



Pacific Marine and Estuarine Fish Habitat Partnership Strategic Plan 2018-2022



*Approved October 11, 2018 and updated January 30, 2020 by the
Pacific Marine and Estuarine Fish Habitat Partnership Steering Committee*

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Cover Image Credit: Tarboo Bay, Washington Dept. of Ecology; Oregon ShoreZone; and Morro Bay, Morro Bay National Estuary Program.

Executive Summary

PMEP is one of 20 fish habitat partnerships in the United States and was formed to conserve and restore healthy native fish populations to U.S. waters. PMEP's specific focus is on the estuarine and nearshore marine ecosystems in California, Oregon, and Washington. Formally launched in 2012, this is the second five-year strategic plan for the organization. PMEP's broad goals and vision for the future were documented in its Strategic Framework 2012-2017. Moving forward, PMEP will continue to refer to the extensive list of actions put forth in this framework document, but has created a shorter, more targeted list of programmatic, operational, and outreach goals and objectives for its future.

PMEP has provided science, data, and funding to conserve and restore West Coast nearshore and estuarine fish habitat with a specific emphasis on multi-species and juvenile rearing habitat protection. This plan describes PMEP's major data products and its goals and objectives for 2018-2022, as well as outlines a financial plan to achieve these goals.

PMEP will track outputs and outcomes for its SMART objectives, as it is able, and report its findings to its members, partners, and the NFHP. Information learned from the priority studies outlined in this strategic plan, along with discovered data gaps, will be used for future PMEP planning and adaptive management efforts.

Programmatic goals

Goal 1: Protect, Restore, and Enhance Fish Habitat in California, Oregon, and Washington Estuaries with an Emphasis on Juvenile Rearing Areas

Goal 2: Protect, Restore, and Enhance Fish Habitat in the Nearshore Pacific Ocean

Goal 3: Increase Connectivity Between Habitats within PMEP's Geographic Scope

Operational goals

Goal 4: Ensure the Continuation of PMEP and its Work

Outreach goals

Goal 5: Increase Awareness of PMEP and its Products Across the West Coast and Nationally

Vision and Mission

Our vision is for California, Oregon, and Washington to have functional, resilient estuarine and nearshore marine ecosystems that support healthy native fish populations.

Our mission is to provide science, data, and funding to conserve and restore West Coast nearshore and estuarine fish habitat.

We accomplish this mission as follows:

1. PMEP supports multi-species habitat protection and restoration efforts in Pacific estuarine and nearshore areas and helps advance region-wide priorities in those environments. PMEP works in a complementary and collaborative fashion with the many existing partners targeting estuarine and nearshore habitats along the Pacific Coast, as well as larger-scale regional initiatives.
2. PMEP gathers the expertise of local, state, national, and tribal governments, nonprofits and other private organizations, and academia in order to synthesize the best available information to assist efforts to protect and restore native fish habitat along the West Coast.
3. PMEP works to develop and compile new datasets to fill high-priority data gaps in our understanding of West Coast native fish habitat.
4. PMEP provides, in collaboration with its members and partners, targeted restoration and conservation funding to support on-the-ground work.

Partnership Purpose and Governance Structure

PMEP is one of 20 fish habitat partnerships in the United States with national recognition and support from the National Fish Habitat Partnership. PMEP was formed, like other fish habitat partnerships, to conserve and restore healthy native fish populations to U.S. waters. PMEP's specific focus is on the estuarine and nearshore marine ecosystems in California, Oregon, and Washington.

PMEP is a collaboration of agencies and entities working to further the vision and mission of the collaboration. PMEP is governed by a steering committee made up of federal, tribal, and state governments; nonprofit organizations; and industry representatives. The committee promotes, oversees, and facilitates work to accomplish the goals and strategies of PMEP. PMEP strives for membership that represents the geography and organizational diversity of the West Coast. Serving on the committee is voluntary and members or member organizations are typically added by invitation.

PMEP work is also advanced by a handful of sub-committees. The Science and Data Committee advances PMEP's work with technical tools and assessments. The subcommittee reviews and evaluates pertinent data and scientific conclusions to ensure PMEP actions and activities consider the best available information. PMEP's Outreach Committee assists the Steering Committee to develop public outreach strategies. PMEP's Governance Committee, which includes PMEP officers and other interested members, provides *ad hoc* advice and operational support to the Coordinator. PMEP also uses specialized working groups to help advance work on specific topics, such as spatial data or nearshore marine work. PMEP's Charter that more specifically outlines the structures and functions of PMEP committees can be found in Appendix A.

In conducting its work, PMEP:

- Seeks to build upon and complement existing efforts through collaboration;
- Focuses on estuarine and nearshore marine habitats;
- Prioritizes projects that benefit numerous fish species;
- Takes into consideration climate change impacts as one of a number of limiting factors in restoring fish habitat;
- Focuses on habitats and fishes that are not benefiting from existing high profile initiatives;
- Provides value for new and existing efforts by acting as a conduit for new information, networking and peer learning, providing support for fundraising efforts, and sharing of best practices and data; and
- Leverages the diverse capabilities and strengths of its member organizations to act on common conservation priorities.

History

Emerging and Applying for Fish Habitat Partnership (FHP) Candidacy 2008–2009

California, Oregon, and Washington, The Nature Conservancy (TNC), and others prepared a joint application in 2008 for funding from the U.S. Fish and Wildlife Service (USFWS) Multi-State Conservation Grant Program to establish a Pacific-focused fish habitat partnership. The collaboration laid the groundwork for a partnership subsequently joined by other organizations. In August 2009, the Pacific States Marine Fisheries Commission (PSMFC) submitted a letter to the National Fish Habitat Board (NFHP) requesting Candidate Partnership status on behalf of the partnering organizations. The NFHP Board approved that request the following month.

Establishing the Partnership in 2010

More than 40 representatives of state, tribal, and federal agencies, nongovernmental organizations, and others from the region participated in a two-day workshop in May 2010 in Portland, Oregon to define key elements of the partnership and create a preliminary governance structure. An Interim Steering Committee (ISC) was created to further explore a marine and estuarine- focused initiative. In the summer of 2010, the National Marine Fisheries Service (NMFS) approved funding for a short-term coordinator, ISC members continued to convene periodically, and presentations were made at numerous events, including the October 2010 and October 2011 NFHP Board meetings.

PMEP's priorities were clarified in a four-step process that culminated in an overarching vision and mission with specific priorities consistent with other NFHP partnerships. In the fall of 2011, PMEP hired a coordinator to administer the functions of PMEP, facilitate the development of a strategic plan, and assist with the application materials necessary to achieve full FHP status from the NFHP Board. In September 2011, the Interim Steering Committee convened in Portland, Oregon to work through all of the elements of the draft partnership application, define gaps and information needs, and take initial steps toward development of a PMEP strategic framework. At that meeting, ISC members voted to become PMEP Steering Committee.

Formally Launching the Partnership in 2012

In November of 2011, PMEP sent its application and draft strategic framework to the NFHP Board for review and feedback prior to its final determination on partnership status in January 2012. In January 2012, the NFHP Board approved PMEP as one of 18 nationally recognized fish habitat partnerships.

PMEP the First 5 years

From 2012-2017, PMEP worked to implement its strategic framework and conducted a number of important foundational assessments that helped define its work within estuaries including an inventory of West Coast estuaries and an assessment of the nursery function of these systems for 15 commercially important and estuary dependent species. To learn more about work conducted to-date, visit www.pacificfishhabitat.org.

Geographic Scope

PMEP’s geographic scope encompasses coastal draining watersheds along the U.S. West Coast (California, Oregon, and Washington), extending into the marine waters offshore to a depth of 200 meters. Within this spatial domain, the Partnership focuses its attention on the estuarine and nearshore fish habitats that exist in tidal, subtidal and marine waters.

These boundaries for the partnership were determined during the formation of the group by majority opinion of the interim steering committee members and refined using appropriate spatial data. During formation, PMEP members agreed to revisit these boundaries in the future if circumstances warranted. The group considered these boundaries to be most appropriate to address regional habitat needs because:



Figure 1. PMEP Geographic Scope

- A tri-state focus provides a strong ecological basis by virtue of consistency with the California Current Large Marine Ecosystem.
- There are numerous existing and past organizations along the West Coast that focus regionally, primarily in a tri-state geography, on ocean and coastal health issues (e.g., West Coast EBM Network, West Coast Governors Alliance on Ocean Health). Providing a geographic focus to the partnership that aligns with the geographic focus of other ocean and coastal initiatives increases

opportunities to leverage resources and align similar priorities in nearshore marine environments and estuaries.

- Logistically, significant time and cost savings can be achieved with a geographic focus limited to the three West Coast states.
- California has a Nearshore Fishery Management Plan, Oregon has a Nearshore Strategy, and Washington has the Puget Sound Nearshore Ecosystem Restoration Project. Each of these state-based initiatives complement one another and provide a strong foundation for PMEP's work.

Ecological Importance and Critical Threats

Ecological Importance

Numerous Pacific fish species spend at least a critical portion of their life cycles in estuarine and nearshore marine environments, and can be expected to benefit, to some degree, from protection, enhancement, and restoration of juvenile fish habitat in estuaries, nearshore fish habitat, and tidal wetland-intertidal-subtidal-nearshore connectivity. Pacific coast estuaries and nearshore marine environments provide a broad suite of environmental services, including economic, environmental, social, and cultural benefits and services.

Ecosystem services connect the economy and ecology of coastal and marine ecosystems. The range of ecosystem services provided by estuaries and nearshore marine environments is intricately linked to the economic and social well-being of adjacent communities.¹ Healthy marine ecosystems provide sound foundations for fisheries, recreation, and tourism industries, and are the “natural capital base from which many vital goods and services flow.”²

For the purposes of clarification, PMEP classifies estuaries into four categories³:

- Embayment/Bay: a water body with some level of enclosure by land at different spatial scales, which can be covered by broad mud flats alternately covered by water and exposed to air due to tidal flows;
- Riverine: which extend up river to a portion of tidally-influenced areas;
- Major River Delta: nearly flat, alluvial tract of land at the mouth of a river, which commonly forms a triangular or fan-shaped plain; and
- Lagoons: shallow, highly enclosed areas with little exchange with the ocean.

¹ Swedeen, P., D. Batker, H. Radtke, R. Boumans, and C. Willer. 2008. An Ecological Economics Approach to Understanding Oregon's Coastal Economy and Environment. Audubon Society of Portland. Portland, OR. 83pp.

² Ibid.

³ CMECS Physiographic Setting; <https://www.cmeccatalog.org/cmecc/classification/dComponent/51.html>

Some of the most common types of vegetated wetland habitats in West Coast estuaries include:⁴

- Seagrass bed: tidal aquatic vegetation beds dominated by seagrass or eelgrass species
- Emergent tidal marsh: Communities dominated by emergent, halophytic, herbaceous vegetation (with occasional woody forbs or shrubs) along low-wave-energy, intertidal areas of estuaries and rivers.
- Tidal scrub-shrub wetland: Estuarine or tidal riverine areas dominated by shrub vegetation that has less than 10% tree cover.
- Tidal forest/woodland: Estuarine or tidal riverine areas with greater than 10% tree cover.

Nearshore habitat is generally described as the area between the high tide line and 30 meters in depth⁵. Nearshore marine environments may be characterized as having the following habitat types⁶:

- Rocky shore—high intertidal, mid intertidal, low intertidal, intertidal artificial substrate
- Sandy beach—high intertidal, mid and low intertidal
- Rocky subtidal (which can be further classified by depth and substrate)
- subtidal artificial substrate
- Soft bottom subtidal
- Pelagic—neritic

Estuaries include many diverse and productive habitats, such as salt marshes, eel grass beds, open water, sand- and mudflats, lagoons, and deltas. Estuaries are highly productive ecosystems that provide essential nursery habitat for commercial and recreational fish species, in part because of their crucial nutrient-mixing zone. Estuaries have experienced declines in species diversity and abundance as well as deteriorated water quality for many reasons, including agricultural development as well as the development of port, tourism, and industrial facilities sited along the edges.^{7 8}

⁴ <https://www.cmeccatalog.org/cmecc/classification/dComponent/2.html>

⁵ CMECS Aquatic Setting; <https://www.cmeccatalog.org/cmecc/classification/aquaticSetting/4.html>

⁶ <https://www.dfw.state.or.us/mrp/nearshore/docs/strategy/Chapter5.pdf>

⁷ Environmental Protection Agency. 2007. National Estuaries Program Coastal Conditions Report. EPA-842/B-06/001 2006. Office of Water and Office of Research and Development, Washington, D.C.

⁸ United Nations Environment Program, 2006. Marine and Coastal Ecosystems and Human Wellbeing: Synthesis. A synthesis report based on the findings of the Millennium Ecosystem Assessment. Brown, C., E. Corcoran, P. Herkenrath, and J. Thonell, eds. UNEP, Nairobi, Kenya.

Commonly found substrates in the intertidal zone include rock, gravel, cobble, and sand.⁹ Rocky intertidal habitat includes invertebrate organisms, kelp, brown rockweed, red algae, eelgrass, and surfgrass.¹⁰ Rock reefs, which provide nursery habitat to rockfish, corals, sponges, marine mammals, and seabirds,¹¹ occur within the intertidal and sub-tidal zones. Larger kelp species are found in submerged habitats with rocky substrate. Sandy bottom intertidal and sub-tidal areas support diverse communities of benthic invertebrates.

In 2014, PMEP completed the report, "[Nursery Functions of U.S. West Coast Estuaries: The State of the Knowledge for Juveniles of Focal Invertebrate and Fish Species](#)."¹² This report lays out documented use of estuarine sub-classes and habitats for all life history stages of 15 focal species in West Coast estuaries (pages 74-76 in the report), revealing the importance of estuaries and their different habitat types for a variety of fish species and life stages.

To evaluate the types of juvenile fish habitat found in West Coast estuaries, PMEP focused on 15 species of fish and shellfish that, together, represent the gamut of West Coast fishes that depend on estuaries for juvenile habitat (Table 1). Selecting these species, identifying relevant habitat stressors, and prioritizing restoration projects accordingly, have been key to success of PMEP's strategy. PMEP may update this list overtime as its work evolves and moves into the nearshore zone.

⁹Swedeen, P., D. Batker, H. Radtke, R. Boumans, and C. Willer. 2008. An Ecological Economics Approach to Understanding Oregon's Coastal Economy and Environment. Audubon Society of Portland. Portland, OR. 83pp.

¹⁰C.B. Chappell, R.C. Crawford, C. Barret, J. Kagan, D.H. Johnson, et al. 2001. Wildlife habitats: Descriptions, status, trends, and system dynamics. In, Wildlife Habitat Relationships in Oregon and Washington, D.H. Johnson and T.A. O'Neil, Managing Directors. Oregon State University Press, Corvallis, OR.

¹¹Weeks, H. and A. Merems. 2004. 2003 Nearshore Rocky Reef Habitat and Fish Survey, and Multi-year Summary. Oregon Department of Fish and Wildlife Marine Habitat Project, Marine Resources Program.

¹²Hughes, B. B., M. D. Levey, J. A. Brown, M. C. Fountain, A. B. Carlisle, S. Y. Litvin, C. M. Greene, W. N. Heady and M. G. Gleason. 2014. Nursery Functions of U.S. West Coast Estuaries: The State of Knowledge for Juveniles of Focal Invertebrate and Fish Species. The Nature Conservancy, Arlington, VA. 168pp.

Table 1: The 15 fish and crustacean species that serve as proxies for the restoration of juvenile fish habitat in West Coast estuaries. Species were chosen to encompass the diversity of life histories, functional groups, habitat-use patterns, and ecological roles of species found in West Coast estuaries.

PMEP Focal Species For Estuaries
Dungeness crab (<i>Cancer magister</i>)
Bay shrimp (<i>Crangon franciscorum</i>)
Leopard shark (<i>Triakis semifasciata</i>)
Bat ray (<i>Myliobatis californica</i>)
Green sturgeon (<i>Acipenser medirostris</i>)
Steelhead trout (<i>Oncorhynchus mykiss</i>)
Coho salmon (<i>Oncorhynchus kisutch</i>)
Chinook salmon (<i>Oncorhynchus tshawytscha</i>)
California halibut (<i>Paralichthys californicus</i>)
English sole (<i>Parophrys vetulus</i>)
Starry flounder (<i>Platichthys stellatus</i>)
Brown rockfish (<i>Sebastes auriculatus</i>)
Pacific staghorn sculpin (<i>Leptocottus armatus</i>)
Shiner perch (<i>Cymatogaster aggregata</i>)
Pacific herring (<i>Clupea pallasii</i>)

Critical Threats

Estuaries and nearshore marine environments have been significantly altered due to human development activities, including, but not limited to, dredging, hydrologic modifications, urbanization, wastewater disposal, aquaculture, dikes, land use conversions, industrial and residential development, invasive species, and wetland drainage (Table 2). Between the years 1970 and 2010, human population levels in

coastal counties increased by 40% with the largest gain seen in the Pacific region.¹³ It is estimated that by 2025, 75% of the world’s population will live in coastal areas.¹⁴ ¹⁵ Projected increases in human population and activities in and around estuaries and nearshore areas, including contributing watersheds, threaten the future of these critically important habitats. In addition, new stressors are emerging due to climate change,¹⁶ including ocean acidification, rising sea surface temperatures, increased storm intensities and extreme wave heights, rising sea levels, expanded hypoxic zones, and changes in sediment transport.

Table 2: Known and recognized threats to fish habitats in estuarine and nearshore marine environments compiled from state wildlife action plans and nearshore strategy documents and Gleason et al. 2011.

Threat Category	Primary Stressor	Impacts	Estuary	Nearshore
Altered tidal exchange	<ul style="list-style-type: none"> Levees and dikes Tide gates and culverts Road crossings and filled areas Mouth manipulations including jetties, armoring and dredging 	<ul style="list-style-type: none"> Salinity range Connectivity Flushing Change or loss of biota Estuary mouth open/close patterns 	x	
Altered nutrient and water quality	<p>Non-point sources:</p> <ul style="list-style-type: none"> Agriculture Urbanization / development <p>Point sources:</p> <ul style="list-style-type: none"> Toxic release sites / sewage discharge Urbanization / 	<ul style="list-style-type: none"> Nutrient dynamics Contaminants Trophic structure and dynamics Population level impacts (mortality, reproduction) 	x	x

¹³ <http://oceanservice.noaa.gov/facts/population.html>

¹⁴ Agardy, T., J. Alder, P. Dayton, S. Curran, A. Kitchingman, M. Wilson, A. Catenazzi, J. Restrepo, C. Birkeland, S. Blaber, S. Saifullah, G. Branch, D. Boersma, S. Nixon, P. Dugan, N. Davidson, and C. Vorosmarty. 2005. Coastal systems. Chapter 19 in *Ecosystems and Human Wellbeing: Current State and Trends*, R. Hassan, R. Scholes, and N. Ash, Eds., Island Press, pp. 513-549. <http://www.maweb.org/documents/document.288.aspx.pdf>

¹⁵ Airoldi L. and M.W. Beck. 2007. Loss, status and trends for coastal marine habitats of Europe. *Oceanogr. Mar. Biol. Annu. Rev.*, 45: 345-405.

¹⁶ Tillmann, P. and D. Siemann. 2011. Climate change effects and adaptation approaches in marine and coastal ecosystems of the North Pacific Landscape Conservation Cooperative Region. 257pp.

	<ul style="list-style-type: none"> development Oil spills Aquaculture 			
Altered freshwater inputs	<ul style="list-style-type: none"> Dams Diversions - groundwater withdrawal Levees and dikes 	<ul style="list-style-type: none"> Salinity Regime Flushing flows and channel maintenance Connectivity Biodiversity habitat heterogeneity Currents and vertical mixing Nutrient flux River-supplied nutrients and organic matter Change or loss of biota 	x	x
Altered sediment regime - increased sediment	<ul style="list-style-type: none"> Forestry Agriculture Beach nourishment 	<ul style="list-style-type: none"> Causes premature infilling of estuary Connectivity - mouth and delta Smothers flora and fauna Increased turbidity - light environment Trophic structure and dynamics 	x	x
Altered sediment regime - decreased sediment	<ul style="list-style-type: none"> Dams / barriers Impervious surfaces Levees and dikes Tide gates and culverts 	<ul style="list-style-type: none"> Habitat loss and inability to keep up with sea level rise Decreased turbidity Loss of nutrients Trophic structure and dynamics 	x	x
Overexploitation	<ul style="list-style-type: none"> Bycatch and incidental catch associated with commercial and recreational fishing and scientific collection 	<ul style="list-style-type: none"> Loss of biota 		x

	<ul style="list-style-type: none"> • Commercial fishing • Recreational fishing 			
Climate change	<p>Global emissions causing:</p> <ul style="list-style-type: none"> • Sea level rise • Increased storms, erosion, and peak flows • Ocean acidification • Changes in upwelling • Changes in temperature 	<ul style="list-style-type: none"> • Drowns habitat • Causes human responses such as armoring • Loss of shellfish • Altered nutrient dynamics (including harmful algal blooms) 	x	x
Invasive species (including disease introduction)	<ul style="list-style-type: none"> • Ballast water • Aquaculture • Vessel operations / transportation / navigation • Aquarium pet trade • Research facilities and public aquariums • Some fishing operations • Transport of live animals and plants 	<ul style="list-style-type: none"> • Trophic structure and dynamics 	x	x

PMEP's Spatial Data System

To date, PMEP's major contribution to West Coast conservation science has been its spatial data system (SDS) and spatial data products. PMEP's SDS is a framework designed to help the partnership characterize the range of habitats and conditions within its geographic scope in order to help partners articulate key priorities and needs across habitats and at different scales. Data for each of the components of the spatial data system can be used to bin or assess information, such as PMEP's spatial data products, in order to have a landscape-based perspective for PMEP and partner assessments. The SDS incorporates new and existing datasets within PMEP's boundaries representing regions, watersheds, rivers and streams, estuaries, and the nearshore. The SDS will evolve with time as new and more accurate data become available, and will be used to identify data gaps for future work. To see an illustration of different layers of the SDS see Appendix C.

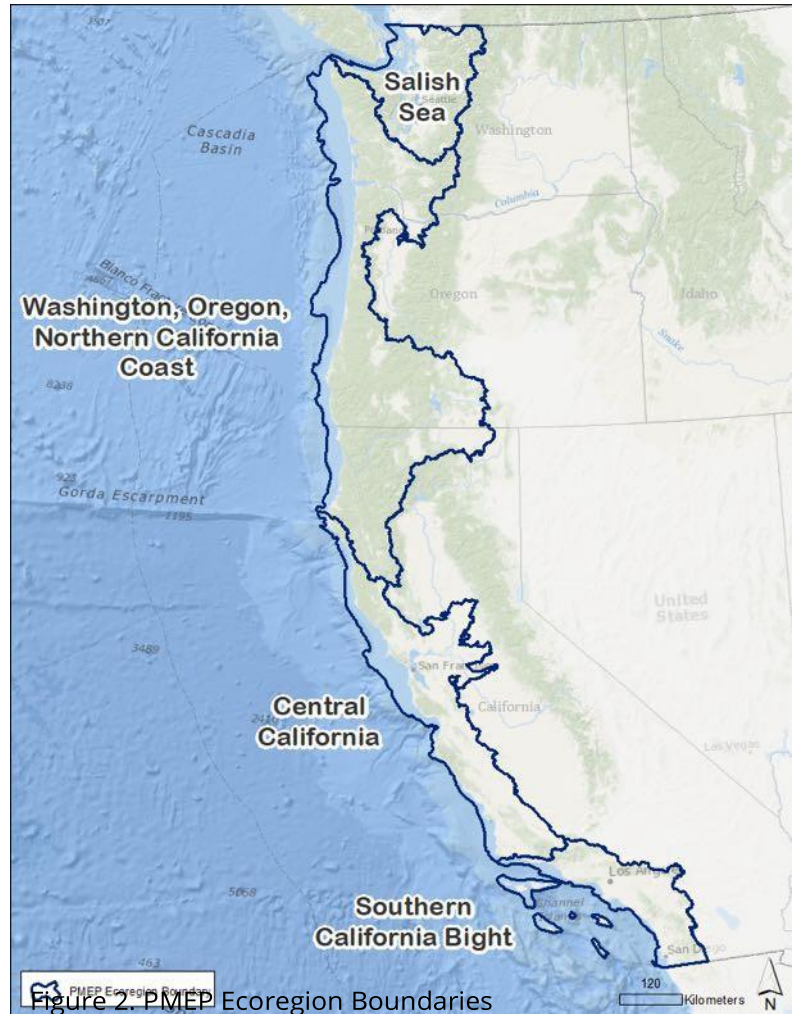


Figure 2. PMEP Ecoregion Boundaries

Ecoregions

PMEP has established regional boundaries (Figure 2) for the purpose of habitat characterization, information synthesis, outreach, habitat conservation and restoration goal setting (Salish Sea; Washington, Oregon, Northern California Coast; Central California, and the Southern California Bight). Regional divides follow watershed and international boundaries and extend out to the 200 meter depth contour in close alignment with management boundaries in use by U.S. West Coast fisheries managers.

Estuaries

In 2014, PMEP completed an “Inventory and Classification of West Coast Estuaries”¹⁷ as a starting point for the spatial framework based on individual estuaries, or coastal confluences. This initial mapping effort focused on identifying estuaries along the West Coast ensuring features important for fish were not excluded. This initial framework was then narrowed down to be used in two of PMEP’s assessments. (Illustrations of the SDS products mentioned here can be found in Appendix C.)

The next step in the evolution of the SDS included refining the mapping of estuaries following an elevation-based boundary method published by Oregon Department of Land Conservation and Development. This layer, West Coast USA Current and Historical Estuary Extent, represents the current and historical tidal wetlands, or estuary extent, for the West Coast of the contiguous United States. Accurate mapping of estuaries is vital for effective conservation and restoration of these habitats.

To retain the ability to link back to prior PMEP products, such as the first estuary inventory (see PMEP Data Products for more details), the data system maintains prior IDs. Currently there are 444 estuaries in the spatial data system.

Watersheds, Rivers and Streams

Each mapped estuary is associated with the streams that contribute freshwater flow, using features from NHDPlus V2.1. In addition, each estuary is associated with an estuary drainage area (EDA), or watershed, based on a reference to the National Watershed Boundary Dataset (WBD).

Nearshore

Future work for PMEP, as outlined in our goals and objectives, includes identifying nearshore areas to better understand habitats within nearshore zones of the West Coast. These nearshore areas will be associated with adjacent estuaries.

PMEP Data Products

To deepen our scientific understanding and make strategic recommendations for conservation and restoration of fish habitat in estuaries and the nearshore on the West Coast, PMEP conducts assessments and compiles and standardizes data based on the partnership’s strategic priorities. All of these datasets are used to characterize PMEP’s priority habitats and threats to habitats, and include the id’s

¹⁷ Heady, W.N., K. O’Connor, J. Kassakian, K. Doiron, C. Endris, D. Hudgens, R. P. Clark, J. Carter, and M. G. Gleason. 2014. An Inventory and Classification of U.S. West Coast Estuaries. The Nature Conservancy, Arlington, VA. 81pp.

that link the data to PMEP's spatial data system. To date the following assessments and data compilation efforts have been completed:

Nursery Functions of U.S. West Coast Estuaries: The State of the Knowledge for Juveniles of Focal Invertebrate and Fish Species

This report and associated data expand upon previous efforts summarizing juvenile use of estuaries and synthesizes the existing geospatial data and information on the nursery role of estuaries for a group of ecologically and economically important fish and invertebrate species.

Nursery Functions of U.S. West Coast Estuaries: Data Assessment for Juveniles of 15 Focal Fish and Crustacean Species

The assessment addressed the status of estuarine use along the West Coast for 15 "focal" fish and crustacean species. Data were synthesized into a common format identifying focal species location, average frequency of occurrence, and average catch per unit effort (CPUE).

West Coast USA Estuarine Biotic Habitat

PMEP mapped the Biotic Component (BC) of the Coastal and Marine Ecological Classification Standard (CMECS) for estuaries of the West Coast of the contiguous United States.

Indirect Assessment of West Coast USA Tidal Wetland Losses

PMEP conducted an indirect assessment of emergent, scrub-shrub and forested tidal wetland losses for 55 estuaries spanning the contiguous United States West Coast. These 55 estuaries comprise over 97% of historical tidal wetland area for the West Coast.

West Coast USA Eelgrass Habitat

This package of map layers represents the presence and maximum observed extent of eelgrass (*Zostera* sp.) habitat on the West Coast of the United States (Washington, Oregon, and California), based on the best available existing spatial data showing the current and historic extent of eelgrass in the region. Additional attributes of the dataset include frequency of data collection efforts, data collection dates, and CMECS Biotic Component code.

Goals & Objectives 2018-2022

Since its inception in 2012, PMEP has focused on West Coast estuarine and nearshore science, conservation, and restoration by providing technical resources to practitioners in the field and supporting on-the-ground activities. PMEP's broad goals and vision for the future were documented in its Strategic Framework 2012-2017. Moving forward, PMEP will continue to refer to the extensive list of actions put forth in this framework document, but create shorter, more targeted lists of objectives for its future five-year strategic plan updates. PMEP's actions for the 2018-2022 timeframe include the following programmatic, operational, and outreach goals and objectives.

2018-2022 goals, objectives and strategies for implementation are outlined in the following fashion –

Goals

- Objectives
 - Strategies for Implementation

** Dependent on successfully receiving outside funding to support this item*

Programmatic goals

Goal 1: Protect, Restore, and Enhance Fish Habitat in California, Oregon, and Washington Estuaries with an Emphasis on Juvenile Rearing Areas

- Objective A: By 2020, complete the assessment of restored estuarine areas along the US West Coast and include those restored areas as data layers in PMEP spatial data system (SDS) for practitioners.
- Objective B: Now through 2022, collaborate with partners to understand climate change impacts and evaluate current and future estuarine contributions to mitigate sea level rise, sequester carbon, and alleviate ocean acidification through the assessment, conservation, enhancement, and restoration of estuarine habitats.
- Objective C: On an ongoing basis, refine PMEP USA West Coast Estuary mapping products by incorporating new and existing spatial data layers, as appropriate.
 - Refine the historical estuary extent in certain estuaries by including filled lands, using available historical estuary mapping.
 - Incorporate eelgrass spatial data into the Estuarine Biotic Habitat layer
 - Update the Estuarine Biotic Habitat data using updated input data sources (NWI, C-CAP, others).

- Include coastal habitat change assessment from sea level rise and other climate change impacts, if an adequate standard dataset is developed.
- Objective D: For grant years 2019 and 2020, target FHP grant funds towards understanding and restoring nursery habitats for PMEP focal species within smaller estuarine systems.

Goal 2: Protect, Restore, and Enhance Fish Habitat in the Nearshore Pacific Ocean

- Objective A: By 2022, complete a nearshore fish habitat assessment with assistance from outside partners.*
 - Define and map boundaries for delineating nearshore zones along the U.S. West Coast based on input from the PMEP Science and Data and Steering Committees.
 - Compile and standardize spatial data on nearshore habitats within the zones defined and incorporate this information into PMEP's spatial data framework.
 - Compile a report on the State of The Knowledge on U.S. West Coast Nearshore Fish Habitats, with assistance from experts in the field, based on current literature and data compiled by PMEP.
- Objective B: Utilize information from the state of knowledge report (and other sources) to provide expert advice and seek opportunities to conserve, protect, restore, and enhance fish habitat in nearshore areas.

Goal 3: Increase Connectivity Between Habitats within PMEP's Geographic Scope

- Objective A: By 2020, in collaboration with the California Fish Passage Forum and the Pacific Lamprey Fish Habitat Partnership, produce an assessment of water crossing structures that impede tidal connectivity in PMEP's study area to be included in PMEP's spatial data framework.*
 - Identify existing efforts underway to document tidal restrictions (such as diked lands, roadways, and tide gates) within the three states.
 - Implement a call for existing data and construct a catalog of known datasets.
 - Identify areas where information is lacking and where additional assessment is needed.
 - Explore methods for spatial analysis of the areas affected by identified tidal connectivity restrictions.
- Objective B: In 2020, hold a summit with West Coast restoration experts on Tidal Restrictions and Habitat Connectivity in order to share technical information compiled by PMEP and its partners, identify continuing gaps in knowledge, enhance peer-to-peer learning on the topic, and report results.

- Objective C: For grant years 2021 and 2022, target FHP grant funds towards projects that improve connectivity and restore tidal influence. Target projects that use best approaches identified during the summit.
- Objective D: By 2022 Utilize information from the Barriers to Tidal Connectivity Project (Objective A and B) (and other sources) to pursue next steps to increase connectivity between habitats.

Operational goals

Goal 4: Ensure the Continuation of PMEP and its Work

- Objective A: Continue to recruit new members for the PMEP Steering Committee in order to maintain a balance of expertise and geographic representation.
- Objective B: During the next five years, add two to three new members with a focus on increasing California (especially Southern California) and native sovereign nation representation.
- Objective C: Ensure that volunteer contributions to PMEP are adequately acknowledged on an annual basis.
- Objective D: On an ongoing basis, build a more active network of partner organizations that support PMEP work and advertise PMEP products within their own networks.
- Objective E: Prioritize funding staff (or equivalent in-kind contribution from a member) each year from 2018-2022.
 - Core staff includes a PMEP coordinator and data steward.
- Objective F: Prioritize funding for an annual in-person meeting or workshop of members and partners to sustain engagement and build awareness of PMEP in each ecoregion.
- Objective G: Secure funding for PMEP initiatives from new funding sources, including public and private funding.
 - By 2020, secure one new funder for PMEP work and an additional new funder by 2022.
 - Partner with Beyond the Pond in order to secure funds earmarked for nonprofits.
 - Reach out to appropriate corporate funders for support of specific initiatives. Evaluate whether these funders have existing giving priorities in line with PMEP's mission.
- Objective H: Maintain connection with FHP Science and Data Committee to ensure synergy with PMEP assessment work. Annually, coordinate with NOAA on possible partnerships.
- Objective I: Maximize funding for on-the-ground conservation and restoration projects through the established FHP grant opportunity. Each year, work towards achieving a Score of 3 from FWS during the annual FHP evaluation process.

Outreach goals

Goal 5: Increase Awareness of PMEP and its Products Across the West Coast and Nationally

- Objective A: Publish PMEP spatial data, tools and reports and advertise their availability to the restoration and conservation communities and other stakeholders in order to foster use of standardized regional datasets in conservation and restoration planning.
 - PMEP will create ready-made content that members and partners can use to advertise these products through their existing outreach platforms (newsletters, conferences, social media, etc.)
 - PMEP will send an e-blast to its mailing list of partners advertising the data and showcasing the utility of the products.
 - PMEP members will present to at least 2 professional conferences or other meetings regarding the spatial data framework.
 - PMEP will track data downloads and follow-up with users via survey to assess how data was used in conservation and restoration planning.
- Objective B: Create an Outreach and Communications Plan to increase awareness of PMEP and its future products to specific target audiences by 2019, and update biennially thereafter.
 - PMEP will maintain an active Outreach Committee with experts in the field of communication and will hold regular (at least biannual) meetings of its Outreach Committee to gain expert opinion regarding its outreach efforts.
 - PMEP will strive to create audience-specific messages to appeal to stakeholders with differing interests or priorities. PMEP will develop a briefing packet, with information about the partnership and its accomplishments, for marketing and promotion.
 - PMEP will continue to encourage members and partners to promote and distribute information about PMEP's activities within their networks.
 - As part of the overall plan, PMEP will maintain an outreach calendar with opportunities for outreach to promote PMEP and its products regionally and nationally.

Financial Plan

Case for Support

Healthy marine ecosystems are intricately linked to the economic and social well-being of adjacent communities. PMEP provides science, data, and funding to conserve and restore the West Coast's nearshore and estuarine fish habitat, which is vital to the health of our marine ecosystems.

Estuaries and nearshore marine environments have been significantly altered due to human development activities and they will continue to be at risk due to increasing population pressure along our coasts and impacts from climate change. PMEP gathers the expertise of many in order to synthesize the best available information in order to assist in protecting and restoring these important fish habitats.

PMEP has created a spatial data system to help advance regional and local knowledge. This helps in landscape level planning, but it also allows PMEP to provide needed data to entities that would perhaps otherwise not have access to more local information for conservation and restoration planning. Few regional spatial tool exists for use by agencies, organizations, and academia when prioritizing protection and restoration efforts, or conducting science. PMEP works to fill high-priority data gaps in our understanding, without which we could not adequately prioritize conservation and restoration measures for the future. PMEP always works in a complementary and collaborative fashion with existing local and regional initiatives.

Financial Development Strategy

- Continue participation in and support for NFHP to encourage continued Congressional support of Fish Habitat Partnership funding through the U.S. Fish and Wildlife Service (FWS).
- Strategically apply for other public funding sources to support PMEP projects, including NOAA, FWS, and other federal and state agencies funds.
- Continue to partner with other FHPs on projects of interest to both organizations in order to strengthen grant applications to funders, such as the Association of Fish and Wildlife Agencies.
- Continue to establish partnerships with like-minded groups, such as The Nature Conservancy, to fund projects of mutual interest.
- Intensify efforts to cultivate and secure grants from new funders including private foundations and state-level entities. Organizations to consider include:
 - National Fish and Wildlife Foundation
 - Packard Foundation
 - Waitt Foundation
 - The Campbell Foundation
 - Bullitt Foundation
 - Marisla Foundation
- Assess the feasibility of and cultivate corporate funding for programs and projects.

- Partner with Beyond the Pond to apply for grants and to provide an opportunity to receive direct donations from individual donors, if applicable.

Financial Development Infrastructure

Pacific States Marine Fisheries Commission (PSMFC) serves as the host agency for PMEP. PSMFC has extensive grant management infrastructure for managing government grants and currently manages all grant funding for PMEP work. PMEP should continue to rely on PSMFC development and financial management expertise over the next five years. In addition, PMEP now has the ability to partner with Beyond the Pond, the 501(c)(3) arm of the National Fish Habitat efforts. Partnering with Beyond the Pond will allow PMEP to access previously inaccessible grant opportunities tailored to nonprofit organizations, since PSMFC is a governmental entity. This should help PMEP to diversify its funding base in the future. PMEP will continue to rely on members and its Coordinator to develop projects and funding applications.

Revenue and Expense Projections

Below are estimated projections of potential revenue and expenses over the five-year planning horizon. A specific budget and timeline should be created for each project or initiative separately.

<i>Revenue</i>	2018	2019	2020	2021	2022
FWS	\$150,000	\$75,000	\$150,000	\$150,000	\$150,000
Multi-State Grant	\$12,000	\$60,000	\$30,000	\$0	\$0
NOAA	\$20,000	\$135,000	\$20,000	\$20,000	\$20,000
Other funding sources	\$0	\$15,000	\$30,000	\$20,000	\$20,000
<i>Total Projected Revenue</i>	\$182,000	\$285,000	\$230,000	\$190,000	\$190,000
<i>Expenditures</i>					
Personnel/Coordination	\$110,000	\$155,000	\$110,000	\$110,000	\$110,000
Rent	\$1,400	\$1,400	\$1,400	\$1,400	\$1,400
Supplies	\$3,000	\$3,000	\$5,000	\$3,000	\$3,000
Travel	\$20,000	\$20,000	\$50,000	\$20,000	\$20,000
Project Contracts	\$34,600	\$92,600	\$50,600	\$42,600	\$42,600
Indirect	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000
<i>Total Projected Expenditures</i>	\$182,000	\$285,000	\$230,000	\$190,000	\$190,000

Communication Plan

PMEP plans to create a communication's plan by 2019. It is one of the group's main objectives in order to increase awareness of the organization and its products. This plan will be a stand-alone document, separate from the strategic plan, and be updated on a biennial basis to ensure its relevancy and utility. The communication plan should be designed to help PMEP also achieve its other goals and objectives. The plan will document the key messages of the organization for each target audience it is trying to reach. It will also outline the communication tools and outreach methods PMEP will use to reach its audience. It will define the role of the PMEP Coordinator, host agency, and PMEP members in communication and outreach activities.

PMEP is uniquely positioned to assist in protecting and restoring estuarine and nearshore marine fish habitats along the West Coast by synthesizing the best available information for use by the greater conservation community. PMEP's combined expertise and spatial data tools can be useful both regionally and locally. In addition, PMEP has funding to support projects annually. PMEP's overall effectiveness in achieving its mission and vision hinge on its ability to be a "known entity" in the West Coast conservation community. Ensuring networks of practitioners know the group and its products is vital to PMEP's success as an organization. Since PMEP does not have a large communications and outreach budget, it will be important for the organization to capitalize on its members' and partners' existing communication methods and key regional meetings to get its message to new contacts. Creating a solid plan will allow the organization to use its limited funding most strategically.

Linking to the National Framework

PMEP is one of 20 fish habitat partnerships (FHPs) around the country, created during the implementation of the National Fish Habitat Action Plan. PMEP's goals and objectives align with the national goals and objectives set forth by the National Fish Habitat Partnership (NFHP) in the action plan (see Appendix D for the goals and objectives of the national plan). PMEP goals 1-3 directly further the four national goals.

PMEP coordinates with NFHP and other FHPs on a regular basis and is an important partner in implementing national initiatives. In particular, assessments coordinated by and collected by PMEP feed into the national assessment of fish habitat overseen by NFHP. PMEP's Science and Data Committee helps assure that assessments link to the national framework for assessing fish habitat and the committee members coordinate with the national science and data committee to ensure this connection.

Since 2012, PMEP has worked to compile important data sets into a spatial data system for the entire region. These data and other assessments, emanating from various non-governmental organizations and governmental agencies, can be used for GIS analysis of fish habitats to set priorities for conservation action and research by project partners and academic institutions. The GIS analysis will be particularly useful in determining habitat loss and species vulnerability across the geographic scope of PMEP. Adequate representation of systems along the Pacific Coast will help to inform species status and shifts as well as identify gaps where information is needed.

Coordinating with NFHP and other coastal-related FHPs, provides PMEP the following benefits:

- **Science and data.** The National Fish Habitat Action Plan helps to identify causative factors for declining fish populations by using an integrated landscape approach, conducting an assessments of Pacific fish habitats and needs, identifying areas that should be prioritized for protection and restoration, and providing a framework and standard for further data gathering.
- **Networking opportunities.** The existence of other fish habitat partnerships provides opportunities to share information, resources, and lessons learned.
- **Governance and coordination role.** Coordination and communication across partnerships will help advance PMEP goals and objectives.
- **Assistance in helping the partnership measure its success.** Sharing information about how other partnerships develop performance metrics can assist PMEP to develop consistent metrics that can be compiled at the national level.

Measuring Success

As PMEP was forming, it laid out a broad vision for the future in its Strategic Framework 2012-2017. As we know, measuring success in the short-term for broad-reaching environmental conservation goals can be difficult, as ecological changes happen on a decadal scale or longer. PMEP's continued vision is for California, Oregon, and Washington to have functional, resilient estuarine and nearshore marine ecosystems that support healthy native fish populations and all of PMEP's work is designed to help achieve this long-term vision.

The spatial data and other scientific information compiled by PMEP is designed to assist conservation and restoration professionals in designing projects and management plans that help realize PMEP's long-term vision. With each assessment and data compilation that is conducted or funded by PMEP, PMEP is able to refine its tools for professionals and further define and work to fill the data gaps that still

exist that prevent us, collectively, from reaching our conservation and restoration goals.

For this strategic plan, PMEP has drafted more specific, SMART objectives that can be achieved over a five-year period (refer to Goals and Objectives 2018-2022 section above). PMEP will track outputs and outcomes for these objectives, as it is able, and report its findings to its members, partners, and the NFHP. Information learned from the priority studies outlined in this strategic plan, along with discovered data gaps, will be used for future PMEP planning and adaptive management efforts. This plan will be updated every five years or as needed when major new information is identified.

APPENDIX A: PMEP Charter

I. PURPOSE OF THE ORGANIZATION

The Pacific Marine and Estuarine Fish Habitat Partnership (PMEP) is a collaboration of agencies and entities working to conserve and restore healthy native fish populations in functional, resilient estuarine and nearshore marine ecosystems in California, Oregon, and Washington.

PMEP is governed by a Steering Committee made up of federal, tribal, and state governments; nonprofit organizations; and industry representatives. The committee promotes, oversees, and facilitates work to accomplish the goals and strategies of PMEP.

II. ORGANIZATION STRUCTURE

A. Coordinator

- PMEP is guided by a Coordinator whose work is as set out by the Steering Committee to accomplish the goals, objectives and tasks of the strategic plan and other duties as determined by the Steering Committee.

- Duties: Generally, the Coordinator has day-to-day responsibilities for the organization and its finances. The PMEP Coordinator shall convene and organize regular meetings of the Steering Committee and other committees, attend all meeting, take notes and record official actions, maintain the organization's website, and posting work products and decision documents to that website. The Coordinator shall be the principal conduit for communicating with the Steering Committee and other committees and assuring their work is proceeding in a timely fashion towards established goals.

B. Governance Committee

- The PMEP governance committee will be comprised of five members. Members will include the PMEP Chair, Chair-elect, and if possible the Past Chair. Additional members may include the primary federal agency funder, the PMEP fiscal agent, or other appointed active members of the Steering Committee. The term for Governance Committee members will be one year with no limit on the number of terms served. Each year, Steering Committee members will be asked for nominations for individuals to serve.

- Duties: The roles and responsibilities of governance committee members include working closely with the PMEP Coordinator to resolve issues and make decisions regarding day-to-day operations of PMEP, to help set the Steering Committee meeting agendas, and to provide guidance to the Coordinator on ways to resolve issues. All matters of importance will continue to be directed to the PMEP Steering Committee.

C. Steering Committee

- The Steering Committee is comprised of members committed to estuary, nearshore, and fish habitat preservation and restoration along the West Coast.
- Duties: Roles and responsibilities of Steering Committee members:
 - Agree to support and advance the goals and objectives of PMEP as laid out in the strategic framework.
 - Provide strategic advice and vision to PMEP; prioritize and focus PMEP to achieve success.
 - Offer capacity, technical assistance and funding when possible.
 - Provide budget and financial oversight to ensure expenditures and changes are appropriate.
 - Provide guidance and leadership to the PMEP Coordinator. Oversee the work of the PMEP Coordinator,
 - Review and update the strategic framework as needed.
 - Monitor activities and projects initiated as part of the strategic framework.
 - Assist in coordinating and leading efforts that engage partner organization.
- Membership: The size of the PMEP Steering Committee shall not exceed 20 members. PMEP strives for membership that represents the geography and organizational diversity of the West Coast. Members may be added to the Steering Committee through the initiation or invitation of the steering committee or by a steering committee nominating an entity. Steering Committee members have a right to a named alternate; the Coordinator must be notified of the alternate in advance of any meeting.
- Nominations: Any Steering Committee member can nominate a new member to the committee. The member must notify the PMEP Coordinator and provide written documentation (from a steering committee member or the nominee) articulating what the member brings to the group and any expectations the nominee has regarding membership. The PMEP Coordinator distributes nominations to steering committee members. Members have 30 days to review and discuss pending nomination before a decision is made.
- Attendance: Steering Committee members are expected to attend all Steering Committee meetings/conference calls and other activities in which the steering committee convenes; Steering Committee members are expected to actively engage in the partnership. If a Steering Committee member misses three consecutive meetings (Steering Committee conference calls, etc.), the member will be formally approached to discuss interest in future participation.

D. Subcommittees

- The Steering Committee may form subcommittees or work groups as deemed useful to conduct the work of the Committee. These will include a Science and Data Committee, and may include an Outreach & Education Committee or other subcommittees. Subcommittees may also include people who are not members of the Steering Committee. Subcommittee members are expected to support and advance the goals and objectives of PMEP.
- The Science and Data Subcommittee is a standing subcommittee with the goal of advancing PMEP's work with technical tools and assessments. The subcommittee reviews and evaluates pertinent data and scientific conclusions, then makes recommendations to the Steering Committee to ensure PMEP actions and activities consider the best available information. The Steering Committee will direct the workload of the Science and Data subcommittee. The subcommittee will meet at least quarterly every year. The chair of the subcommittee will attend steering committee meetings and provide progress updates.

E.. Partner Organizations

- Roles and responsibilities of partner organizations include:
 - Agree to support and advance the goals and objectives of PMEP.
 - Be genuinely interested in PMEP and an external advocate for its goals/objectives.
 - Offer capacity, technical assistance and funding when possible.

III. OFFICERS

- Chair and Chair-elect: The PMEP Steering Committee shall elect a Chair-elect among its members at the beginning of the calendar year to serve a one-year term as Chair-elect and a consecutive one-year term as Chair of the committee. Of the Chair and Chair-elect, no more than one can be a federal government/tribal sovereign representative. Nominations for a Chair-elect shall occur at the annual fall meeting.
- Duties: The Chair shall provide strategic direction for the organization; coordinate with any and all PMEP Committees, the Coordinator, the fiscal agent, and primary federal funder; and shall be authorized to speak on behalf of the Steering Committee. The Chair-elect shall act in place of the Chair if the latter is unable to perform his or her duties.
- Past Chair: When able, the immediate Past Chair of the Steering Committee will be invited to serve a minimum of one year on the Governance Committee to assist with leadership transition and to ensure transfer of knowledge among

committee officers. This is an optional officer position to be filled according to the Steering Committee's needs and the Past Chair's willingness to serve.

IV. MEETINGS & DOCUMENTING THE WORK OF THE PARTNERSHIP

- Steering Committee and subcommittee meetings are open to the public; however, they are not "public meetings."
- Steering Committee action items and major decisions will be documented in writing on the PMEP website. Other important documents will be posted on the website. The PMEP Coordinator or his/her designee is responsible for recording official actions, taking notes each time the Steering Committee convenes, and posting official documents on the PMEP website.

V. DECISION MAKING

- Steering Committee matters will be discussed with the goal of seeking consensus. For key decision points or if consensus cannot be reached, any member can call for a vote, and that call must be seconded. Discussion will occur, dissenting positions will be documented, and a vote will be taken.
- The Steering Committee must have a quorum (simple majority, i.e., more than half of the total members present) to call for a vote or make a consensus-based decision. A simple majority is required for a vote to pass.
- A Steering Committee member cannot give another member, unless that member is a designated alternate, his/her vote.
- Meetings can occur in-person or via web conferencing or telephone. Between meetings, the Steering Committee can make decisions via email. If the Coordinator or Chair determine that action is required on an item prior to the next meeting of the Steering Committee, an email ballot will be used to record a vote of the committee. The cover email must clearly explain that their formal written consent is being solicited and that the action will not take effect unless a simple majority approves it.
- Except for email votes called for by the Chair or Coordinator, members must be present at the meeting or on the call /web conference to vote (no written votes can be submitted).

VI. CONFLICTS OF INTEREST

- Members shall avoid conflicts of interest. Any member who has a direct or indirect financial interest in a project or undertaking of PMEP should disclose such potential conflict, and without going through the process for determining

whether a conflict of interest actually exists, recuse himself or herself from involvement in any decision or discussion in which he or she may have a conflict of interest.

- In cases where a member's agency or organization has applied for funding from PMEP, that member may present the agency's or organization's proposal and may answer questions from the Committee if like opportunities are provided for other applicants for funding. However, the member may not participate in subsequent discussions and shall not vote on such requests.

VII. AMENDMENTS

- These guidelines may be amended when necessary by two-thirds majority of the Steering Committee. Proposed amendments must be submitted to the PMEP Coordinator to be sent out with a regularly scheduled meeting agenda.

APPENDIX B: Current PMEP Membership

Steering Committee			
First Name	Last Name	Organization	Title
Stan	Allen	Pacific States Marine Fisheries Commission	Senior Program Manager
Sarah	Beesley	Yurok Tribal Fisheries Program	Fisheries Biologist
Lexie	Bell	Morro Bay National Estuary Program	Executive Director
John	Bragg	South Slough National Estuarine Research Reserve	Coastal Training Program Coordinator
Jena	Carter	The Nature Conservancy	Director of Marine and Coastal Programs - Oregon
Dave	Fox	Oregon Dept. Fish and Wildlife	Resource Assessment and Management Section Manager
Andy	Lanier	Oregon DLCD	Marine Affairs Coordinator
Adriana	Morales	US Forest Service, Region 6	Resource Assessment Section Leader
John	Netto	U.S. Fish & Wildlife Service	Supervisory Research Fishery Biologist
Fran	Recht	Pacific States Marine Fisheries Commission	Habitat Program Coordinator
Korie	Schaeffer	NMFS, NOAA Fisheries	Northern California Habitat Coordinator
Doris	Small	WA Dept. Fisheries and Wildlife	Habitat Restoration Coordinator
John	Stadler	NOAA Fisheries	NW Marine Habitat Coordinator

Science and Data Sub-Committee			
First Name	Last Name	Organization	Title
Dayv	Lowry	WA Dept. Fish and Wildlife	Habitat Science Division
Correigh	Greene	NOAA	Research Biologist
Van	Hare	Pacific States Marine Fisheries Commission	GIS Manager
Laura	Brophy	Institute for Applied Ecology	Director, Estuary Technical Group
Eric	Grossman	U.S. Geological Survey, Pacific Coastal and Marine Science Center	Research Geologist
Bill	Pinnix	U.S. Fish & Wildlife Service	Fish Biologist
Steve	Rumrill	Oregon Dept. of Fish and Wildlife	Shellfish Program Leader
Kate	Sherman	Pacific States Marine Fisheries Commission	Data Management Specialist
Scott	Heppell	Oregon State University	Associate Professor of Fisheries
Walter	Heady	The Nature Conservancy	Central Coast Wetlands Group
Brett	Holycross	Pacific States Marine Fisheries Commission	GIS Analyst
Beth	Sanderson	NOAA	Ecosystem Program Manager
Kevin	O'Conner	Central Coast Wetlands Group	Project Manager

Appendix C: PMEP's Spatial Data System (SDS) Components (V.2018)



Figure 1: PMEP Scope
 PMEP's Geographic Scope includes the coastal watersheds on the west coast and extends into marine waters to a depth of 200m. The 200m depth was chosen to approximate the area that forms the boundary between the marine offshore and oceanic subsystems (see CMECs physiographic setting).



Figure 2: PMEP Regions
Nests within: PMEP Scope.
 PMEP's four regions are consistent with breakpoints in the Marine Ecoregions of the World dataset established by the World Wildlife Fund and the Nature Conservancy. These regions also align well with the "Physiographic Strata" used in the Groundfish EFH (also called

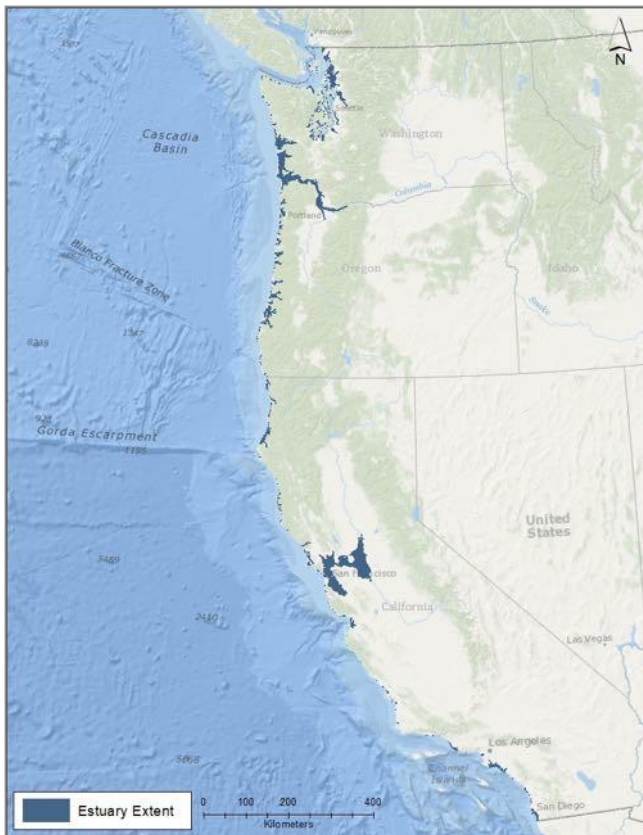


Figure 3: West Coast USA Current and Historical Estuary Extent
Nests within: PMEP Scope, PMEP Regions.
 Estuary extents includes 444 estuaries. Methods to develop these data follow the 50% exceedance boundary methods published by the Oregon Coastal Management Program. This is a new approach for mapping estuary extent and includes tidally influenced wetlands which are defined by repeated action of water level changes determined in part by tides. (you might want add that this includes areas not currently tidally influenced) This is an important foundational layer for PMEP’s SDS.

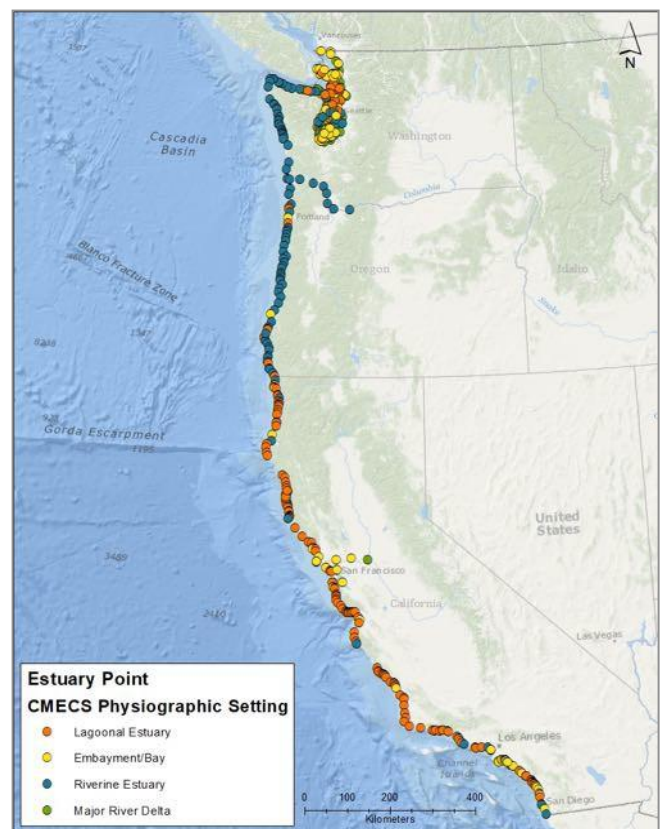


Figure 4: PMEP Estuary Points
 This point layer represents the 444 estuaries present within PMEP’s spatial data system. Estuaries were included based on their current or future potential to provide habitat for fish species. This layer links estuary level attributes from multiple sources.

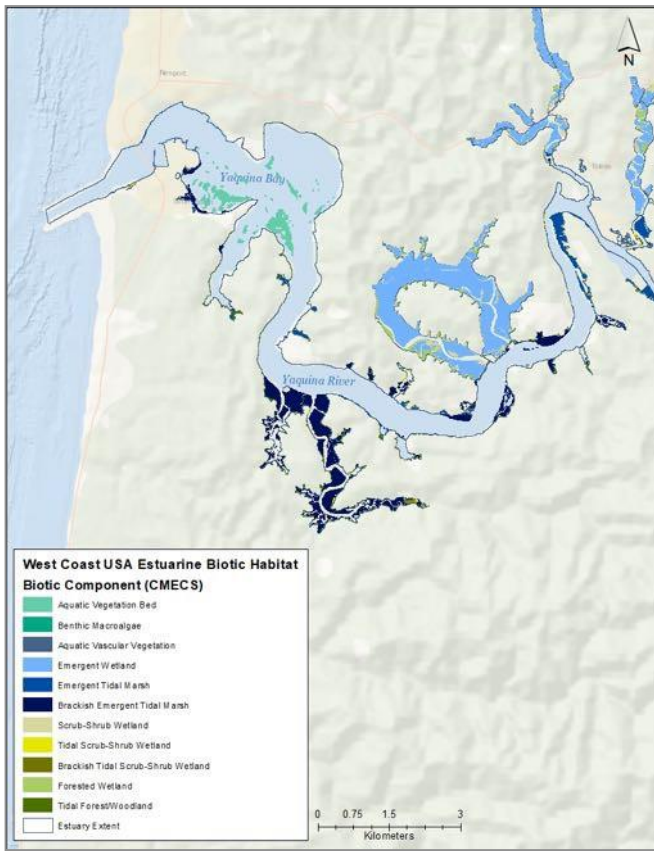


Figure 5: PMEP Estuarine Biotic Habitat
Nests within: PMEP Scope, PMEP Regions, PMEP Estuaries.

Associated with: PMEP Estuaries

The Biotic Habitat layer was developed using data from the NWI (National Wetland Inventory) and C-CAP (Coastal Change Analysis Program) to crosswalk into the CMECS Biotic Component. Methods followed Oregon Coastal Management Program’s protocol.

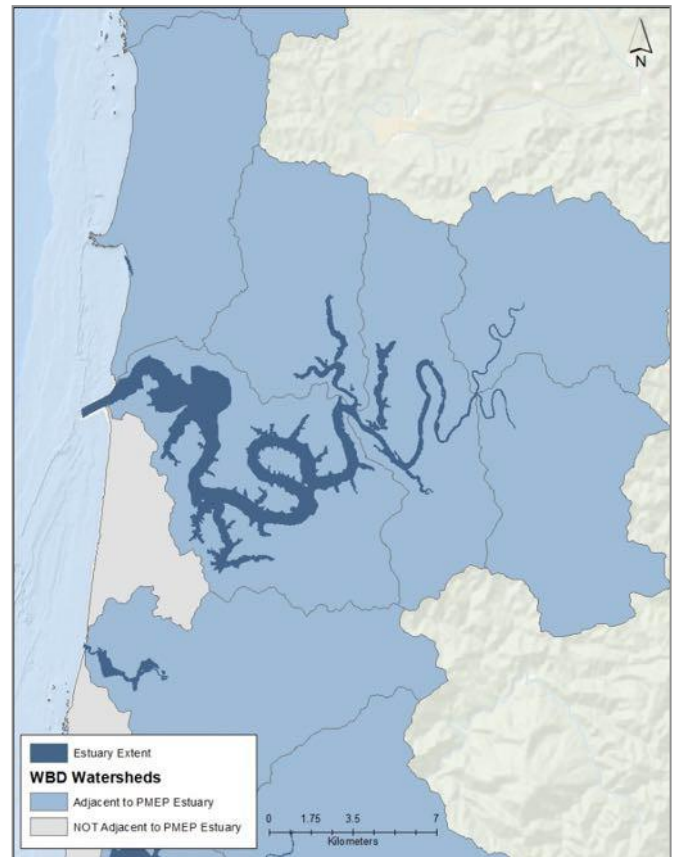


Figure 6: PMEP Adjacent Subwatersheds
Nests within: PMEP Scope, PMEP Regions. Associated with: PMEP Estuaries

Each mapped estuary is associated with an EDA (sum of all of the adjacent WBD watersheds) based on a reference to the National Watershed Boundary Dataset (WBD). This association will be useful as a ‘bin’ for compiling data on existing conditions, stressors and pressures that may impact the estuary.

APPENDIX D: National Fish Habitat Action Plan Goals and Objectives

Goals

- Protect and maintain intact healthy aquatic systems.
- Prevent further degradation of fish habitats that have been adversely affected.
- Reverse declines in the quality and quantity of aquatic habitats to improve the overall health of fish and other aquatic organisms.
- Increase the quality and quantity of fish habitats that support a broad natural diversity of fish and other aquatic species.

Objectives

- Conduct a condition analysis of all fish habitats within the United States by 2010.
- Identify priority fish habitats and establish Fish Habitat Partnerships targeting these habitats by 2010.
- Establish 12 or more Fish Habitat Partnerships throughout the United States by 2010.
- Prepare a “Status of Fish Habitat in the United States” report in 2010 and every five years thereafter.
- Protect all healthy and intact fish habitats by 2015.
- Improve the condition of 90 % of priority habitats and species targeted by Fish Habitat Partnerships by 2020.

Final Interim Strategies

- Identify and protect intact and healthy waters.
- Restore natural variability in river and stream flows and water surface elevations in natural lakes and reservoirs.
- Reconnect fragmented river, stream, reservoir, coastal, and lake habitat to allow access to historic spawning, nursery and rearing grounds.
- Reduce and maintain sedimentation, phosphorus and nitrogen runoff to river, stream, reservoir, coastal, and lake habitats to a level within 25% of the expected natural variance in these factors or above numeric State Water Quality Criteria.