Hereditary Chief, Research Liaison Coordinator fully involved in all aspects of Resource Management, Protection and Governance.



## JANE WATSON

*Kelp Forest Ecologist*

I'm Jane Watson. I was raised in Vancouver BC, where my interest in the ocean and natural history was born from fishing with my father and boat-based family camping trips along BC's south coast. I attended the University of British Columbia and the University of California at Santa Cruz where I had the opportunity to explore new coastal areas in California and Alaska. I have been following the ecological changes brought about by sea otters along the northwest coast of Vancouver Island, BC for about 25 years. Since 1996 I have had the privilege of sharing my love of natural history and marine ecology with students at Vancouver Island University. I am looking forward to the upcoming gathering.



## WII-TSTS-KOOM (ANNE MACK)

*Hereditary Chief, Toquaht Nation*

Hello, I am Hereditary Chief Anne Mack (Wii-tsuts-koom), Toquaht Nation, seated in January 2009. I am from the Toquaht Nation, Nuuchahnulth and part of the Maa-nulth Treaty Nations, west coast of Vancouver Island. My government is led by two hereditary Chiefs with an elected Council of three. I have a B.A. in Sociology and Anthropology, with a Minor in Linguistics from SFU. I have six daughters and seven grandchildren. I live at our village at Macoah, Toquaht Bay in Barkley Sound. I will bring a shawl and cedar hat. Chu!



## WICKANINNISH (CLIFF ATLEO)

*Former President, Nuuchahnulth Tribal Council*

I am Wickaninnish, Clifford Atleo Sr. I was born and raised in Ahousaht. I grew up as a fisherman. I last fished in 1977. I worked for the Native Brotherhood of BC from 1978-1989 as an organizer and then as their Executive Director. I was a Canadian Commissioner on the Pacific Salmon Commission and the International Halibut Commission. I Co-chaired the West Coast Aquatic, designed to manage our fisheries in Nuuchahnulth Territory. I was President of the Nuuchahnulth Tribal Council from 2008-2013. I currently sit on the First Nations Health Council on behalf of NTC.



## LAURIE WOOD

*Coordinator, Hakai Network for Coastal People, Ecosystems and Management, and Centre for Coastal Science and Management, SFU*

Laurie is the Coordinator of the Hakai Network at SFU. She also coordinates the Centre for Coastal Science and Management in the Faculty of Environment at SFU. She has been working on linking science with local and traditional knowledge to affect policy decisions for sustainable resource management for over fifteen years. This work has involved working in small coastal communities along the BC, Newfoundland, Nova Scotia and New Brunswick's coasts. She was born in Vancouver and feels a strong affinity to the ocean and coastal mountains. She is blessed with two daughters and honoured to be included in this dialogue.



## WÚM'AKŊ (MEL INNES)

*Chief*

ŷXáís<sup>a</sup> (Kitamaat) - Endured personal father. Translation by Connie Tallio and Evelyn Windsor.



## VIOLET YEATON

*Environmental Planner*

I am Sugpiat/Aleutiiq from the Native Village of Port Graham in Alaska. I have been working for my Tribe as the Environmental Planner for the past 14 years. I have been actively working on oil and gas, contaminants in traditional foods for the past 20 years. Quyana.