PACIFIC MARINE AND ESTUARINE FISH HABITAT PARTNERSHIP

STRATEGIC FRAMEWORK 2012–2017

JULY 2012
PACIFIC MARINE AND ESTUARINE FISH HABITAT PARTNERSHIP

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EXECUTIVE SUMMARY

The Pacific Marine and Estuarine Fish Habitat Partnership (PMEP) was formed in 2009 to protect, restore, and enhance ecological processes and habitats within estuaries and nearshore marine environments to sustain healthy native fish communities and support sustainable human uses that depend on them. To achieve this mission, our strategic framework focuses on the protection, restoration, and enhancement of juvenile fish habitat in nearshore and estuary habitats, tidal wetland-intertidal-subtidal-nearshore connectivity, and water quality and quantity while promoting voluntary, non-regulatory approaches to conservation. Integral to the success of the partnership is the collaboration, cooperation, and support of federal, state, and local governments, tribal sovereign nations, academic and research institutions, industry, nonprofit organizations, and citizens. Also key is our ability to strengthen and further the work being done by entities throughout the region to meet priority goals.

The PMEP will address important conservation needs over a large geographic area encompassing estuarine and nearshore marine habitats in California, Oregon, and Washington. People living in and near these communities as well as the numerous fish and wildlife species that rely on these habitats for all or a portion of their life cycle will benefit from improved estuarine and nearshore marine environment health.

Estuaries and nearshore marine environments have been significantly altered and degraded because of human activities, including dredging, hydrologic modifications, urbanization, wastewater disposal, aquaculture practices, dikes, land use conversions, industrial and residential development, invasive species, and wetland drainage. It is estimated that 36% of West Coast estuaries are in poor condition based on water quality, sediment, benthic, and fish tissue contamination indices, and a significant percentage of habitat within West Coast estuaries has been lost or degraded. Although progress has been made in individual bays, estuaries and near-shore environments, lack of coordination and failure to identify and address stressors at a regional scale will continue to hamper results and demands future integrated planning, investment and coordination to take priority actions.

Advancing multi-entity partnerships, incorporating science-based information, and articulating key priorities and needs across habitats and at different scales, the PMEP will achieve on-the-ground conservation outcomes that can improve the health of Pacific estuaries and nearshore marine environments. In particular, the PMEP proposes the following actions in three categories—juvenile fish habitat, habitat connectivity, and water quality and quantity in Pacific estuaries and nearshore marine environments:

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Protect, restore, and enhance juvenile fish habitat in the nearshore Pacific Ocean and California, Oregon, and Washington estuaries.

- Action A1: Review existing assessments that evaluate the state of historical and current juvenile fish habitat to inform identification of key habitats and key stressors at the regional scale.

- Action A2: Identify key habitat needs for juvenile fish and key stressors on that habitat to inform prioritization of juvenile fish habitats at a variety of scales.

- Action A3: Identify priority juvenile fish habitats.

- Action A4: Upon completing a review of existing assessments, synthesize information toward a regional assessment, and develop performance metrics that describe tangible biological outcomes.

- Action A5: Identify information gaps for existing species and habitat conservation efforts at the broad regional scale using assessments and conservation plans.

- Action A6: Evaluate existing programs and how they are funded to direct funding to priority projects and identify funding gaps.

- Action A7: Identify and leverage traditional and non-traditional funding sources to support strategic PMEP priorities for projects implemented by partners in the region.

- Action A8: Ensure the partnership incorporates adaptive management principles, and encourages monitoring and evaluation in an experimental context to assess the effectiveness of its strategic investments.

Protect, restore, and enhance Pacific tidal wetland-intertidal-subtidal-nearshore connectivity.

- Action B1: Describe and assess connectivity and its importance to juvenile fish and fish populations in estuarine and nearshore marine environments. Document the existence, diversity, mosaic, and physical, chemical, thermal, and biological properties that connect habitats within estuarine and nearshore environments.

- Action B2: Identify potential for restoration and diversification of habitats to meet connectivity goals.

- Action B3: Identify stressors on wetland-intertidal-subtidal-nearshore connectivity and areas lacking appropriate diversification.

- Action B4: Assess effects of the impact of climate change on habitat connectivity.

- Action B5: Develop and prioritize strategies and habitat types to enhance connectivity within and among habitats.

- Action B6: Identify, promote and coordinate projects that enhance connectivity in nearshore and estuarine environments, use innovative restoration techniques that address habitat connectivity barriers, and incorporate adaptive management principles as well as effectiveness monitoring.

- Action B7: Develop and share a regional vision for habitat connectivity work. Be a voice for and encourage effective strategies and solutions by working with regional partners.
Action B8: Promote and encourage the use of a standardized methodology for biological barrier assessment in the region with regional partners.

Support and promote the protection, restoration, and enhancement of water quality and quantity to improve the functionality of estuarine and nearshore environments.

Action C1: Identify estuaries that are water quality and/or water quantity limited and work with partner organizations to address limiting factors.

Action C2: Track and encourage research that:
  - Quantifies the economic impacts of reduced water quality on fish resources and habitats; and
  - Analyzes anomalies in trends between local pH changes within estuarine and nearshore marine environments.

Action C3: Promote awareness of ecosystem services delivered by estuarine and nearshore marine environments.

Action C4: Communicate key regional water quality and quantity issues and needs along the West Coast to policy makers and the public.

Action C5: Identify, promote, and coordinate incentive programs and innovative projects that advance and contribute to the restoration of water quality and quantity.

Action C6: Encourage the development of regional ocean acidification models and other models relating to climate change impacts to incorporate habitat-specific data that will advance PMEP objectives.
INTRODUCTION

The land-sea interface is one of the most ecologically rich and complex areas on Earth. Occupying the unique zone where terrestrial, freshwater, and marine realms converge, estuaries are shaped by complex exchanges of energy, water, nutrients, sediments, and biota. They are enormously productive areas, providing habitat for an extraordinary array of fish, shellfish, birds, and mammals.

– The Nature Conservancy, 2011

Estuaries and nearshore habitats are ranked among the world’s most productive ecosystems, providing social, ecological, cultural and economic benefits as well as a full array of ecosystem services. Estuaries—those places where rivers meet the sea—are the ecological engines that drive economic prosperity for many coastal communities. Estuaries provide a wealth of benefits, in terms of both the natural resources they produce and the community benefits they provide:

- Wetlands, including estuarine wetlands, provide numerous ecosystem services, including buffering uplands from flooding and providing recreational opportunities. The extensive estuarine wetland floodplain area available permits store runoff and provides protection from inundation and storms.

- Estuaries filter pollutants and improve water quality.

- Worldwide, estuaries play a critical role in the life histories of nearly two-thirds of all commercially important fish and shellfish species. Estuaries and nearshore habitats provide important habitat for a multitude of native fish species. Well known Pacific species that use estuarine and nearshore habitats include Dungeness crab, sturgeon, herring, native oysters, starry flounder, California halibut, lamprey, eulachon, steelhead, and numerous species of salmon.

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- Estuaries provide recreation, safe harborage, commerce, transportation, homes, food, tourism, pollution control, improved water quality, carbon sequestration, and jobs.

- Estuaries provide important cultural value to tribal peoples. Historically, tribes were stewards of these areas and established hunting and fishing grounds near rivers, especially near the estuary. Nearshore marine environments have consistently higher species diversity, density, and production, than deeper water marine habitats.3

- Waterfowl and shorebirds, many of which are state and federal conservation strategy species, call the estuary and shoreline home. Marine mammals and threatened and endangered species, including marbled murrelets, brown pelicans, gray and killer whales, and harbor porpoise also benefit from protected and restored estuarine and nearshore habitats.

Although estuary and nearshore marine ecosystems provide a suite of ecological services that benefit people, provide habitat for many species of fish and shellfish, and contribute to biodiversity, habitat types within those ecosystems are often economically and ecologically undervalued, making them vulnerable to modifications, such as dredging and filling.4 These systems have been degraded as a result of human activities.5

This plan describes actions intended to enhance, protect, and restore juvenile fish habitat, habitat connectivity, and water quality and quantity in estuarine and nearshore marine environments along the West Coast in the next five years. The PMEP steering committee will chart progress implementing this plan on a regular basis, will review and update this plan as needed, and will conduct a thorough review of this plan within three years.

Pacific eulachon (Thaleichthys pacificus), also called smelt, are endemic to the eastern Pacific Ocean, and most originate in the Columbia River Basin. In 2011, the National Marine Fisheries Service listed the southern Distinct Population Segment of Pacific smelt as threatened under the Endangered Species Act. They designated 12 areas as critical habitat within California, Oregon, and Washington, including freshwater creeks and rivers and their associated estuaries (a total of 292 miles of habitat). Photo courtesy of the Oregonian.

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HISTORY

Emerging and Applying for 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.

Refining the PMEP Vision, Mission, and Priorities—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, the PMEP hired a coordinator to administer the functions of the 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 the PMEP Steering Committee.

Launching the Partnership—In November of 2011, the 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 the PMEP as one of 18 nationally recognized fish habitat partnerships.
GOVERNANCE AND ORGANIZATION

Organization

The PMEP is a collaboration of agencies and entities dedicated to realizing healthy native fish populations in functional, resilient estuarine and nearshore marine ecosystems in California, Oregon, and Washington.

To achieve this, representatives of federal and state governments, sovereign tribal nations, and nonprofit organizations, convened as a steering committee to promote, oversee, and facilitate the actions of the partnership. The steering committee is the decision-making body for the partnership. All decisions made by the steering committee are intended to support the strategic framework of PMEP and advance the goals and strategies defined therein.

The PMEP steering committee currently includes four state agencies, the PSMFC (representing five western states), four federal agencies, three non-governmental organizations, two tribal representatives, and one public/private entity, the Pacific Coast Joint Venture (Appendix A). These entities comprise a community of interest dedicated to the protection, restoration, and enhancement of key habitat types within Pacific estuaries and nearshore marine environments. This list, however, is not complete. The PMEP steering committee seeks to expand and include any and all entities that share in its mission to advance healthy Pacific estuarine and nearshore marine environments. Among other forums, PMEP will approach PSMFC’s advisors and the Pacific Fishery Management Council to find appropriate commercial fishing representatives.

Structure

The PMEP partnership incorporated terms of reference
In conducting its work, the PMEP:

- Seeks to build upon and complement existing efforts through collaboration;
- Focuses on estuarine and nearshore marine habitats;
- Targets habitats that benefit numerous fish species, including, but not limited to, salmonids;
- Takes into consideration climate change impacts as one of a number of limiting factors;
- Focuses on habitats or issues 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
- Uses the diverse and unique capabilities and programs of its member organizations to act on common conservation priorities.

**PMEP Committees**

The PMEP has three standing committees:

- The Steering Committee sets broad policy guidance and is the decision-making body for the Partnership.
- The Science and Data Committee focuses on specific work products to inform Steering Committee decisions and priority setting.
- The Communications/Outreach/Stakeholder Involvement Committee develops and maintains a partner engagement strategy.

In addition, the PMEP forms ad hoc committees to address emerging, but temporary, issues of importance. For example, in 2012, the PMEP formed a Finance Committee to address how the newly formed partnership would process funds.

The native Olympia oyster, *Ostrea lurida*, was once a dominant shellfish in larger bays along the West Coast. Olympia oysters filled an important ecological role in these habitats, filtering water, improving water quality, maintaining algae levels, and providing habitat for species such as starry flounder and juvenile rockfish. Their shells formed reefs that served as important habitat for many species, from invertebrates to juvenile fish.

Olympia oyster populations have declined because of overharvest, loss of habitat, and habitat degradation from logging and fires in coastal forests. Pollution has also contributed to oyster die-offs. Currently, the few remnant populations of native oysters that exist are challenged by habitat loss as well as by non-native predators.

Restoring native oysters to the West Coast involves reintroducing young oysters over several years, improving conditions in the bay, and controlling pests such as the Japanese oyster drill. Restoring this habitat forming native species is an example of a habitat initiative that supports multiple species and helps to improve water quality. Photo courtesy of manandmollusc.net.
IDENTIFICATION OF 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 practices, dikes, land use conversions, industrial and residential development, invasive species, and wetland drainage (Table 1). The National Estuary Program Coastal Condition Report by the Environmental Protection Agency rated 36% of West Coast estuaries as being in poor condition based on water quality, sediment, benthic, and fish tissue contamination indices.6

In 2009, the National Center for Ecological Analysis and Synthesis (NCEAS) at the University of California at Santa Barbara produced a composite map (Figure 1) of the status of Pacific marine ecosystems7, and noted that hotspots of cumulative impact are in coastal areas near urban centers and heavily polluted watersheds. Many of these hotspots are within the geographic scope of the PMEP. The study provides critical information for evaluating areas where human activities have few to significant effects on and near nearshore marine habitats and estuaries, and they suggest protection and restoration strategies to ensure their health and resiliency.

Between the years 1980 and 2003, human population levels in coastal counties increased by 33 million people, or by 28%, with the largest gain seen in the Pacific region.8 It is estimated that by 2025, 75% of the world’s population will live in coastal areas9, 10. Projected increases in human population and activities in and around estuaries and nearshore areas, including watersheds, threaten the future of these critically important habitats. In addition, new stressors are emerging due to climate change,11 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. Examples of effects on ecosystems, habitats, and species include12:

6 http://water.epa.gov/type/ocebb/nep/summary.cfm
8 http://oceanservice.noaa.gov/facts/population.html
12 Ibid.
- Coastal erosion and habitat loss;
- Invasive species, range shifts, and altered phenology; and
- Adaptation in marine and coastal systems. Adaptive actions reduce a system’s vulnerability and increase its capacity to withstand or be resilient to change, and can include establishing, increasing, or adjusting protected areas, habitat buffers, and corridors. For example, to counteract loss of coastal habitat due to erosion and sea level rise, actions could include removing shoreline hardening structures, enhancing sediment transport, and establishing ecological buffer zones. To manage invasive species, whose spread is exacerbated by increased sea surface temperatures and other climate-related effects, options include restoring native species, physically removing invasive species.

Figure 1. National Center for Ecological Analysis and Synthesis map of cumulative impacts in West Coast marine ecosystems. Assessments such as these will be evaluated by PMEP’s science and data committee to help define regional priorities.
Table 1. Known and recognized threats to fish habitats in estuarine and nearshore marine environments compiled from state wildlife action plans and nearshore strategy documents.

<table>
<thead>
<tr>
<th>Threat category</th>
<th>Key Stressor</th>
<th>Estuarine environments</th>
<th>Nearshore marine environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat Loss</td>
<td>• Increasing development and land use conversions</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Past diking and drainage</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Industrial and residential development</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Aquaculture practices that reduce eelgrass beds</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alteration of hydrology</td>
<td>• The amount and timing of freshwater input</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Degraded water quality</td>
<td>• Runoff</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Failing septic systems</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Animal waste/excessive livestock grazing</td>
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<td></td>
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<tr>
<td></td>
<td>• Increased storm surge as a result of severe climatic events</td>
<td></td>
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<tr>
<td></td>
<td>• Instream gravel mining</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coordination of management</td>
<td>• Multiple jurisdictions and agencies with management authority and interest but lack of overall coordination to create efficiencies</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Loss of habitat complexity</td>
<td>• Reduced acreage of late successional conifer trees and barriers to water flows on rivers reduces large woody debris</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Lack of public awareness</td>
<td>• Lack of education on fish identification leads to non-compliance with regulations</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Lack of public awareness</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate data collection, analysis, timely use</td>
<td>• Inadequate information on habitat maps, life history, historic baselines, nearshore fish stock assessments, etc.</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ecosystem imbalance</td>
<td>• Algal blooms</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>• Release of ship ballast water (e.g., introductions of new invasive species)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>• Spread of common cordgrass</td>
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<tr>
<td></td>
<td>• Altered fire regimes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Intensive agriculture</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water management conflicts</td>
<td>• Inadequate fresh water inputs</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
GEOGRAPHIC SCOPE

The PMEP estuarine and marine nearshore complex includes all marine and estuarine tidal and subtidal waters of the states of California, Oregon, and Washington, from the 200-meter depth of the marine region landward to the high tide line, including the upstream extent of saltwater intrusion into coastal river systems (defined as upstream and landward to where ocean-derived salts measure less than 0.5 parts per thousand during the period of average annual low flow) (Figure 2). It also includes those adjacent shorelands and marine riparian areas that provide inputs to these waters (e.g., filtration and storage of stormwater, large wood, nutrients, sediment supply).

The PMEP is part of a three-state region from the U.S. border with Canada to the U.S. border with Mexico.

Figure 2. The geographic scope of the PMEP (area included in green with a black outline) includes the estuarine and marine nearshore complex (PMEP focus area, coastal subregions, and nearshore waters) of the states of California, Oregon, and Washington. Graphic courtesy of Van Hare, Pacific States Marine Fisheries Commission.
- The land/water area within the Coastal Hydrologic SubRegions (USGS HUC2), including all offshore islands as well the area of major bays and estuaries, is 95,141 square miles.

- The aquatic area offshore out to the 200-meter depth line, including all bay/estuary areas is an additional 23,034 square miles.

- **The total of the above areas combined = 119,165 square miles.**

**How the Boundaries of the Partnership were Determined**

Discussions during a May 2010 West Coast workshop initially explored geographic extent, and several options were evaluated, ranging from Baja to Southeast Alaska.

A March 2011 goals survey completed by PMEP interim steering committee members indicated most respondents sought to focus exclusively on marine waters. The Southeast Alaska members on the committee were interested in a fish habitat partnership encompassing the southern region of Alaska. The Alaska representatives concluded that applying to NFHP for a Southeast Alaska-focused Fish Habitat Partnership with both freshwater and marine components is the best course of action; however, they requested, and the balance of committee representatives agreed, that this issue could be revisited in the future if circumstances warranted. As a result, the PMEP boundaries now consist of the marine waters within the states of Washington, Oregon and California.

Why these boundaries are considered to be most appropriate to achieve regional prioritization of habitat needs—

- A tri-state focus provides a strong ecological basis by virtue of consistency with the California Current Large Marine Ecosystem.

- There are numerous existing 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 assessing juvenile fish habitats, habitat connectivity, and water quality and quantity indicators for the geographic scope of the partnership and throughout the California Current system. The individuals responsible for directing the implementation of these state-based strategies network, and are associated with other tri-state ocean and coastal health initiatives that have broad ocean health goals. The PMEP fills a unique niche because of its focus on fish habitat, connectivity, and water quality.

**Ecosystem Services**

Pacific coast estuaries and nearshore marine environments provide a broad suite of economic, environmental, social, and cultural benefits and services, from provisioning and regulating services, to biodiversity and cultural values (Table 2). Ecosystem services “connect” the economy and ecology of coastal and marine ecosystems.

Pacific coast estuary and nearshore marine environments are nationally significant for a variety of reasons, including the habitat they provide for native fish and wildlife (including threatened and endangered species), their ecological function relative to water quality and flood protection, their ability to sequester and detoxify wastes, nutrient cycling, and their importance to people for recreational and commercial fishing as well numerous other ecosystem services they provide.

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.\(^{13}\) 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.”\(^{14}\)


\(^{14}\) Ibid.
<table>
<thead>
<tr>
<th>Ecosystem Service</th>
<th>Definition</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biodiversity</td>
<td>The number and types of species and the ecosystems they comprise. Measured at genetic, population, species, ecosystem and regional levels. Biodiversity provides resilience to ecosystems and the opportunity for the provision of most other ecosystem services.</td>
<td>Ecosystems with higher biological diversity tend to be more resilient to disturbances.</td>
</tr>
<tr>
<td>Food</td>
<td>Biomass for human consumption, provided by web of marine organisms and a functioning marine ecosystem (see biodiversity definition above).</td>
<td>Fish, shellfish, and seaweed provide important food sources for humans, both regionally and worldwide.</td>
</tr>
<tr>
<td>Materials</td>
<td>Biological materials used for medicines, fuel, and building.</td>
<td>Conical mollusk shells used for anticancer drugs, oil, and lime.</td>
</tr>
<tr>
<td>Shoreline stabilization</td>
<td>Keeping shorelines in a state of equilibrium with ocean waters, especially in the face of rising sea levels.</td>
<td>Rocky shores, seagrass beds, wetlands, and estuaries trap sediments and sand that allow land accretion which can balance or exceed subsidence or erosion.</td>
</tr>
<tr>
<td>Storm protection</td>
<td>Mitigation or attenuation of the effects of wind, waves, and flood waters on coastal land and communities.</td>
<td>Estuaries and coastal wetlands absorb wave energy and flood waters from ocean storms, thus reducing damage to coastal property.</td>
</tr>
<tr>
<td>Water flow regulation</td>
<td>Retention and storage of fresh water.</td>
<td>Estuaries and coastal wetlands store fresh water and keep salt water from intruding upon fresh water supplies.</td>
</tr>
<tr>
<td>Human disease control</td>
<td>Undisturbed ecosystems keep organisms in check which can cause disease in humans.</td>
<td>Coastal waters with proper nutrient, oxygen, and pH levels prevent algal blooms that produce toxins which are poisonous to humans via shellfish consumption from affected areas.</td>
</tr>
<tr>
<td>Carbon sequestration</td>
<td>The capture and long-term storage of carbon is part of the global carbon cycle. Oceans play a crucial role in climate stabilization.</td>
<td>Oceans absorb carbon both chemically and biologically. Surface absorption occurs over short time frames (1 year); deep water mixing allows long-term storage and more surface absorption; phytoplankton fix carbon through photosynthesis.</td>
</tr>
<tr>
<td>Nutrient regulation and cycling</td>
<td>Transfer of nutrients from one place to another; transformation of critical nutrients from unusable to usable forms.</td>
<td>Estuaries are zones where mixing of nutrients from fresh water and saltwater systems occur, making them very productive; anadromous organisms transport marine nutrients to upland habitats where they are used by terrestrial organisms and enhance primary productivity of terrestrial plants.</td>
</tr>
<tr>
<td>Ecosystem Service</td>
<td>Definition</td>
<td>Examples</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Habitat</td>
<td>Providing for the life history needs of plants and animals.</td>
<td>Estuaries provide nursery habitat (relatively more protected places where fish and other sea animals hatch then mature to a life stage where they can handle harsher environments).</td>
</tr>
<tr>
<td>Primary productivity</td>
<td>Fixing of carbon by plants; provides basis of all terrestrial and most marine food chains.</td>
<td>Phytoplankton plays a crucial role as the basis of marine food webs and in the global carbon cycle.</td>
</tr>
<tr>
<td>Spiritual and Heritage</td>
<td>The role which ecosystems and their components play in the spiritual beliefs of people. This is especially important for indigenous cultures. These values do not lend themselves well to economic quantification. Heritage values refer to the role that intact ecosystems play in forming the cultural identity of people and the long-term value people place on being able to pass on traditions to their children.</td>
<td>Salmon play a key role in spiritual and cultural life of Native American tribes. Families that have made a living from commercial and recreational fishing in Coastal Oregon value being able to pass on their way of life to their children.</td>
</tr>
<tr>
<td>Scientific and Educational</td>
<td>Ecosystems are the subject of much scientific study for both basic knowledge and for understanding the contribution of functioning ecosystems to human well-being.</td>
<td>Research institutions focused on marine habitats contribute economically and socially significant knowledge to society.</td>
</tr>
<tr>
<td>Tourism</td>
<td>The explicit role that intact land and seascapes play in attracting people to areas for vacationing.</td>
<td>Visits to coastal state parks to view unobstructed views of the ocean, walk on the beach, and to see marine life.</td>
</tr>
<tr>
<td>Aesthetic</td>
<td>The role natural beauty plays in attracting people to live, work and recreate in an area.</td>
<td>Home values with ocean views are higher than homes without.</td>
</tr>
<tr>
<td>Recreation</td>
<td>The contribution of ecosystem features, such as biological diversity and clean water play in attracting people to engage in recreational activities.</td>
<td>Clean water and marine animals attract kayakers and scuba divers.</td>
</tr>
</tbody>
</table>
Habitats
Numerous Pacific fish species live part or all of their life cycle in estuarine and nearshore marine environments, and can be expected to benefit, to some degree, from protection, enhancement, and restoration of juvenile fish habitat, tidal wetland-intertidal-subtidal-nearshore connectivity, and enhanced water quality and quantity. As the PMEP reviews and analyzes existing information and prioritizes areas to focus its initiatives, it will be better positioned to refine the list of species and habitats that will serve as focal areas for PMEP work.

Biological communities within estuaries and nearshore marine environments have been characterized by a number of entities. For the purposes of clarification, PMEP considers estuaries to include the following components:

- Marine systems at the mouth of rivers, dominated by plants and animals;
- Bays, which are covered by broad mud flats alternately covered by water and exposed to the air due to tidal flows;
- Sloughs, which are smaller side tributaries with little freshwater input; and
- The riverine portion of estuaries, which extend up river to a portion of tidally-influenced areas.

Nearshore marine environments may be characterized as having the following habitat types:

- 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)
  - shallow rocky reefs less than 25m depth with kelp beds
  - shallow rocky reefs less than 25m depth without kelp beds
  - deep rocky reefs more than 25m depth
  - subtidal artificial substrate
- Soft bottom subtidal—less and more than 25m depth
- Pelagic—neritic

BAYS AND ESTUARIES
Bays and estuaries are places where rivers and ocean meet, and include many diverse and productive habitats, such as salt marshes, eel grass beds, open water, mud flats and river deltas. Bays and 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 their edges.

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9 http://www.dfw.state.or.us/mrp/nearshore/docs/strategy/Chapters5.pdf
NEARSHORE HABITAT

Nearshore habitat is generally described as the area between the high tide line and sixty-six feet in depth (20 meters), and includes the intertidal zone and sub-tidal shallow water habitat (Figure 3).

Commonly found substrates in the intertidal zone can be rock, gravel, cobble, or sand. Rocky intertidal habitat is home to invertebrate organisms, kelp, brown rockweed, red algae, and surfgrass. Rock reefs, which provide nursery habitat to rockfish, corals, sponges, marine mammals, and seabirds, 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.

Kelp forests occur in the lowest part of the intertidal zone; extend into the nearshore waters below the intertidal zone; can extend over 100 feet from the sea floor to the surface and provide habitat to many invertebrate species such as sponges, worms, sea stars, and sea cucumbers; provide nursery habitat to numerous fish species; can moderate wave action on shorelines and beaches; and are harvested by people for food and products.

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Figure 3. Intertidal zonation chart courtesy of Capital Regional District.
Evaluating the numerous habitat types within estuarine and nearshore marine environments along the West Coast, selecting fish and shellfish species and guilds that represent these important habitats, identifying relevant stressors on those habitats, and prioritizing work to protect, enhance and restore these ecosystems are key to the success of the PMEP.

Kelp beds are important habitats in Pacific nearshore marine environments, providing unique three-dimensional habitats for marine species. Pollution, overfishing, and overgrazing have degraded kelp beds in the Pacific. Photo courtesy of Anthony Goto.
VISION, MISSION, AND PRIORITIES

Vision

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

Mission

Our mission is to work with partners to protect, enhance, and restore ecological processes and habitats within estuaries and nearshore marine environments to sustain healthy native fish communities and support sustainable human uses that depend on healthy fish populations.

The intent of PMEP is to convene government and like-minded partners to leverage and coordinate different programs and funding towards common priorities—fish habitat, habitat connectivity, and water quality and quantity. By working together, we can consolidate existing knowledge to develop science-based conservation priorities, provide focus to limited financial resources, and leverage member organization existing programs to act on those priorities and achieve on-the-ground results.

The focus on multi-species habitat protection and restoration in Pacific estuarine and nearshore areas is intended to advance region-wide priorities through federal, state, and local-level actions. The PMEP will work in a complementary and collaborative fashion with the many existing partners targeting estuarine and nearshore habitats along the Pacific, as well as larger-scale regional initiatives. The PMEP will spur on-the-ground conservation action by cooperatively developing priorities that help focus the currently disparate conservation actions on the most important fish habitats. This will allow member organizations and other like-minded entities to collectively focus existing programs and activities on these priorities to increase the health of marine and estuarine fish habitats across the region. Our success with this model will help make the case for securing additional funding when appropriate.
State Wildlife Action Plans (e.g. Oregon’s Conservation Strategy\textsuperscript{21}, California’s Wildlife Action Plan\textsuperscript{22}, and Washington’s Comprehensive Wildlife Conservation Strategy\textsuperscript{23}) will help identify the habitats and species on which action is focused. Existing state and federal plans, such as state nearshore strategies, as well as science-based assessments and reports from our collaborating non-governmental organizations, will also be used to inform priorities and advance action towards our goals.

Priorities

PMEP discussed region-wide needs, gaps, and partner interests to select the following initial priority areas for its conservation efforts:

**Our priorities** are to protect, restore, and enhance:

- juvenile fish habitat in nearshore marine and estuary habitats;
- tidal wetland-intertidal-subtidal-nearshore connectivity; and
- water quality and quantity in estuaries and nearshore marine environments.

The strategic framework is guided by the integration of NFHP strategies with existing key documents from partner organizations (nearshore strategies, state wildlife action plans, assessments of estuarine and nearshore marine habitats) to articulate key stressors within the geographic scope of the PMEP.

Foundational to the PMEP is the use of adaptive management and effectiveness monitoring of restoration activities and projects to evaluate the success of this framework in achieving its objectives. The necessary elements of such a monitoring program include documenting the status and trends of resources (quantitative data on species, biodiversity and habitats), the status and trends of known stressors, and the effects of

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\textsuperscript{21} http://www.dfw.state.or.us/conservationstrategy/contents.asp
\textsuperscript{22} http://www.dfg.ca.gov/wildlife/wap/report.html
\textsuperscript{23} http://wdfw.wa.gov/conservation/cwcs/
management actions on resources and their stressors. Using an adaptive management approach acknowledges the uncertainty about how estuarine and nearshore marine ecosystems function and how they respond to management actions.\textsuperscript{24} Incorporating the results of effectiveness monitoring helps to reduce uncertainty and improve prioritization-setting management actions based on science and monitoring feedback. Restoration monitoring will allow PMEP and its many partners to truly evaluate their effectiveness in improving juvenile fish habitat, habitat connectivity, and water quality and quantity.

In addition, the PMEP will focus on implementing coordinated and comprehensive projects that will benefit juvenile fish species—identified in state wildlife action plans and other science-based assessments as being the most vulnerable because of degradation and loss of habitat in estuarine and nearshore marine environments. A coordinated effort to develop integrated multi-state strategies will improve conservation effectiveness both locally and regionally.\textsuperscript{25}

Table 1 (page 12) describes the key known and recognized threats to juvenile fish habitats in estuarine and nearshore marine environments based on state wildlife action plans and other science-based assessments. The PMEP will take action to protect intact juvenile fish habitats that are threatened as a key priority. Additionally, because key stressors among the habitat types within estuarine and nearshore environments are varied and can, at times, be significant, the PMEP will initially use a set of criteria when evaluating the efficacy of proposed actions to achieve partnership priorities.

The PMEP recognizes there are a number of action items within its three priority areas, and is committed to pursuing completion of these actions in a step-wise manner.

Estuaries are essential habitat for Black rockfish (\textit{Sebastes melanops}) and numerous other species of rockfish along the Oregon coast.\textsuperscript{*} Nearshore reef areas are essential fish habitat for other species of juvenile rockfish, including blue (\textit{Sebastes mystinus}), yellowtail (\textit{Sebastes flavidus}), and widow (\textit{Sebastes entomelas}) rockfish. Estuaries are important for these species, as well.


\textsuperscript{25} \url{www.conserveonline.org/workspaces/wcea/}
Juvenile Fish Habitat

Coastal and estuarine habitats have shallow areas that serve as nurseries for many fish species.\textsuperscript{26, 27} The amount and quality of these habitats significantly influence fish recruitment and survival,\textsuperscript{28, 29} particularly if juvenile fish are confined to these habitats, where their exposure to toxins and pollutants can ultimately affect survival, growth, recruitment of specific year-classes, and the ultimate size and health of their respective fish populations.\textsuperscript{30} Thus, protecting, restoring, and enhancing juvenile fish habitat along the West Coast by assessing the status of fish populations, identifying key stressors on those populations and their associated habitats, and articulating a set of priority strategies to address those stressors will inform sound investments in these critically important ecosystems and will help to ensure healthy, sustainable fish populations.

A. Protect, restore, and enhance juvenile fish habitat in the nearshore Pacific Ocean and California, Oregon, and Washington estuaries.

- **Action A1**: Review existing assessments that evaluate the state of historical and current juvenile fish habitat to inform identification of key habitats and key stressors at the regional scale.
  - Use the efforts of the NFHP Science and Data committee to integrate their data with West Coast habitat information.
  - Identify sentinel sites (e.g., National Estuary Programs, National Estuarine Research Reserves, Marine Protected Areas, reserves) where established, environmental monitoring programs can inform efforts to map and evaluate the condition of juvenile fish habitat.

- **Action A2**: Identify key habitat needs for juvenile fish and key stressors on that habitat to inform prioritization of juvenile fish habitats at a variety of scales.
  - Track and encourage research that addresses juvenile fish habitat, (e.g., shade from docks and infrastructure along shorelines (shading effects), disruption of sediment transport affect the physical habitat of fishes, re-establishment of riparian vegetation important to maintaining water temperature.

- **Action A3**: Identify priority juvenile fish habitats.
  - Develop and prioritize strategies to assist in addressing existing and future key stressors (e.g., invasive species, ocean acidification) facing juvenile fish.
  - Review current programs and projects that benefit juvenile fish, compare the outcomes of those programs and projects with priority juvenile fish habitats, and support projects that


address highest priority juvenile fish habitats.

- Action A4: Identify needs and gaps for existing species and habitat conservation efforts at the broad regional scale using assessments and conservation plans (e.g., the Habitat Use Database from PFMC’s groundfish Essential Fish Habitat document, etc.).

- Action A4: Upon completing a review of existing assessments, synthesize information to inform development of a regional assessment, and develop performance metrics that describe tangible biological outcomes (note: Regionally, the PMEP will evaluate the effects of its strategies and actions and describe projects funded, however biological responses will be measured by partners at the local scale. The PMEP is operating under the assumption that if processes are restored, then biological function will be enhanced as well).

- Action A5: Identify information gaps for existing species and habitat conservation efforts at the broad regional scale using assessments and conservation plans.

- Action A6: Evaluate existing programs and how they are funded to direct funding to priority projects and identify funding gaps.

- Action A7: Identify and leverage traditional and non-traditional funding sources to support strategic PMEP priorities for projects implemented by partners in the region.

- Action A8: Ensure the partnership incorporates adaptive management principles, and encourages monitoring and evaluation in an experimental context to assess the effects of its strategic investments.
  - Monitor habitat restoration projects and initiatives supported by PMEP to better understand the project’s effectiveness and its success at obtaining its objectives.
  - Develop indicators that measure short- and long-term progress toward achieving desired PMEP outcomes.
  - Support, encourage, or develop training to emphasize the need and purpose of monitoring.
    - Assuming interest and need, consider convening a forum to offer training in developing long-term monitoring strategies.
    - Identify demonstration programs and projects that have incorporated the outcomes of long-term environmental monitoring and outcomes relative to juvenile fish habitat.
  - Work with academic and other communities to convene interdisciplinary science teams that evaluate project and monitoring outcomes and share those outcomes with others.

**Key Outcomes the PMEP Seeks to Achieve:**

- Research that addresses juvenile fish habitat.
- An articulation of juvenile fish habitat priorities.
- Baseline conditions for juvenile fish habitat on the West Coast.
- Shared regional databases (e.g., fish data, habitat data, assessments).
- A strategic regional context for partners and entities to implement projects that address key estuary and nearshore juvenile fish habitat priorities and ensures productive returns on investments in habitat conservation.
- Broad-based funding sources that support PMEP project priorities implemented by partners in the region.
- Priority strategies and actions for juvenile fish habitat restoration and projects based on assessment outcomes.

The focus of the PMEP will shift over time from data assessments and analysis to on-the-ground projects and leveraging funds to conduct projects based on key priorities.

**Connectivity**

Landscape connectivity emphasizes the interaction between species and landscape structure. Continuously connected landscapes have the most important value per unit of area for most of estuarine dependent and commercially important fish species. The effects of habitat alteration can fragment and isolate habitats, reduce flow and structural diversity, narrow channels, reduce depth, increase predation, and ultimately affect the number and size of fish populations. Quantifying connectivity at a variety of spatial scales can identify estuarine and nearshore marine habitats that would benefit from enhanced connectivity.

Connectivity is multi-dimensional. For example, water originating in rivers and streams enters the estuary and the flows into the ocean, changing, as it does so, in many important aspects, including salinity, temperature, conductivity, pH, clarity, etc. Artificial barriers, such as culverts, tide gates and bulkheads may interfere with upland-to-ocean connectivity. Water also moves northward or southward along the West Coast, propelled by winds and currents. Natural barriers, such as drift cell boundaries and upwelling, may limit the movement of water along the coast.

**B. PROTECT, RESTORE, AND ENHANCE PACIFIC TIDAL WETLAND-INTERTIDAL-SUBTIDAL-NEARSHORE CONNECTIVITY.**

- Action B1: Describe and assess connectivity and its importance to juvenile fish and fish populations in estuarine and nearshore marine environments, and document the existence, diversity, mosaic, and physical, chemical, thermal, and biological properties that connect habitats within those environments.
- Action B2: Identify potential for restoration and diversification of habitats to meet connectivity goals.
- Action B3: Identify stressors on wetland-intertidal-subtidal-nearshore connectivity and areas lacking appropriate diversification.

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As the results to identify potential sites for restoration that is intended to restore connectivity.
- E.g., bulkheads, tide gates, shoreline development, levees and dikes, harbor development, sea walls, and others.

- **Action B4:** Assess effects of the impact of climate change on habitat connectivity.

- **Action B5:** Develop and prioritize strategies and habitat types to enhance connectivity within and among habitats.
  - Promote innovative approaches focused on securing habitat and ecological processes while maintaining economically and environmentally sustainable waterfronts and landscapes.
  - Identify the potential for restoration and conservation of a natural diversity of habitats.

- **Action B6:** Identify, promote and coordinate projects that enhance connectivity in nearshore and estuarine environments, use innovative restoration techniques that address habitat connectivity barriers, and incorporate adaptive management principles as well as effectiveness monitoring.

- **Action B7:** Develop a share a regional vision for habitat connectivity work. Be a voice for and encourage effective strategies and solutions by working with regional partners.

- **Action B8:** Promote and encourage the use of a standardized methodology for barrier assessment in the region.

**Key Outcomes the PMEP seeks to achieve:**

- A regional understanding of habitat connectivity gaps and vulnerabilities.

- Key messages communicated relative to projected environmental changes from sea level rise, severe weather events, and other issues associated with climate change.

- A description of habitat connectivity stressors in estuarine and nearshore marine environments.

- A shared regional vision for science-based habitat connectivity protection and restoration strategies.

- Regional pilot projects that use innovative restoration techniques
that address common habitat connectivity barriers (e.g., tide gates) and incorporate adaptive management principles.

- The use of a standardized methodology for barrier assessment in the region.
- More effective strategies and solutions that address major stressors on estuarine and nearshore marine environments.
- Collaboration among neighboring and coastal fish habitat partnerships to address shared concerns and issues to encourage and communicate shared solutions.

**Water Quality and Quantity**

A multi-agency 2007 assessment of United States estuaries found a majority of estuaries showed signs of eutrophication and algal blooms influenced by human population growth and land use practices. Estuaries and nearshore marine environments can be affected by saltwater intrusion into aquifers as the sea level rises, storm-caused flooding, erosion and other impacts from severe ocean storms, changes in water availability and quality, changes in fish and wildlife habitat and species distributions, reduced dissolved oxygen levels in wetlands, and ocean acidification.

Protecting, enhancing, and restoring water quality and quantity in estuaries and nearshore marine environments is critical to many species, including humans, which rely on these environments for the ecosystem services they provide. Many species of fish rely on estuaries and nearshore marine environments for part or all of their life cycles. Given the likelihood that the number of people living along the West Coast will increase, the habitat that remains available in estuaries for many fish species will be increasingly compromised, along with the ecological benefits the estuaries provide.

Coastal habitats are subjected to numerous stresses from climate change, many of which are predicted to increase over time. The most significant effects are likely to be from sea level rise, increased storm and wave intensity, temperature increases, carbon dioxide concentration increases, and changes in precipitation that will alter freshwater delivery and thus affect water quality and quantity in estuarine and nearshore marine environments.

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35 [http://www.epa.gov/cre/basic.html](http://www.epa.gov/cre/basic.html)
C. SUPPORT AND PROMOTE THE PROTECTION, RESTORATION, AND ENHANCEMENT OF WATER QUALITY AND QUANTITY TO IMPROVE THE FUNCTIONALITY OF ESTUARINE AND NEARSHORE ENVIRONMENTS.

- Action C1: Identify estuaries that are water quality and/or water quantity limited and work with partner organizations to address limiting factors.

- Action C2: Track and encourage research that:
  - Quantifies the economic impacts of reduced water quality on fish resources and habitats; and
  - Analyzes anomalies in trends between local pH changes within estuarine and nearshore marine environments.

- Action C3: Promote awareness of ecosystem services delivered by estuarine and nearshore marine environments.

- Action C4: Communicate key regional water quality and quantity issues and needs along the West Coast to policy makers and the public.

- Action C5: Identify, promote, and coordinate incentive programs and innovative projects that advance and contribute to the restoration of water quality and quantity.

- Action C6: Encourage the development of regional ocean acidification models and other models relating to climate change impacts to incorporate habitat-specific data that will advance PMEP objectives.

Key Outcomes the PMEP seeks to achieve:

- Expansion of projects that address limiting factors in estuaries that are water quality/quantity limited.

- Shared science-based information about the economic effects of water quality on fish resources and habitats.

- A shared understanding among the general public and policy makers regarding how ecosystem services provided by estuaries are affected by water quality and quantity.

- Promotion of voluntary approaches that advance and contribute to the restoration of water quality and quantity in estuaries.

- Improved understanding of how ocean circulation influences acidity, anoxia, and hypoxia in the nearshore marine environment.
D. ADMINISTRATIVE ACTIONS

- Action D1: Link West Coast colleagues and partners and support the NFHP Communications staffer to share outcomes of PMEP initiatives.

- Action D2: Manage the PMEP website, develop fact sheets, and participate in NFHP communication initiatives.

- Action D3: Use NOAA’s Coastal Assessment Framework to further define the east and west side geographies of the PMEP.

Pacific razor clams (Siliqua patula) are found along the Pacific West Coast from the eastern Aleutian Islands, Alaska, to Pismo Beach, California. They inhabit sandy beaches in the intertidal zone down to a maximum depth of about 30 feet. Pacific razor clams are a highly desirable edible, collected both commercially and by recreational harvesters. Razor clams, like other shellfish, may sometimes accumulate dangerous levels of domoic acid, a marine toxin, particularly when phytoplankton blooms occur along the coast.
PARTNERSHIPS

The National Fish Habitat Action Plan and the PMEP

The National Fish Habitat Action Plan can help the PMEP achieve its conservation goals and objectives by providing:

- **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.** Direction and support to the PMEP to ensure alignment with the National Fish Habitat Action Plan and 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 the PMEP to develop consistent metrics that can be compiled at the national level.

The PMEP’s priorities have been designed to align with the National Fish Habitat Action Plan goals to help advance the achievement of the following national goals and objectives:

- Protect and maintain intact and 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.

Jurisdictional Responsibilities

The partner states of Washington, Oregon, and California and the USFWS have jurisdictional responsibility for fish, wildlife, and their habitats on state and federal lands. NOAA National Ocean Service has jurisdictional
responsibility for national marine sanctuaries, designed as marine protected areas, where biodiversity, ecological integrity, and cultural legacy are conserved.

One federal agency, the USFWS, manages federal lands and refuges within these boundaries. The NMFS within the National Oceanic and Atmospheric Administration is responsible for the stewardship of the nation’s living marine resources and their habitats through conservation and protection of these marine resources within the U.S. Exclusive Economic Zone (three to 200 miles offshore). The NMFS also plays an important role in the management and protection of marine species listed under the Endangered Species Act as well as habitats of marine species managed under the Magnuson-Stevens Fishery Conservation and Management Act—even when those species are within state waters.

Tribal sovereign governments have jurisdictional responsibility for fish, wildlife, and their habitats on tribal land as well as within a tribe’s defined usual and accustomed area. The scope and extent of this jurisdictional authority varies by tribe along the West Coast.37

Non-governmental organizations, including The Nature Conservancy, Surfrider Foundation, Ducks Unlimited, and the Marine Conservation Institute, are actively involved in the future of healthy oceans, the protection and enjoyment of oceans, wetland conservation, and advancing the science of marine conservation biology and securing protection for ocean ecosystems, respectively. These non-governmental organizations are also active in fostering public education and involvement activities.

The following chart depicts the categories of partners currently involved with the Partnership. The PMEP is actively involved in expanding representation to include all categories in the chart.

<table>
<thead>
<tr>
<th>CATEGORIES OF PARTNERS INVOLVED (check all that apply)</th>
</tr>
</thead>
<tbody>
<tr>
<td>State agencies</td>
</tr>
<tr>
<td>Native American Tribes</td>
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<tr>
<td>Federal Agencies</td>
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<tr>
<td>Local Governments</td>
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<tr>
<td>Conservation NGO’s</td>
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<tr>
<td>Watershed Coalitions</td>
</tr>
<tr>
<td>Industry</td>
</tr>
<tr>
<td>Corporations and other businesses</td>
</tr>
<tr>
<td>Academic Institutions</td>
</tr>
<tr>
<td>Private Landowners</td>
</tr>
</tbody>
</table>

All state and federal agencies with fisheries and fish habitat responsibilities are represented on the steering committee and fully support the work of the PMEP. In addition, the Western Association of Fish and Wildlife Agencies, Pacific Fishery Management Council, West Coast Governors Alliance on Ocean Health, Pacific Coast

37 Treaties between the U.S. Government and a number of Pacific Northwest Indian Tribes reserve to these tribes the right of taking fish and wildlife at usual and accustomed grounds and stations. These tribes hold title to a share of the natural resources that reside within or pass through their usual and accustomed areas. Consequently, treaty tribes in the Pacific Northwest co-own and co-manage fish and wildlife resources with the U.S. Government.
Collaborative, Ecosystem-Based Management Network, Marine Conservation Institute, Surfrider Foundation, and the Northwest Sportfishing Industry Association have endorsed the PMEP.

**Partner Roles and Responsibilities**

PMEP’s partner organizations bring unique capabilities and resources that can be used to achieve on-the-ground conservation of priority fish habitats. The PMEP meets the requirements of the National Fish Habitat Board for formal partnerships as it:

- Functions regionally to achieve a set of mutually-agreed upon conservation priorities;
- Provides priority focus to on-the-ground conservation projects to advance regional priorities;
- Encourages leveraging of funds to achieve conservation priorities; and
- Provides performance metrics to evaluate success as part of the development of a regional strategic framework.

The collaborative partnership is comprised of federal agencies, state agencies, tribal sovereigns, non-governmental organizations, and industry leaders. All participating organizations seek to advance the health and sustainability of Pacific estuarine and nearshore marine environments. Bylaws serve the function of a Memorandum of Understanding, and all activities complement the mission of respective partners. The partnership will operate according to its bylaws, which includes a Steering Committee and Science and Data Committee. Inherent in the structure is the flexibility for the PMEP to create working groups to address specific issues.

**Communicating with Partners**

There are a number of ways that PMEP will communicate with entities and to recruit additional partners. The PMEP will:

- Work with organizations such as the West Coast Governors Alliance on Ocean Health, the Pacific Coast Joint Venture, and the Ecosystem-Based Management Network, which are organizations that collaborate and work with many entities on Pacific estuarine and ocean habitat issues. By collaborating with these types of organizations, the PMEP can greatly expand its reach and communicate its mission to other entities with similar priorities.
- Work collaboratively with existing fish habitat partnerships along the Pacific Coast.
- Maintain an updated website (www.pacificfishhabitat.org). Doing so will inform the general public, nongovernmental organizations, organized groups, tribal governments, and local, state, and federal governments about progress the PMEP is making, and opportunities that exist to engage and leverage resources.
- Work with the National Fish Habitat Board to advance the National Fish Habitat Action Plan to create opportunities to communicate outcomes and network with others to achieve regional priorities.
SCIENTIFIC ASSESSMENT

Science and Data Committee

The PMEP Science and Data Committee (SDC) was formed in March of 2012 and includes the following individuals:

- **Correigh Greene (NOAA), Chair**
- Van Hare (Pacific States Marine Fisheries Commission)
- Laura Brophy (Estuary Technical Group – Institute for Applied Ecology)
- Mary Gleason (The Nature Conservancy)
- Eric Grossman (US Geological Survey)
- Mark Petrie (Ducks Unlimited, Pacific Coast Joint Venture)
- Bill Pinnix (US Fish and Wildlife Service)
- Steve Rumrill (Oregon Department of Fish and Wildlife)
- Ken Pierce, Jr (Washington Department of Fish and Wildlife)
- Martha Sutula (Southern California Coastal Water Research Project)

The PMEP SDC will work closely with the National Fish Habitat Board SDC to advance national and regional goals. Through exchange of habitat and threat information, working with individuals who completed the assessments, and providing fish information for the next steps to conduct national assessments, the PMEP will help to advance the actions of the NFHP SDC.

The primary role of the SDC will be to coordinate data collection/assessments occurring along the West Coast. Basic tenets of the committee include:

- Committee members should be representative of the individuals that collect information for assessments.

A sea lion in the Channel Islands off the California coast. PMEP goals support work toward a diverse and resilient ecosystem. Photo courtesy of Allen Gerritsma.
- Members should represent each state (state agency or academic institutions) and agency science centers.
- The committee should have consistency in membership.

The SDC is responsible for describing the scope of work needed to achieve PMEP goals relative to assessments and use of science and data to inform PMEP decisions and project priority setting. In addition, the SDC will develop an adaptive management framework and promote the use of effectiveness monitoring in projects the PMEP supports.

**Linking to the National Framework**

Initially PMEP will use existing national as well as state assessments for assessing fish habitat and needed work. It is unlikely in the near term that the PMEP will do its own assessment work, but rather communicate through partners as to the needs and gaps it sees in its information. The PMEP’s SDC (in communication with the national science and data committee) will help assure that these assessments link to the national framework for assessing fish habitat. The PMEP will provide NFHP with progress reports on implementation and assessment of projects.

Regional assessments of coastal and marine ecosystems within the geography of the PMEP provide an initial overview of biological and ecological resources that will be of great utility in assessing fish habitat in the region. These assessments, emanating from various non-governmental organizations and governmental agencies, form a continuous map of several types of data, including both species and habitats largely populated with spatial information in GIS formats. Three ecoregional conservation assessments developed by The Nature Conservancy cover the entire PMEP geography and include both broad-based biological as well as management-related data. In addition there are assessments related specifically to groups of fishes (salmon, groundfish) as well as assessments that are specific to habitats, such as coastal estuaries. The data in the assessments link the PMEP with the National Fish Habitat Framework that calls for assessing fish habitats within the partnership area. The spatial data layers available in the assessments can be combined and 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 range of the PMEP.

Creating a full picture of existing assessments will help to inform functionality of estuarine and nearshore marine habitats—their status today as well as historically. Adequate representation of functioning systems along the Pacific Coast will help to inform species status and shifts as well as identify gaps where information is needed. In addition efforts will be made to incorporate local and traditional ecological knowledge to existing assessments to help identify key threats.

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The PMEP will adopt NFHP data standard operating procedures to help refine and improve the National Assessment and provide a more accurate picture of the status of and threats to fish habitat nationally. The PMEP will also coordinate with other coastal-related fish habitat partnerships (e.g., Atlantic Fish Habitat Partnership, Southeast Aquatic Resources Partnership) to collaborate in addressing estuarine and nearshore marine conservation challenges as needed at the national scale.

Technical and Financial Resources
The PMEP currently has a robust set of resources available. The following are just a few examples:

- **The Nature Conservancy’s ecoregional assessments**—identify lands and waters critical to the conservation of biodiversity across the Pacific Northwest. These freshwater, marine, and terrestrial assessments can be used to prioritize conservation activities, understand the regional significance of a local site, and evaluate and avoid activities that may adversely affect conservation benefits. The Nature Conservancy has ecoregional assessments for the entire range of this Partnership from California to Washington as well as Puget Sound.

- **The Nature Conservancy’s estuary assessment**—describes similarities in basic ecology and threats faced by many of the region’s estuaries, and encourages a coordinated effort to assess regional patterns and develop integrated multi-site strategies likely to improve conservation effectiveness at both the local and regional scales.

- **The Pacific Fishery Management Council Essential Fish Habitat Designation documents**—describes and maps Essential Fish Habitat (EFH), waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity, and suggests management measures to reduce impacts from fishing and non-fishing activities, for coastal pelagic species, salmon, groundfish, and highly migratory species.

- **The National Estuary Program Coastal Condition Report** by the Environmental Protection Agency—rates the health of West Coast estuaries using a water quality index (based on five water quality component indicators), sediment quality index (based on sediment toxicity, sediment contaminants, and sediment total organic carbon), a benthic index (indicates the condition of the benthic community—organisms living in estuarine sediments—and can include measures of benthic community diversity, the presence and abundance of pollution-tolerant species, and the presence and abundance of pollution-sensitive species), and fish tissue contaminant indices (the level of chemical contamination in target fish/shellfish species).

- **Washington’s Developing Indicators and Targets for Eelgrass in Puget Sound (2010)**—developed case studies of five other programs with eelgrass targets, assembled information on historical and contemporary changes in eelgrass in greater Puget Sound, compared eelgrass indicators and metrics.

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42 [http://water.epa.gov/type/oceb/nep/nepccr-factsheet.cfm](http://water.epa.gov/type/oceb/nep/nepccr-factsheet.cfm)
for use in Puget Sound, developed strategies for establishing eelgrass targets, and recommended strategies for policy direction.

- **Ducks Unlimited/Pacific Coast Joint Venture project on the impacts of sea level rise in Oregon and Washington**[^44]—will inform adaptation opportunities to projected sea level rise.

- **Puget Sound Nearshore Ecosystem Restoration Project data**[^45]—a large-scale initiative in Washington State’s Puget Sound basin to identify significant challenges to ecosystem health, evaluate potential solutions, and restore and preserve critical nearshore habitat.

In addition, in-kind support (i.e., staff time, travel, GIS capabilities, equipment/supplies, meeting space), technical expertise of steering committee and partner members, as well as their larger organizations/agencies make a significant contribution to PMEP outcomes. Following the national model, steering committee and partner members have the potential to contribute funding, monitoring, data sharing and analysis, identification of pilot projects, education and outreach, and planning and technical expertise.

[^44]: http://www.dfw.state.or.us/conservationstrategy/docs/conservation_planning_1110/Petrie_presentation.pdf
[^45]: http://www.pugetsoundnearshore.org
BUDGET

This strategic framework includes a description of actions and expected conservation outcomes to evaluate the success of the partnership. This portion of the strategic framework provides an analysis of the financial and other resources needed to implement this plan. The information included is intended to guide strategic investments in areas where gaps may exist relative to juvenile fish habitat, habitat connectivity, and water quality and quantity in estuarine and nearshore marine environments. The funding plan is divided into three categories:

- **PMEP organizational management funding**—to support the operations of the PMEP.

- **PMEP assessment work**—to support the assimilation of existing fish and habitat assessments and incorporate that data and information into the newly forming Regional Data Network. Share completed assessments with entities conducting habitat restoration work in the region, and foster use of the assessments to strengthen their ability to implement priority restoration work.

- **PMEP project funding**—Support projects that will advance the actions and outcomes described in this framework.

### Organizational Management Funding – Annual Costs

<table>
<thead>
<tr>
<th>Task</th>
<th>Lead</th>
<th>Partners</th>
<th>Timeline</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund a PMEP coordinator (12 mo/year)</td>
<td>Federal agencies</td>
<td>Steering Committee members</td>
<td>Annually</td>
<td>$75,000/year plus $8,000 travel</td>
</tr>
<tr>
<td>Administrative support (website, collaboration online)</td>
<td>PMEP Coordinator</td>
<td>Steering Committee members</td>
<td>Ongoing</td>
<td>$4,000 annually</td>
</tr>
<tr>
<td>Printing and outreach materials</td>
<td>PMEP Coordinator</td>
<td>Steering Committee members</td>
<td>Annually</td>
<td>$1,000/year</td>
</tr>
<tr>
<td>Travel support to convene PMEP Steering Committee</td>
<td>PMEP Steering Committee Members</td>
<td>PMEP Science and Data Committee</td>
<td>Annually</td>
<td>$15,000/year</td>
</tr>
</tbody>
</table>

**Funding for Organizational Management of the PMEP** $103,000/year
### PMEP Assessment Work

<table>
<thead>
<tr>
<th>Task</th>
<th>Lead</th>
<th>Partners</th>
<th>Timeline</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Estuarine Habitats</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characterize habitat types of estuary fish habitats</td>
<td>PMEP Science and Data Committee</td>
<td>West Coast entities with fish data and assessments</td>
<td>2012-2013</td>
<td>$50,000 NFHP Coastal &amp; Marine Fish Habitat Protection grant</td>
</tr>
<tr>
<td>Identify threats to habitats in each estuary</td>
<td>PMEP Science and Data Committee</td>
<td>West Coast entities with fish data and assessments</td>
<td>2012-2013</td>
<td></td>
</tr>
<tr>
<td>Examine abundance and diversity of fish species and guilds, and their sensitivity to habitats and their threats</td>
<td>PMEP Science and Data Committee</td>
<td>West Coast entities with fish data and assessments</td>
<td>2012-2013</td>
<td>$250,000 Multi-state conservation grant program</td>
</tr>
<tr>
<td>In consideration of 1-3, determine habitat restoration and protection priorities for Pacific coast estuaries.</td>
<td>PMEP Steering Committee</td>
<td></td>
<td>2013-2014</td>
<td>Products (reports, maps, action plan) – estimated $3,000 annually</td>
</tr>
<tr>
<td><strong>Nearshore Marine Habitats</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Characterize habitat types of nearshore marine fish habitats</td>
<td>PMEP Science and Data Committee</td>
<td>West Coast entities with fish data and assessments</td>
<td>2014-2016</td>
<td>$50,000 NFHP Coastal &amp; Marine Fish Habitat Protection grant</td>
</tr>
<tr>
<td>Identify threats to habitats in nearshore marine environments</td>
<td>PMEP Science and Data Committee</td>
<td>West Coast entities with fish data and assessments</td>
<td>2014-2016</td>
<td>$250,000 Multi-state conservation grant program</td>
</tr>
<tr>
<td>Examine abundance and diversity of fish species and guilds, and their sensitivity to habitats and their threats</td>
<td>PMEP Science and Data Committee</td>
<td>West Coast entities with fish data and assessments</td>
<td>2014-2016</td>
<td>$250,000 - Other grant programs (LCC, etc.)</td>
</tr>
<tr>
<td>In consideration of 1-3, determine habitat restoration and protection priorities for Pacific coast nearshore marine environments.</td>
<td>PMEP Steering Committee</td>
<td></td>
<td>2016-2017</td>
<td>Products (reports, maps, action plan) – estimated $3,000 annually</td>
</tr>
</tbody>
</table>
PMEP Project Work (expected revenue)

The PMEP Coordinator will be responsible for soliciting grants and revenue to produce the outcomes described in the strategic framework. The focus in 2013 will be the inventory of West Coast estuarine and nearshore marine environment assessments to identify existing sources of information on West Coast juvenile fish habitat, habitat connectivity, and water quality and quantity. The inventory will also reveal key data gaps, which can potentially be funded in years 2014–2017. Over time (i.e., years 2015–2017), the partnership will shift its focus from science and data inventory to support of projects with partners to protect, restore, and enhance estuarine and nearshore marine environments as well as fund key data gaps.

<table>
<thead>
<tr>
<th>Task</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fund priority protection, restoration and enhancement projects in estuarine and nearshore marine environments along the West Coast.</td>
<td>$250,000</td>
<td>$500,000</td>
<td>$500,000</td>
<td>$500,000</td>
<td>$1,000,000</td>
</tr>
<tr>
<td>Funding for PMEP Project Work in estuaries and nearshore marine areas</td>
<td>$2,750,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Potential sources of funds include Landscape Conservation Cooperatives, major federal funding grant programs, nonprofit organizations, and industry. As grant opportunities become available, they will be added to this portion of the document.
APPENDICES

APPENDIX A. PMEP STEERING COMMITTEE MEMBERS AND THEIR ALTERNATES.
APPENDIX B. PMEP BYLAWS.

The great blue heron is one of many bird species that benefits from healthy estuaries and nearshore marine environments. Photo courtesy of Silviu Cuczeran.
### APPENDIX A. PMEP STEERING COMMITTEE MEMBERS AND THEIR ALTERNATES.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Organization</th>
<th>Designated Alternate</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA</td>
<td>Korie Schaeffer</td>
<td>Northern California Coast and Estuarine Team Coordinator</td>
<td>NOAA Fisheries - NMFS Southwest Region</td>
</tr>
<tr>
<td>PNW</td>
<td>Michael Tehan</td>
<td>Assistant Regional Administrator, Habitat Conservation Division</td>
<td>NOAA Fisheries - NMFS Northwest Region</td>
</tr>
<tr>
<td>PNW</td>
<td>Dan Shively</td>
<td>Fish Passage and Habitat Partnerships Coordinator</td>
<td>USFWS Region 1</td>
</tr>
<tr>
<td>WC</td>
<td>Carey Smith</td>
<td>Coordinator</td>
<td>Pacific Coast Joint Venture</td>
</tr>
<tr>
<td>PNW</td>
<td>Mark Petrie</td>
<td>Director of Conservation</td>
<td>Ducks Unlimited</td>
</tr>
<tr>
<td>WC</td>
<td>Jena Carter</td>
<td>Oregon Marine and Coast Director and West Coast Regional Marine Coordinator</td>
<td>The Nature Conservancy</td>
</tr>
<tr>
<td>CA</td>
<td>Rebecca Garwood</td>
<td>CA Department of Fish and Game</td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td>Dan Avery</td>
<td>Estuary and Freshwater Habitat Biologist</td>
<td>OR Department of Fish and Wildlife</td>
</tr>
<tr>
<td>OR</td>
<td>John Bragg</td>
<td>Coastal Training Program Coordinator</td>
<td>South Slough National Estuarine Research Reserve</td>
</tr>
<tr>
<td>WA</td>
<td>Randy Carman</td>
<td>Senior Marine Ecologist</td>
<td>WA Department of Fish and Wildlife</td>
</tr>
<tr>
<td>WA</td>
<td>Brian Lynn</td>
<td>Coastal/Shorelands Section Manager Shorelands and Environmental Assistance Program</td>
<td>Washington Department of Ecology</td>
</tr>
<tr>
<td>WC</td>
<td>Stan Allen</td>
<td>Senior Program Manager</td>
<td>Pacific States Marine Fisheries Commission</td>
</tr>
<tr>
<td>CA</td>
<td>Sarah Beesley</td>
<td>Fisheries Biologist</td>
<td>Yurok Tribal Fisheries Program</td>
</tr>
<tr>
<td>WA</td>
<td>Kim Robertson</td>
<td>Watershed Scientist</td>
<td>Makah Tribe</td>
</tr>
<tr>
<td>CA</td>
<td>Michael Kellett</td>
<td>Regional Fisheries Biologist</td>
<td>US Forest Service</td>
</tr>
</tbody>
</table>

PNW = Pacific Northwest Focus   WC = West Coast Focus (3+ states)
APPENDIX B. PMEP BYLAWS.

ORGANIZATION

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

To achieve this, a group of federal and state governments, and tribal sovereigns, along with nonprofit organizations and industry representatives convened as a steering committee to promote, oversee, and facilitate the actions of the partnership. The steering committee is the decision-making body for the partnership; all decisions made by the steering committee are intended to support the strategic framework of the Partnership and advance the goals and strategies defined therein.

STRUCTURE

Steering Committee:

- The PMEP steering committee will have a chair and vice-chair, of which no more than one can be government/tribal sovereign representative. Both serve 18-month staggered-term positions, and each cannot serve more than two consecutive terms.
- The steering committee seeks 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.
- Roles and responsibilities of steering committee members:
  - Focus on developing and coordinating a strategic framework that prioritizes habitat types, areas and issues for protection and restoration, rather than becoming a restoration project funding entity.
  - Agree to support and advance the goals and objectives of PMEP.
  - 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.
  - Monitor activities and projects initiated as part of the strategic framework.
  - Assist in coordinating and leading efforts that engage partner organizations.
- Nominations—Steering committee members can sponsor a nominee. The member must notify the PMEP coordinator and provide written documentation (from a steering committee member or the nominee) articulating why the entity is interested in participating on the steering committee. The PMEP coordinator distributes nominations to steering committee members. Members have 30 days to review and discuss pending nomination before a decision is made.
- Steering committee members have a right to a named alternate; the coordinator must be notified of the alternate in advance of the meeting.
- No more than one individual can be a voting member of an agency or organization on the steering committee.
- The PMEP partnership incorporates terms of reference and charter language into its bylaws versus creating a Memorandum of Understanding.
- The size of the PMEP steering committee shall not exceed 20 members.
- 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 meetings (steering committee conference calls, etc.), the member will be formally approached to discuss interest in future participation.
- Steering committee meetings are open to the public; however, they are not “public meetings.”

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

DECISION MAKING
- Steering committee members seek agreement without any objections to block decisions.
- If agreement does not occur, 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. 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.
- Between meetings, the steering committee can make decisions via email and telephone calls.
- Members must be present at the meeting/or on the call to vote (no written votes can be submitted).

DOCUMENTING THE WORK OF THE PARTNERSHIP
- Steering committee action items and major decisions will be documented on the PMEP website.
- 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.