Chapter 11. Stakeholder concerns and perspectives

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The potential return of sea otters to the Oregon coast, either through natural range expansion, or through translocation, is viewed favorably by many people. Positive views of sea otter recovery in Oregon are based on several factors, including the potential for restoring connectivity of existing sea otter populations between California and Washington and the functional restoration of coastal ecosystems in nearshore areas of the Oregon coast. Sea otters are considered a keystone species (Estes and Palmisano 1974), whose presence as functioning components in nearshore ecosystems has a number of important ecological effects (Estes et al. 2004) such as increasing stability and productivity of kelp forests and eelgrass beds and enhancing the abundance of nearshore fish species such as rockfish and salmon and various invertebrates, even abalone, that that use these kelp and eelgrass habitats (refer to Chapter 5 for a full discussion of ecological effects of sea otter recovery). This well studied trophic cascade is often considered a conservation success story for those that are supportive of the return of this keystone species to marine ecosystems (Estes 2015).

However, sea otter recovery has not been viewed favorably by everyone in places where it has occurred: their return to regions from which they had been extirpated a century earlier has in some cases led to conflicts with commercial and subsistence fisheries in areas where sea otters compete with humans for commercially valuable invertebrates like crabs, clams, urchins and sea cucumbers (Wendell 1994, Larson et al. 2013, Carswell et al. 2015). Weighing the relative costs and benefits of sea otter recovery is challenging, and in addition to economic considerations there are also non-monetary social values that must be considered (see Chapter 7). A recent economic analysis of the impacts of sea otter recovery in British Columbia, Canada (Gregr et al. 2020), illustrates some of the challenges of this accounting task. Gregr et al. (2020) found that the benefits of sea otter recovery to Vancouver Island included 37% more total ecosystem biomass annually with associated increases in the value of finfish landed (>$9.4 million), carbon sequestration (>$2.2 million) and ecotourism (>$42.0 million), which all combined to offset an associated estimated economic loss to invertebrate fisheries (<$7.3 million). However, these economic considerations fail to address other equally important issues, such as social impacts to the communities that support (and are supported by) those invertebrate fisheries, and challenges to food security and self-governance of First Nations communities in the areas affected (Salomon et al. 2015, Burt et al. 2020). Inevitably there would be those who would gain and those who would lose economically from sea otter recovery in Oregon, but those gains and losses are unlikely to be distributed equally or evenly. And while it is important to consider the loss of income and revenue associated with impacts to nearshore fisheries, it is also important to recognize and address non-monetary costs to people's livelihoods, lifestyles and futures. Given these challenges, it is extremely important that decisions about sea otter reintroduction efforts are made in full consideration of all stakeholder and title-holder opinions, both positive and negative. Doing so can help to foster consensus and stakeholder engagement indecisions and plans, as well as more effective management after the fact.

Sea otters have been absent from Oregon for over 100 years and current coastal human institutions and practices (e.g., fisheries, recreation, resource management) have developed during that time. It is likely that some of these activities will be affected by the return of sea otters; however, predicting how different members of coastal communities will respond to these impacts is challenging. One approach is to look to and learn from other regions where sea otters have recovered, either through "natural"

growth and expansion of remnant populations, or via successful reintroductions, and where the resulting sea otter populations are now interacting both positively and negatively with people. While every region is different, and the return of sea otters to Oregon will likely involve some unique costs and benefits, nonetheless there are some commonalities to the types of concerns and human responses that have been raised in previous examples of sea otter recovery, and a review of some of these perspectives may be informative.

One of the most successful reintroductions of sea otters (from the perspective of sea otter conservation) occurred in the late 1960s in southeast Alaska (Jameson et al. 1982). Over 450 animals were distributed among 7 translocation sites (see Chapter 2 for details), leading to a rapid rate of increase in both abundance and distribution (Esslinger and Bodkin 2009), such that the total abundance at the time of the last comprehensive surveys (2010-12) was >25,000 and is likely now closer to 40,000 given a 5-10% estimated annual rate of increase (Tinker et al. 2019, Eisaguirre et al. 2021). Based on the wide range of social and economic concerns about the impacts of sea otter recovery on commercial activities and local communities in southeast Alaska, the US FWS convened a workshop in November of 2019 at which a diverse set of stakeholders were invited to share knowledge, express concerns, and begin to develop a proposed set of approaches for addressing key challenges associated with sea otter recovery and its impacts (https://www.seaotterstakeholders.com). A final report from that meeting has also been released ("Southeast Sea Otter Stakeholder Meeting", US FWS Report MMM 2020-01). Below we highlight some key points from the meeting and report that illustrate the range of stakeholder concerns regarding the impacts of the return of sea otters to southeast Alaska.

Stakeholder views in Southeast Alaska

Subsistence Harvest of Sea Otters

Sea otter harvest has been an important component of Native communities' cultural practices for thousands of years. Under the 50 CFR 18.23 exception of the Marine Mammal Protection Act (MMPA), Alaskan Natives are allowed to continue to harvest sea otters for their pelts and creation of handicrafts. This is most clearly enacted in southeast Alaska where the expansion of sea otters across the region has created economic opportunities for individuals involved in harvest, sea otter hide tanning, and modifications of the hides for artistic purposes and sale of handicrafts. However, there is inequity in these opportunities as many Alaska Native community members lack the training, access to a boat, and equipment to harvest sea otters. For those that do have access, there is concern over the blood quantum policy, including whether non-Native individuals can be on harvest vessels and whether Alaska Native individuals from communities outside of southeast Alaska are eligible. Second, some community members lack training in sea otter hide preparation, skin sewing, and artistic modifications of the hides. Third, there are concerns over access to markets for selling handicrafts to tourists. And finally, there are concerns about misperceptions by the public about the legality and ethical/historical underpinnings of the subsistence harvest of sea otters.

While subsistence harvest issues are unlikely to be immediately and directly relevant for an Oregon sea otter reintroduction, they do indirectly raise issues of local governance and different perceptions about how sea otters and humans can and should interact, as well differing cultural practices and traditions associated with sea otters. It is clear from the southeast Alaska example that local communities, including First Nations communities, should have a important voice in decisions about sea otter reintroduction and recovery.

Conflicts with Subsistence and Commercial Shellfish Fisheries

For Alaska Native communities, traditional harvest practices often included localized harvest of sea otters to alleviate predation pressure on shellfish by sea otters, which in turn, could increase availability of shellfish for harvest. Shellfish collection continues to be an important component of Alaska Native community cultural practices, but the situation since sea otter reintroduction and range expansion has been complicated with additional legal considerations and stakeholder interests.

Modern commercial shellfisheries emerged in southeast Alaska during an "abnormal" historical period when sea otters were entirely absent. Without sea otter predation, certain shellfish populations thrived and allowed for productive fisheries on these species to develop. Since the successful reintroduction of sea otters, their abundance has increased and their range has expanded, putting sea otters into direct conflict with these commercial fisheries. As sea otters have increased, productivity of many shellfish fisheries have declined, causing some fisheries to become unprofitable and even close.

To further complicate the problem, sea otters are currently managed at the regional stock level (all of southeast Alaska), but their impacts are apparent at a much smaller, localized scale. For this reason, subsistence and commercial fishery stakeholders expressed interest in exploring ideas for more local spatial management of sea otters in a coordinated manner. This could potentially be accomplished if Alaskan Native subsistence harvests were to be focused locally to protect subsistence harvest of fisheries. However, it was also recognized that such local harvests would likely not be feasible at a larger scale sufficient to protect many commercial fisheries.

Sea Otter Population Ecology and Ecosystem Status

The United States Fish and Wildlife Service (USFWS) is responsible under the MMPA to collect data on sea otter population size, distribution, and trends. These population surveys are to be carried out on a regular basis and use standardized and reliable methods to accurately document population trends. Stakeholders requested further clarification on how values for Optimum Sustainable Population (OSP), carrying capacity (*K*), and Maximum Net Productivity Level (MNPL) are estimated. These terms are used within the MMPA and are therefore a critical component of how sea otters and their ecosystems are managed. Additional information on the abundance and distribution of shellfish as prey for sea otters and suitable habitat are also important for understanding how the ecosystem affects, and is affected, by sea otters. This ecological information is challenging to collect at appropriate scales and monitoring changes through time is even more challenging. Stakeholders expressed interest in future research and monitoring efforts to provide current estimates of sea otter population size and distribution, and the dynamics among sea otters, shellfish, and nearshore habitats. In addition, Alaska Native community representatives expressed their interest in facilitating collection of Traditional Ecological Knowledge to better understand how sea otters and associated ecosystems have changed through time.

All stakeholder groups present at the meeting recognized the important ecological role sea otters play in the ecosystem. Sea otters have experienced drastic changes over the past few hundred years, in which they went from being locally abundant, to entirely absent in the early 20th century, to their current status of recovery and range expansion into former habitats. There are differing perspectives on how this ecosystem should function in the future, and how "balance" can be achieved between sea otters and people in a way that is acceptable to all stakeholders.

Stakeholder views in Oregon

People in Oregon are now beginning to explore what it may look like to have a viable sea otter population once again. Reintroductions of carnivores are typically controversial in nature, including past reintroductions of wolves and grizzly bears. Sea otter reintroductions have also caused conflict in California, British Columbia and Alaska (Carswell et al. 2015). Experiences in southeast Alaska and British Columbia (Burt et al. 2020) suggest that it is important that all concerned stakeholders be engaged early in the process, prior to any management decisions about reintroduction.

Stakeholder interests specific to Oregon have been explored by three graduate students from Oregon State University in a 2019 student report titled "Assessing the feasibility of a sea otter reintroduction to Oregon through a coupled natural-human lens", conducted in partial completion of a National Science Foundation fellowship (Curran et al. 2019). The authors surveyed 78 potential stakeholders to gauge perceptions around a potential future sea otter reintroduction. Sampled stakeholders included the following: Elakha Alliance Board members, environmental advocacy groups, staff from Pacific shellfish advocacy and research organizations, board members of Oregon's Ocean Policy Advisory Council (marine stakeholder groups that advise the Governor's office), local governments on marine policy issues, commissioners for Oregon's Department of Fish and Wildlife Commission, the Oregon Trawl Commission, the Oregon Salmon Commission and the Oregon Dungeness Crab Commission. The survey response rate was 36% (28/78) and participants were asked to invite others that had an interest in marine or fish and wildlife issues to also participate (N=21), increasing the total survey sample size to 49. The authors recognized that this was a limited and informal survey, due to small sample size, and without formal survey methodologies (e.g. random selection of potential respondents) there is no guarantee of unbiased representation of public perceptions and views. Nonetheless, many of the survey respondents were leaders in their coalitions and thus were thought to be representative of their particular stakeholder groups.

A summary of respondent views on key topics associated with sea otter reintroduction is provided in Table 11.1. For the open-ended questions related to potential outcomes, 21 respondents provided one or more negative outcomes that they anticipated, and 46 respondents provided one or more positive outcomes. The majority of Oregon survey respondents (94%) perceived that there would be positive potential outcomes associated with the reintroduction of sea otters to Oregon; however, 43% of respondents also perceived that there could be negative outcomes as well. The authors reported the most common negative outcomes identified were harm to fisheries or reductions to certain sea otter prey species (n = 15), loss of access to marine areas as a result of federal, state and local regulations related to sea otters (n = 4), and community conflicts resulting from different perceptions around the reintroduction (n = 3). Two individuals mentioned the conflicts created by sea otters in southeast Alaska, citing the harm the otters have caused to fisheries there and expressing concerns that similar phenomena could occur in Oregon. For the open-ended items related to positive outcomes of sea otter reintroduction, the most frequently cited outcome was the improvement in nearshore marine ecosystem health and the restoration of a balanced ecosystem (n =27), followed by increased tourism (n =24) and positive impacts on kelp (n = 23). Other positive outcomes listed included the following: reductions in urchins and other benthic species (n=14); benefits to fisheries such as fin fish (n=11); wildlife viewing, recreational, and cultural benefits (n=4); sea otters serving as a flagship species that may increase interest in conservation and provide educational opportunities (n=7); the restoration of a keystone species (n=7); species-wide benefits to sea otters (e.g. increased genetic diversity, viability and

species connectivity) (n=4); the ethical obligation and "righting a historic wrong" (n=4); increases in "blue" carbon (n=3); cultural benefits to Native American tribes (n=2); and increases in seagrass/eelgrass abundance (n=2). Overall, a majority of respondents (88%) supported reintroducing sea otters to Oregon to some degree, with only 10% strongly opposing and 2% somewhat opposing.

Table 11.1. Summary of Stakeholder perceptions about the return of sea otters to Oregon, based on survey results. Source: Curran et al. 2019

Stakeholder affiliation*	% associated negative outcomes	% Associated positive outcomes	% Stakeholder Policy support
Commercial fisher (n=7)	71	86	43
Recreational fisher (n=20)	45	90	75
Native American tribe (n=3)	0	100	100
Scientist (n=12)	50	100	83
Local government (n=8)	75	88	75
State government (n=4)	75	75	50
Federal government (n=2)	50	50	50
Environmental group (n=27)	37	96	93
Charter boat/tour operator (n=2)	0	100	100
Coastal recreationalist (n=28)	36	96	89
Oregon coastal resident (n=26)	31	92	81
Oregon non-coastal resident (n=15)	60	100	100

**Respondents could self-assign to more than one stakeholder group*

Key positive outcomes identified by stakeholder survey respondents

Increased ecosystem health & ecosystem services

When sea otters reclaim historical habitat, they can increase overall species diversity via trophic cascades triggered by top-down forces. Increased species diversity has been linked to improved ecosystem resilience and health. More resilient and healthy ecosystems can provide a suite of ecosystem services. Accessibility of these sites by stakeholders is a potential confounding variable as this could serve as a potential source of disturbance to sea otters; however, access could also facilitate recreational activities (wildlife viewing and fishing) and the benefits derived from those activities.

Species recovery & conservation

Survey responses suggested that respondents could appreciate both the historical context of a sea otter reintroduction such as increasing connectivity of sea otter populations and increasing genetic diversity. Over two-thirds of respondents favored a reintroduction source that reflected the genetic heritage of the extinct Oregon sea otter. In addition, half of respondents found a balance of rescues from stranding programs and wild-caught otters to be appropriate.

Restored cultural connections

The prevalence of sea otter remains in First Nations midden remains speaks to their place in Native American culture for thousands of years (Hall et al. 2012). First nations accounts, both written and oral traditional knowledge, speak of the value placed on their pelts and their importance in trade. A successful sea otter reintroduction to Oregon would restore not only ecosystem function but the cultural connection between native tribes and the sea otter.

Key negative outcomes identified by stakeholder survey respondents

Fisheries conflicts

Competition between sea otters and fisheries is a common concern wherever sea otters and people co-occur (Carswell et al. 2015).- Sea otter recovery can reduce abundance and size of local sea otter prey populations (benthic invertebrates such as crabs, clams and urchins), however the species most impacted would depend on where sea otters are located (see Chapter 7). Oregon has several important commercial and recreational fisheries that could potentially be impacted by the reintroduction of sea otters, but the potential for conflict depends on overlap of sea otters and important commercial fishing areas (e.g. crabbing grounds), which itself would be determined by the location of reintroduction and the rate at which the population spreads out along the coast (see Chapter 3). It would therefore be critical for managers from federal (USFWS), state (Oregon Department of Fish and Wildlife (ODFW) and tribal agencies to carefully monitor the growth of the sea otter population and recreational and commercial benthic fisheries, to maintain a balance and report survey results effectively to assure all stakeholders are engaged and their concerns are addressed.

Quantification of sea otter effects on economically important fisheries can be achieved by a combination of direct observation of sea otter diets combined with fisheries trend data on recreational and commercial harvests (e.g. Hoyt 2015). For example, fisheries managers in Washington have closed razor clam fishing in the Kalaloch area most years since 2012 due to low clam abundance and small size (https://wdfw.wa.gov/sites/default/files/publications/02168/wdfw02168.pdf). Kalaloch is the area where the Washington sea otter population has been seeing the highest growth since 2008 and the sea otters there eat razor clams almost exclusively (Hale et al. 2019). While some benthic invertebrate fisheries may decrease, other fisheries may increase. For example, the indirect food web effects of sea otter recovery include increased abundance and stability of kelp forests, important habitat for some finfish species, and there have been documented increases in commercially fished species in other regions where sea otters have recovered (Markel and Shurin 2015).

Community polarization

Survey respondents identified community polarization as a possible negative consequence of sea otter reintroduction. One respondent questioned the legitimacy of a sea otter reintroduction because they believed it was an interest group effort, as opposed to an effort being undertaken by the government. Others may also share this perception, and this could potentially be made into a political narrative to oppose reintroduction. It is clear that, in each location, there will be people that are for and against sea otter reintroductions. Such concerns are important and should be dealt with through continued dialogue.

Survey Conclusions

The small survey of Oregon stakeholders summarized here indicated that most respondents recognized at least some positive benefits from potential sea otter reintroduction, including those who also

identified negative consequences and expressed opposition to reintroduction. One of the negative outcomes of sea otter reintroduction that was identified by respondents was restricted access to the marine environment. Considering what areas are already protected in Oregon when evaluating potential reintroduction locations in Oregon, could help minimize the possibility of new potential restrictions associated with reintroducing a nearshore marine mammal. To ensure a successful reintroduction with the least possible amount of conflict, it will be important for sea otter reintroduction managers to establish an open and ongoing dialog with all stakeholders, to build trust and facilitate understanding.

Summary

Sea otters have been absent from Oregon's coast for over 100 years and human activities such as commercial and recreational fisheries have developed during that time without sea otters as competitors. Thus, the return of sea otters to the nearshore often elicits both positive and negative reactions from coastal communities. Some First Nations community members may welcome the return of the sea otter, to re-establish the relationship that native people have had with sea otters for both cultural and spiritual reasons. Other coastal community members have more mixed opinions, as the expected gains and losses will not affect all people equally. Economic benefits to coastal communities following the return of sea otters are often emergent as an increase in total ecosystem biomass, increased value of finfish, increased carbon sequestration, and increased ecotourism. Economic costs to coastal communities following the return of sea otters are most often associated with a loss to invertebrate fisheries such as crab, clam, cucumber and urchin fisheries. A small survey of Oregon stakeholders found that over 90% of survey respondents perceived that there would be positive potential outcomes associated with the reintroduction of sea otters to Oregon while over 40% also perceived that there could be negative outcomes as well. The return of the sea otter to Oregon's nearshore will almost certainly be associated with disruptive changes to the nearshore ecosystem, some of which will be perceived as positive and some perceived as negative by people, and as has been the case in other regions this will evoke both positive and negative responses from stakeholders. Engaging and continuing a constructive dialogue with all affected stakeholders and community groups should therefore be a fundamental component of the decision-making process.

Literature Cited

Burt, J. M., K. i. B. J. Wilson, T. Malchoff, W. t. k. A. Mack, S. H. A. Davidson, and A. K. Salomon. 2020. Enabling coexistence: Navigating predator-induced regime shifts in human-ocean systems. People and Nature **2**:557-574.

Carswell, L. P., S. G. Speckman, and V. A. Gill. 2015. Chapter 12 - Shellfish Fishery Conflicts and Perceptions of Sea Otters in California and Alaska A2 - Larson, Shawn E. Pages 333-368 *in* J. L. Bodkin, G. R. VanBlaricom, and S. Larson, editors. Sea Otter Conservation. Academic Press, Boston.

Curran, L. S., D. V. Kone, and B. J. Wickizer. 2019. Assessing the feasibility of a sea otter reintroduction to Oregon through a coupled natural-human lens. Oregon State University. https://ir.library.oregonstate.edu/concern/technical_reports/c821gs71d.

Eisaguirre, J., P. Williams, X. Lu, M. Kissling, W. Beatty, G. Esslinger, J. Womble, and M. Hooten. 2021. Diffusion modeling reveals effects of multiple release sites and human activity on a recolonizing apex predator.

Esslinger, G. G., and J. L. Bodkin. 2009. Status and trends of sea otter populations in Southeast Alaska,1969–2003. U.S. Geological Survey Scientific Investigations Report 2009-5045., Reston, VA.

Estes, J. A. 2015. Natural History, Ecology, and the Conservation and Management of Sea Otters. Pages 19-41 *in* S. Larson, J. L. Bodkin, and G. R. Vanblaricom, editors. Sea Otter Conservation. Academic Press, Boston.

Estes, J. A., E. M. Danner, D. F. Doak, B. Konar, A. M. Springer, P. D. Steinberg, M. T. Tinker, and T. M. Williams. 2004. Complex trophic interactions in kelp forest ecosystems. Bulletin of Marine Science **74**:621--638.

Estes, J. A., and J. F. Palmisano. 1974. Sea otters: their role in structuring nearshore communities. Science **185**:1058-1060.

Gregr, E. J., V. Christensen, L. Nichol, R. G. Martone, R. W. Markel, J. C. Watson, C. D. Harley, E. A. Pakhomov, J. B. Shurin, and K. M. Chan. 2020. Cascading social-ecological costs and benefits triggered by a recovering keystone predator. Science **368**:1243-1247.

Hale, J. R., K. L. Laidre, M. T. Tinker, R. J. Jameson, S. J. Jeffries, S. E. Larson, and J. L. Bodkin. 2019. Influence of occupation history and habitat on Washington sea otter diet. Marine Mammal Science **35**:1369-1395.

Hall, R. L., T. A. Ebert, J. S. Gilden, D. R. Hatch, K. L. Mrakovcich, and C. L. Smith. 2012. Ecological baselines for Oregon's coast: a report for agencies that manage Oregon's coastal habitats for ecological and economic sustainability, and for all who are interested in the welfare of wildlife that inhabit our coast and its estuaries. Oregon State University.

Hoyt, Z. N. 2015. Resource competition, space use and forage ecology of sea otters, Enhydra lutris, in southern southeast Alaska. PhD Dissertation University of Alaska Fairbanks Juneau, USA.

Jameson, R. J., K. W. Kenyon, A. M. Johnson, and H. M. Wight. 1982. History and status of translocated sea otter populations in North America. Wildl. Soc. Bull. **10**:100-107.

Larson, S. D., Z. N. Hoyt, G. L. Eckert, and V. A. Gill. 2013. Impacts of sea otter (Enhydra lutris) predation on commercially important sea cucumbers (Parastichopus californicus) in southeast Alaska. Canadian Journal of Fisheries and Aquatic Sciences **70**:1498-1507.

Markel, R. W., and J. B. Shurin. 2015. Indirect effects of sea otters on rockfish (Sebastes spp.) in giant kelp forests. Ecology **96**:2877-2890.

Salomon, A. K., B. J. W. Kii'iljuus, X. E. White, N. Tanape, and T. M. Happynook. 2015. First Nations Perspectives on Sea Otter Conservation in British Columbia and Alaska: Insights into Coupled Human–Ocean Systems. Pages 301-331 *in* S. Larson, J. L. Bodkin, and G. R. VanBlaricom, editors. Sea Otter Conservation. Elsevier, NY.

Tinker, M. T., V. A. Gill, G. G. Esslinger, J. L. Bodkin, M. Monk, M. Mangel, D. H. Monson, W. E. Raymond, and M. Kissling. 2019. Trends and Carrying Capacity of Sea Otters in Southeast Alaska. Journal of Wildlife Management **83**:1073-1089.

Wendell, F. 1994. Relationship between Sea Otter Range Expansion and Red Abalone Abundance and Size Distribution in Central California. California Fish and Game **80**:45-56.