

WE ARE OCEAN PEOPLE: INDIGENOUS LEADERSHIP IN MARINE CONSERVATION
CINDY BOYKO & 'AULANI WILHELM, GUEST EDITORS

Tuman alaġuġ agliisaaġtan (Take care of the ocean): A new vision for Indigenous co-management in marine waters of the US

Marissa Mercurieff, Amos Philemonoff, and Lauren Divine
Aleut Community of St. Paul Island Tribal Government



The Pribilof Islands are among the most unique and important places in the world. These islands provide vital breeding and feeding habitat for more than half of the world's population of laaquadan (as they are called in Unangam Tunuu, Native language of the community), or northern fur seals, as well as important habitat for qawan, or Steller sea lions, and isuġin, or harbor seals. More than three million san, or seabirds, flock to the islands during the summer months. By virtue of their position straddling the continental shelf and deeper ocean waters of the Bering Sea, the islands play a central role in creating the productive ocean zone that supports some of the world's largest and most profitable commercial fisheries. This irreplaceable region has experienced centuries of anthropogenic disturbances that have steadily shifted the ecosystem away from its natural stability. Today, the Aleut Community of St. Paul Island Tribal Government (ACSPI) is taking steps to restore and sustain Unangaġ ways of life, mitigate the impacts of climate change in the region, and enact economic policies that eliminate waste and reduce the overuse of resources in the marine environment. Here we provide a case study of our efforts towards using existing US regulations to secure protections for our marine environment.

HISTORY/BACKGROUND

Unangan (or the Aleut Peoples) survived on the bountiful marine resources of the Pribilof Islands long before the exploitation of Western colonial societies. Over the last at least 10,000 years, Unangan thrived as a population of up to an estimated 30,000 in the Bering Sea and Aleutian Islands.¹ Prehistoric inhabitants of the Pribilof Islands were descendants from the Aleutian Islands who migrated across the Bering Land Bridge from Siberia, with a diet based almost entirely on marine resources, including hunting marine mammals, fishing the offshore and coastal waters, foraging for fish and shellfish on the rocky reefs, and hunting birds on land and at

sea. Subsistence continues to be a cornerstone of Unangaġ culture and livelihood, as is characteristic of Indigenous cultures across the Arctic. Unangaġ embody a culture of interconnectedness with the seasonal rhythmic cycles and live sustainably with their environment.²⁻⁴ Unangaġ oral tradition holds that the Pribilof Islands were visited and used during prehistoric times as hunting grounds, but were not permanently inhabited.^{1,5}

▲ Unangan man in a bentwood visor hunting from an iqyax.

ALEUTIAN PRIBILOF ISLANDS ASSOCIATION

In 1741, Russian voyagers encountered the Aleutian Islands of Alaska and the ancestors of Pribilofian Unangan. Interactions between Russians and Unangan led to conflicts, decimation of Unangan from diseases, and the forced relocation of Unangan from Unalaska and Umnak Islands to the Pribilof Islands in order to harvest laaquadan for the export of lucrative seal fur pelts.^{1,6-8} With contact with Western society came colonization that imposed systems of knowledge and perspectives that denounced the traditional Unangaꝥ culture and way of life.¹ Forced commercial harvests continued on the Pribilofs after the purchase of Alaska by the US, first under the Alaska Commercial Company, then the Northern Commercial Company, and finally under the US Department of Fisheries.⁹ Commercial harvest ended in 1976 on St. George and in 1984 on St. Paul. Even though commercial sealing, and thus our original and primary cash economy, ended, our Unangaꝥ communities remained. As it has

been for centuries, our cultures, economies, and food security on St. Paul and St. George are inextricably tied to the health of the animals, birds, and fish—the overall ecosystem and everything within it.

A RAPIDLY CHANGING MARINE ECOSYSTEM

Unangaꝥ (Aleut) communities on the Pribilof Islands of St. Paul and St. George are directly experiencing a rapidly transforming marine ecosystem, including alarming declines of fur seals, sea lions, seabirds, fish, and invertebrates, with real costs to wildlife, human and ecosystem health, local economies, and culture. Northern fur seals have declined to roughly a quarter of the peak historic population estimate of 2.1 million animals. Changing distributions and abundances of fish such as chagiꝥ, or Pacific halibut (*Hippoglossus stenolepis*), an important species for Unangaꝥ subsistence, economy, and culture, are making access increasingly difficult. Warmer water temperatures

▼ Northern fur seal pups on a rookery (breeding area) on St. Paul Island, Alaska. BJ KIBBE, ECOSYSTEM CONSERVATION OFFICE





▲ **Sunset on St. Paul Island, Alaska.** VERONICA PADULA, ECOSYSTEM CONSERVATION OFFICE

result in a loss of the duration, quality, and extent of critically important sea ice. More frequent and violent storm conditions are causing new and major erosion issues.¹⁰ Studies also predict that by 2040–2050 conditions may no longer support eastern Bering Sea (EBS) commercial fisheries, a major industry in the global economy.^{11,12}

The Bering Sea is undergoing ecological transformations at an unrelenting pace.^{13–15} Given the region’s importance as an essential interconnected ecosystem amidst natural and anthropogenic climate change impacts, our organization, ACSPI, sought to pursue action that would support Tribal and resource-dependent businesses and ensure that Indigenous and local knowledge is used to



make decisions about resource use and conservation. These goals are especially important because documented Western science currently dominates general understanding of the region.¹⁶ Current designations, including the Pribilof Islands Habitat Conservation Zone and buffer zones for Steller sea lions, have provided some protections to the Bering Sea ecosystem, but as the only measures in an increasingly changing and unpredictable ecosystem their effectiveness is unknown. Decades of unmet environmental, social, and economic resilience goals of our communities have resulted in an ongoing and urgent need for innovative and adaptable local solutions.

DEFINING A FOCAL AREA

The Pribilofs are centrally situated in the EBS, 30 miles north-northeast from the EBS shelf break, approximately 200 mi (322 km) north of Unalaska, Alaska; roughly 500 mi (805 km) southeast of the Siberian Coast, Russia; and about 750 mi (1207 km) west of Anchorage, Alaska. Their proximity to the EBS shelf creates a unique oceanography around the islands, creating a distinctly productive area called the Pribilof Domain.^{11,13} This nutrient- and plankton-rich area features strong tidal currents, a unique clockwise circulation around the islands, and water exchange between the outer continental Bering Sea shelf domain and nearshore Pribilof Islands. These natural processes produce high biodiversity and attract densities of wildlife. Together, the extensive physical oceanography and ecosystem modeling of

the region have indicated that a distinct ecosystem is present around the Pribilof Islands.^{2,11,13,17-20} We have named this region the Pribilof Islands Marine Ecosystem (PRIME).

The PRIME boundary comprises two merged 100-nautical-mile (nm) circles encompassing an area of 52,910 mi² extending seaward around the two principal islands of St. Paul and St. George. Framing the Pribilof Islands are Zhemchug Canyon (8,530 ft; 2,600 m depth) to the northwest and Pribilof Canyon (6,000 ft; 1,829 m depth) to the south. These submarine canyons feed nutrient-rich water (containing, e.g., chlorophyll, nitrates, silicates, ammonium, iron, and phosphates), from shelf-slope water mass exchange to the Bering shelf, and are some of the richest waters in the broader Bering Sea.^{18,21} The Pribilof Canyon makes up 10% of the Bering shelf slope and is a hotspot of structure-forming invertebrate habitat, containing over 50% of estimated high-quality gorgonian (or soft coral) habitat and 45% of sponge habitat at the Bering Sea shelf edge.²² These foundational species are the basis of benthic, or bottom, habitat that attracts higher-trophic-level consumers ocean-wide.^{23,24}

PURSUING ACTION TO ENSURE SUSTAINABILITY OF THE ECOSYSTEM

Given the importance of the PRIME as a distinct marine ecosystem providing rich ecosystem services and supporting a wide-ranging food web, particularly for important subsistence species such as laaquadan and san, or seabirds, and expansive fisheries, the communities of St. Paul and St. George have pursued recognition for the area in an effort to achieve conservation goals while preserving local and regional economies. The pursuit of protections for the Pribilofs formally began in 2017, when the mayor of the city of St. George, Patrick Pletnikoff, successfully nominated an area of 30 nm around the island of St. George, with 20 nm between St. Paul and St. George (a distance of only 40 nm), to the national marine sanctuary inventory. The Unangan Heritage National Marine Sanctuary (UHNMS) nomination has remained in inventory to the present date but has not moved forward into the later stages of designation. In 2019, Mayor Pletnikoff contacted the Aleut Community of

▼ Google Map adapted to show the Pribilof Islands of St. Paul and St. George (inset) in the Bering Sea of Alaska.



St. Paul Island (ACSPI) seeking support for moving the UHNMS nomination into the scoping phase of designation. Through the ACSPI's Ecosystem Conservation Office (ECO), and with funding support from private foundations, the city of St. George and ACSPI began working together towards a broader, shared vision for marine conservation and economic resilience. A dedicated full-time position was created in 2020 between the city of St. George and ACSPI to work on these goals. During 2019–2021, our team completed a literature review for the marine area; produced numerous map layers to evaluate important

areas in the Bering Sea, determine the extent of the PRIME, and document Indigenous, Traditional and local knowledge; and produced a joint marine conservation strategy for the Pribilof Islands.

In December 2021, shortly after the unfortunate passing of Mayor Pletnikoff in August 2021, the ACSPI used the massive amount of literature and knowledge gathered to compose and submit a formal nomination to the NOAA Office of National Marine Sanctuaries (ONMS). The nomination details an area that fully encompasses the existing

▼ The town of St. Paul taken from Gorbach Bay, on the southern tip of the island. L. DIVINE, ECOSYSTEM CONSERVATION OFFICE



By designating a co-management area—an area managed cooperatively by the federal government, state government and our Tribal governments—we will be able to incorporate Indigenous, Traditional, and local knowledge with Western science to conserve our islands and enable sustainable economic development.

St. George Unangan Heritage National Marine Sanctuary (UHNMS) nomination and seeks to expand the region to encompass the larger PRIME based on the extensive Western science and Indigenous, Traditional and local knowledge of the area. The UHNMS nomination proposed a boundary area extending seaward around St. George 30 nm (3,406 mi²), except due north, where the boundary extends 20 nm (essentially half the distance between St. George and St. Paul). The new nomination, formally named Alaġuġ Kanuuġ, has strong support to become accepted into the NOAA ONMS inventory of successful nominations and move through the designation process to become a national marine sanctuary.

Perhaps most importantly, the designation of Alaġuġ Kanuuġ will create and implement an effective co-management structure between the St. Paul and St. George federally recognized Tribes and the state and federal governments for this vital marine ecosystem. This nomination is the first of its kind to utilize a co-management framework for an ecosystem, although it follows in the footsteps of similar efforts in Papahānaumokuākea Marine National Monument in Hawai‘i and Chumash Heritage NMS in the central coast of California. This truly is a new model for Tribal co-management, Indigenous-led research, and economic development. By designating a co-management area—an area managed cooperatively by the federal government, state government and our Tribal governments—we will be able to incorporate Indigenous, Traditional, and local knowledge with Western science to conserve our islands and enable sustainable economic development. The proposed governance structure will ensure effective co-management and restore Indigenous connections to the PRIME. The ACSPI’s approach with regard

to Tribal co-management directly enhances Tribal sovereignty, maintains economic opportunities and growth, and conserves resources that have been stewarded by our Indigenous Peoples since time immemorial.

The Biden–Harris Administration recognizes “Indigenous Traditional Ecological Knowledge as one of the important bodies of knowledge that contributes to the scientific, technical, social, and economic advancements of our nation.” Further, President Biden has repeatedly committed to elevating the voices of Indigenous Peoples in all federal government management decisions that directly impact our Tribal Nations.²⁵ Thus, the designation proposed by the Aleut Community of St. Paul Island provides a clear opportunity for the administration to make substantial progress towards fulfilling important national commitments.

The nomination of Alaġuġ Kanuuġ is a huge forward step toward ensuring the continued sustainability and thriving culture of our community and the ability to adapt to climate changes. The ACSPI is taking this step in the spirit of partnership, collaboration, and economic resilience. We have committed to pursuing inclusive management policies, including maintaining our world-leading fishery management process. Through pursuing designation of an NMS with co-management at its core, we will ensure not just a seat at the table, we will have built the table.

FOR MORE INFORMATION

Lauren Divine, lmdivine@aleut.com



REFERENCES

1. Torrey, B.B. 1978. *Slaves of the Harvest: The Story of the Pribilof Aleuts*. St. Paul, Alaska: Tanadgusix Corporation.
2. Lestenkof, P.M., P.A. Zavadil, S.M. Zacharof, and E.M. Melovidov. 2013. Subsistence Harvest Monitoring Results from 1999 to 2010 and Local and Traditional Knowledge Interview Results for St. Paul Island, Alaska.
3. Lestenkof, P.M., and M.A. Melovidov. 2015. Alaska Natives: Trawlers threaten halibut fishery. *The Seattle Times*, May 31. <https://www.seattletimes.com/opinion/alaska-natives-trawlers-threaten-halibut-fishery/>
4. Mercurieff, I., G. Vladi, and L. Roderick. 2018. *Perspectives on Indigenous Issues: Essays on Science, Spirituality and the Power of Words*. GCILL [Global Center for Indigenous Leadership and Lifeways].
5. Jochelson, W. 1925. *Archaeological Investigations in the Aleutian Islands*. Washington, DC: Carnegie Institution of Washington.
6. Black, L. 1983. Some problems in the interpretation of Aleut Prehistory. *Arctic Anthropology* 20: 49–78.
7. McCartney, A.P. 1984. Prehistory of the Aleutian region. In *Handbook of North American Indians: Arctic*. David Damas, ed. Washington, DC: Smithsonian Institution Press.
8. Veniaminov, I. 1984. *Notes on the Islands of the Unalashka District*. L.T. Black, trans. Kingston, Ontario: The Limestone Press.
9. Rubicz, R.C. 2007. Evolutionary consequences of recently founded Aleut communities in the Commander and Pribilof Islands. Ph.D. dissertation, University of Kansas.
10. Tran, J., L.M. Divine, and L.R. Heffner. 2021. “What are you going to do, Protest the Wind?”: Community perceptions of emergent and worsening coastal erosion from the remote Bering Sea Community of St. Paul, Alaska. *Environmental Management* 67: 43–66.
11. Hunt, G.L., Jr., K.O. Coyle, L.B. Eisner, E.V. Farley, R.A. Heintz, F. Mueter, J.M. Napp, J.E. Overland, P.H. Ressler, S. Salo, and P.J. Stabeno. 2011. Climate impacts on eastern Bering Sea food webs: A synthesis of new data and an assessment of the Oscillating Control Hypothesis. *ICES Journal of Marine Science* 68(6): 1230–1243. <https://doi.org/10.1093/icesjms/fsr036>
12. Mueter, F J., N.A. Bond, J.N. Ianelli, and A.B. Hollowed. 2011. Expected declines in recruitment of walleye pollock (*Theragra chalcogramma*) in the eastern Bering Sea under future climate change. *ICES Journal of Marine Science* 68(6): 1284–1296. <https://doi.org/10.1093/icesjms/fsr022>
13. Hunt, G.L., Jr., and P.J. Stabeno. 2002. Climate change and the control of energy flow in the southeastern Bering Sea. *Progress in Oceanography* 55: 5–22.
14. Stabeno P.J., N.A. Bond, and S.A. Salo. 2007. On the recent warming of the southeastern Bering Sea shelf. *Deep Sea Research Part II: Topography Studies in Oceanography* 54: 2599–2618.
15. Thoman, R.L., J. Richter-Menge, and M.L. Druckenmiller. 2020. Arctic Report Card: 2020. Silver Spring, MD: National Oceanic and Atmospheric Administration. <https://doi.org/10.25923/mn5p-t549>
16. Lyons, C., C. Carothers, and K. Reedy. 2016. A tale of two communities: Using relational place-making to examine fisheries policy in the Pribilof Island communities of St. George and St. Paul, Alaska. *Maritime Studies* 15. <https://doi.org/10.1186/s40152-016-0045-1>.
17. Sinclair, E.H., D.S. Johnson, T.K. Zeppelin, and T.S. Gelatt. 2013. *Decadal Variation in the Diet of Western Stock Steller Sea Lions (Eumetopias jubatus)*. NOAA Technical Memo NMFSAFSC-248. Silver Spring, MD: National Oceanic and Atmospheric Administration.
18. Brodeur, R.D., M.T. Wilson, G.E. Walters, and I.V. Melnikov. 1999. Forage fishes in the Bering Sea: Distribution, species associations, and biomass trends. In *Dynamics of the Bering Sea: A Summary of Physical, Chemical and Biological Characteristics, and a Synopsis of Research on the Bering Sea*. T.R. Loughlin and K. Ohtani, eds. North Pacific Marine Science Organization (PICES). University of Alaska Sea Grant Program Report AK-SG-99-03. Fairbanks, AK., University of Alaska Sea Grant, 509–536.
19. Ciannelli, L., R.D. Brodeur, and J.M. Napp. 2004. Foraging impact on zooplankton by age-0 walleye pollock (*Theragra chalcogramma*) around a front in the southeast Bering Sea. *Marine Biology* 144: 515–526.
20. Huntington, H.P., N.M. Braem, C.L. Brown, E. Hunn, T.M. Krieg, P. Lestenkof, G. Noongwook, J. Sepez, M.F. Sigler, F.K. Wiese, and P. Zavadil. 2013. Local and traditional knowledge regarding the Bering Sea ecosystem: Selected results from five indigenous communities. *Deep Sea Research*



Part II: Topical Studies in Oceanography 94:

323–332. <https://doi.org/10.1016/j.dsr2.2013.04.025>

21. Aguilar-Islas, A.M., M.P. Hurst, K.N. Buck, B. Sohst, G.J. Smith, M.C. Lohan, and K.W. Bruland. 2007. Micro- and macronutrients in the southeastern Bering Sea: Insight into iron-replete and iron-depleted regimes. *Progress in Oceanography* 73(2): 99–126. <https://doi.org/10.1016/j.pocean.2006.12.002>
22. Miller, R.J., C. Juska, and J. Hocevar. 2015. Submarine canyons as coral and sponge habitat on the eastern Bering Sea slope. *Global Ecology and Conservation* 4, 85–94. <https://doi.org/10.1016/j.gecco.2015.05.009>
23. Dayton, P.K. 1972. Toward an understanding of community resilience and the potential effects of enrichments to the benthos at McMurdo Sound, Antarctica. In *Proceedings of the Colloquium on Conservation Problems in Antarctica*. B.C. Parker, ed. Lawrence, KS: Allen Press, 81–96.
24. Ellison, A.M., M.S. Bank, B.D. Clinton, E.A. Colburn, K. Elliott, C.R. Ford, D.R. Foster, J.K. Stone, C.M. Swan, J. Thompson, B. Von Holle, and J.R. Webster. 2005. Loss of foundation species: Consequences for the structure and dynamics of forested ecosystems. *Frontiers in Ecology and the Environment* 3: 479–486.
25. <https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/15/fact-sheet-building-a-new-era-of-nation-to-nation-engagement/>





Citation for this article

Mercurieff, Marissa, Amos Philemonoff, and Lauren Divine. 2022. Tuman alaġuġ agliisaaġtan (Take care of the ocean): A new vision for Indigenous co-management in marine waters of the US. Parks Stewardship Forum 38(2): 227-234

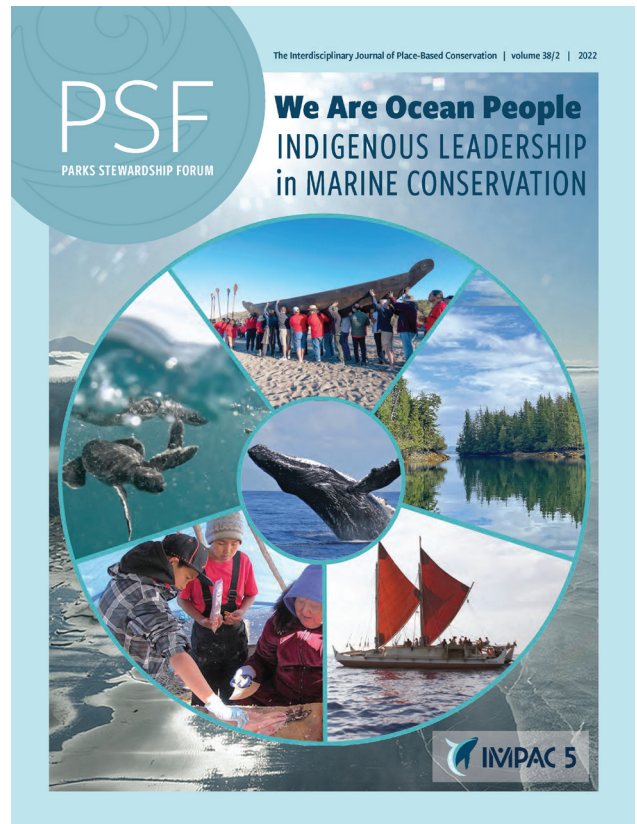
Parks Stewardship Forum explores innovative thinking and offers enduring perspectives on critical issues of place-based heritage management and stewardship. Interdisciplinary in nature, the journal gathers insights from all fields related to parks, protected/conserved areas, cultural sites, and other place-based forms of conservation. The scope of the journal is international. It is dedicated to the legacy of George Meléndez Wright, a graduate of UC Berkeley and pioneer in conservation of national parks.

Parks Stewardship Forum is published online at https://escholarship.org/uc/psf through eScholarship, an open-access publishing platform subsidized by the University of California and managed by the California Digital Library. Open-access publishing serves the missions of the IPPB and GWS to share, freely and broadly, research and knowledge produced by and for those who manage parks, protected areas, and cultural sites throughout the world. A version of Parks Stewardship Forum designed for online reading is also available at https://parks.berkeley.edu/psf. For information about publishing in PSF, write to psf@georgewright.org.

Parks Stewardship Forum is distributed under a Creative Commons Attribution-NonCommercial 4.0 International License (CC BY-NC 4.0).

The journal continues The George Wright Forum, published 1981-2018 by the George Wright Society.

PSF is designed by Laurie Frasier • lauriefrasier.com



On the cover of this issue

- CIRCLE DESIGN, clockwise from top:
• Northern Chumash ceremony | ROBERT SCHWEMMER
• Haida Gwaii | CINDY BOYKO
• The Polynesian Voyaging Society's voyaging canoe Hōkūle'a | NOAA
• Elder teaching youths, northern Alaska | US FISH AND WILDLIFE SERVICE
• Baby Honu (sea turtles), Papahānaumokuākea Marine National Monument | NOAA
• Center: Humpback whale, Papahānaumokuākea Marine National Monument | NOAA

Background: Pacific Rim National Park Reserve | PARKS CANADA