Identifying and Integrating Priorities for Marine Conservation and Management

Testimony Of The Nature Conservancy

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By

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Honorable Chairman and members of the Commission, thank you for inviting The Nature Conservancy to participate in your deliberations. My intent today is to convey the need for better coordination and integration in setting priorities for management and conservation of coastal resources. This is a shared responsibility that should attract the participation of government agencies at all levels, non-governmental organizations and stakeholder groups, the scientific community, and the public. **The federal government can catalyze this process by increasing its commitment to multi-agency planning at a regional scale in advance of environmental crises.** The Nature Conservancy and partners have developed methods for setting these priorities at regional scales and we are using those methods to draft integrated biodiversity conservation plans in coastal systems. This methodology should be applied more widely to better guide efforts in conservation and management.

The main questions that we want to address are:

(1) How do we identify where to spend limited time, money, and effort in marine conservation and management?

(2) How do we better integrate efforts across environments?

The Nature Conservancy is an international, nonprofit organization dedicated to conserving biological diversity. Our mission is to preserve the plants, animals, and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. The Nature Conservancy's traditional focus has been on land-based habitats. However, in the past decade, we recognized that to accomplish our mission we must also focus on critically important and productive freshwater, coastal, and marine habitats -- particularly habitats such as estuaries, coral reefs, mangroves, and

seagrass beds that are heavily affected by human activities. The Nature Conservancy now works at more than 100 coastal and marine sites around the world, and we are working to dramatically increase our contribution to marine conservation.

Six years ago the Conservancy took a look at our conservation and management efforts to date and realized that they would be insufficient to meet the conservation challenges of our time. We needed better methods of prioritizing our efforts to identify and conserve this nation's biodiversity, so that we could become both more effective and more efficient. We have developed an approach called ecoregional planning, which uses a combination of scientific data, computer modeling, and expert opinion to identify high priority sites for biodiversity conservation. We have now completed some 40+ ecoregional plans around the United States and have been working most recently on numerous coastal and marine plans.

We want to focus today on how ecoregional planning addresses marine conservation, using the Puget Trough Ecoregion as an example. This is particularly appropriate as this meeting is being held within this ecoregion.

Basic Framework for ecoregional planning

The basic framework for ecoregional planning, which TNC has already applied in 40+ terrestrial and marine ecoregions, is summarized by the following bullet points and explained in more detail in the next few sections.

- Identify conservation targets- ecosystems & species
- Collect the available information on targets
- Set conservation goals
- Develop "strawman" set of priority sites using computer models
- Evaluate these results in workshops with scientists & managers
- Finalize the portfolio of sites into an ecoregional plan

Conservation Targets for Puget Trough ecoregion

Targets are the species and ecosystems that we use to represent the full array of biodiversity in the Puget Trough ecoregion. There were 134 targets in total.
There were 40 ecosystem level targets (e.g., rocky reef habitat, seagrass beds).
Additionally there were 94 individual species targets including 17 fish species, 8 marine mammal species, 35 seabird species, 23 invertebrate species, and 11 species of intertidal vegetation.

Conservation Goals

Next we set conservation goals.

A conservation goal is the amount of the target(s) that must be preserved to protect viable populations and ecosystems that represent the full range of the diversity within an ecoregion.

In the Puget Trough ecoregion, we set goals for ecosystems at 30% of current distribution (i.e., extent) of the different target ecosystems. Goals varied from 30%-60% of known occurrences for species.

These goals are partly based on knowledge gained from fisheries models, species-area curves, and landscape theory/connectivity. They are larger they might be because we know that we have seen drastic losses in the distribution of many species and ecosystems and moreover we don't even know where all these species occur.

Draft Marine Priority Areas

After data collection and many workshops over the course of a year and a half we have developed a set of draft marine priority areas (see figure 1).

These are not MPA plans. The Conservancy works on the principal that we identify the areas critical for the preservation of marine biodiversity and only then do we identify the strategies appropriate for conservation. In some priority areas, MPAs will be an appropriate strategy. In other areas we may look towards restoration or upland work to ameliorate water quality. The right strategy depends entirely on the threats to the biodiversity at the priority areas.

Integrating Terrestrial, Freshwater and Marine Priorities

The Nature Conservancy is also trying to integrate conservation and management priorities across the coastal zone.

We are looking at terrestrial, freshwater and marine priority and trying to determine how we can modify and integrate the areas so that they line up better within watersheds. This is done in part to better account for the strong connections among environments particularly in estuarine environments and to also recognize that even where connections are weaker it makes pragmatic sense to coalesce activities by geography as much as possible.

Evaluate Stresses to Conservation Targets

After the priority conservation areas are identified, we then look across all the areas in the ecoregion to identify the dominant threats. The list below identifies the major threats throughout the marine portions of the Puget Trough ecoregion. Note that while overfishing is an important threat, it is just one of many threats.

- Inflow of contaminants and pollutants
- Oil spills
- Direct target destruction (dredging, invasives, incompatible development)
- Altered population abundance (overfishing)
- Altered water chemistry, e.g., salinity
- Altered hydrologic regime- freshwater
- Inflow of excess nutrients
- Shoreline hardening (docks, seawalls, jetties)
- Altered sedimentation regime

• Sea-level rise

Existing Protection: Terrestrial vs Marine
We also look across the ecoregion to evaluate the extent of existing protection. In the terrestrial portion of the Puget Trough ecoregion there are substantial parks and other areas that offer real protection for native biodiversity. There are far fewer areas currently that offer similar levels of protection in the marine waters of the Puget Trough ecoregion.

Our recent acquisition of 3900 acres of submerged lands in Port Susan Bay is one of the largest apparent protected areas—and as of yet we have no real protection there. Overall this is poor protection.

Potential Strategies for marine conservation
Lastly in ecoregional planning, we evaluate the potential options or strategies for protecting marine biodiversity. The list below indicates some of the strategies that we believe will be effective in the Puget Trough ecoregion. Note that MPAs are just one of the strategies that will be necessary. It will take a combination of all of the strategies and likely other strategies to be effective in marine conservation and management in this ecoregion (as in most ecoregions).

• Habitat restoration
• Best management practices (e.g., non-point agricultural input, urban runoff)
• Marine protected areas
• Lease of submerged lands
• Coastal land acquisition & easement
• Compatibly managed resource use (e.g., fisheries, recreation, shipping)-- zoning

Recommendations for Ocean Governance
To conclude we would like to offer several recommendations for Ocean Governance.

(1) We need regional plans to prioritize our conservation and management efforts and focus attention on sites where we can succeed in protecting biodiversity and healthy, functioning ecosystems. **These plans will identify how we can more efficiently spend limited time, money and effort in planning.** While they can assist in siting new marine protected areas, like National Marine Sanctuaries and National Estuarine Research Reserves, they have broader applications to designing conservation strategies for essential fish habitats and informing coastal zone management efforts. Unless we do a better job, collectively, establishing conservation priorities and integrating our efforts we will continue to invest haphazardly and will probably fail to protect our marine resources and coastal ecosystems. Laws in California and Australia [California Marine Life Protection Act and the Australian Environment Protection and Biodiversity Conservation Act 1999] provide models for legislating this new approach.

(2) **We need to integrate these plans and our conservation and management efforts across terrestrial, freshwater, and marine environments** – and their respective agency jurisdictions. Some marine organisms – with salmon as a startlingly clear example – rely

directly on freshwater habitats and contribute to terrestrial ecosystems. Moreover, many of the impacts on marine biodiversity and ecosystem function are land-based.

(3) **We need to bring the full range of conservation mechanisms developed on land into the field of marine conservation and apply them effectively.** Marine analogs of national parks, wildlife refuges, and wilderness areas are terribly under-represented in ocean governance. The federal funding for existing programs on these lines is a tiny fraction of our commitment to land-based conservation efforts.

(4) **We need to act before crises occur.** Once the conservation and resource management response is driven by crisis it becomes more expensive and necessarily focused on the species or ecosystems in crisis. This is a tremendously inefficient way to protect critical national resources, and we must get ahead of the curve if we are to achieve any sort of balance between biodiversity conservation and resource use.

Marine Ecoregional Planning at The Nature Conservancy:

Draft Marine Conservation Portfolio

** Linear SITES runs: Using British Columbia and Washington State ShoreZone datasets, we came up with 39 representative shoreline habitats split into two subsections (see inset map below). These habitats were based on various combinations of 9 substrate types and 3 biological modifiers (kelp, seagrass, and saltmarsh). There were 1,234 shoreline units "locked-in" to the analysis representing Seascape sites, or 9% toward the goal of a 30% Reserve Size. Tier 2 sites added 1,469 units or 14%, and Tier 3 added 243 units or %4.*

The draft Marine Conservation Portfolio is 2,946 units or 27% of the nearshore. An additional 64 units, or 1%, of the Portfolio is completely manmade, bringing the total Reserve Size to 28%.

*** Hexagon SITES runs: Representation goals ranged from 30 - 60% for forage fish spawning grounds, rockfish, rocky reefs, marine mammals, seabirds, and invertebrate data. Additional sites were chosen in the nearshore where we lacked fine filter data represented by hexagons.*

Legend

Linear SITES Runs *
- Draft portfolio sites

Hexagon SITES runs **
- Draft portfolio sites

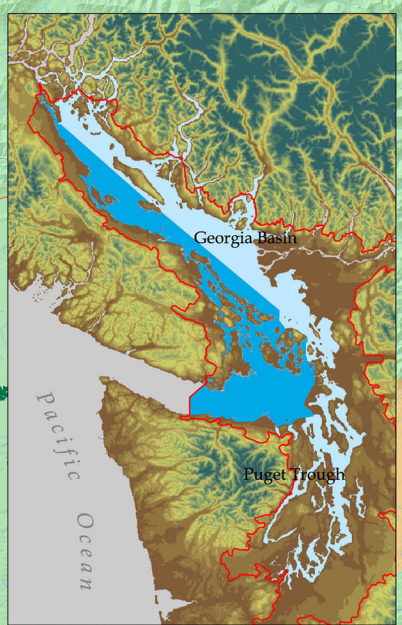
TNC Preserves and Projects
- Conservation Easement
- Conservation Project
- Preserve

Western Washington Ecoregions
- North Cascades and Pacific Ranges
- West Cascades
- Willamette Valley/Puget Trough/Georgia Basin
- Northwest Coast

Bathymetry (below mean high water)
- -380 meters
- 0
- Shallow Flats

The Nature Conservancy of Washington

Draft results: Puget Trough section



Waters of the Ecoregion

British Columbia, CANADA
Washington, USA

Waldron Island
Sentinel Island
Yellow Island
Jack Island
Goose Island
Deadman Island
Chuckanut Island
Arlecho Creek
Ebey's Landing
Port Susan Bay
Lake Hancock
Foulweather Bluff
Dabob Bay

BELLINGHAM
VICTORIA
PORT ANGELES
EVERETT
SEATTLE
TACOMA
OLYMPIA

San Juan
Whatcom
Skagit
Island
Clallam
Jefferson
Snohomish
Kitsap
Mason
King
Thurston
Pierce

0 10 20 Miles
0 10 20 30 Kilometers

Sources: MSRM, TNC, WDFW, WDNR June 2002