



San Diego Bay Integrated Natural Resources Management Plan

1.0 Welcome to the Plan

*“This Port of San Diego is beautiful to behold,
and does not belie its reputation.”*

Father Serra, 1769

1.1 The Plan: Why, What, and Where

Marinas, submarines, hotels, Navy SEALs, cruise ships, docks, freighters, yachts, aircraft carriers, jetboats, terminals, parks...

Harbor seals, black brant, bay gobies, tunicates, brittle stars, mud shrimp, bay mussels, sea pansies, eelgrass, salt marsh bird's beak, sargassum...



Photo © 1999 Peg Spencer.

One Bay, many values. Can they all thrive?

This San Diego Bay Integrated Natural Resources Management Plan is a long-term strategy for two of the major managers of the Bay: the US Navy and the San Diego Unified Port District (SDUPD). Its intent is to provide direction for the good stewardship that natural resources require, while also to support the ability of the Navy and the Port to meet their missions and continue functioning within the Bay.

A new approach reflected in the Plan is to look at the interconnections among all of the natural resources and human uses of the Bay, across ownership and jurisdictional boundaries. San Diego Bay is viewed as an ecosystem with all of its processes rather than as a collection of individual species or sites or projects. As such, this Plan was nicknamed the “Bay Ecosystem Plan.”

This Plan is intended to be an agent of change. To this end, many new strategies and tactics for Bay managers are proposed. These include new, or changes in existing, policies for:

- protecting Bay habitats and ecological processes;
- planning for current and future uses, including for mitigation and enhancement, and analyzing for cumulative effects; and
- developing a research and long-term monitoring program to support decision-making.

1.1.1 The Plan’s Goal

A Goal Statement is an essential component of a successful plan. “Goal” is defined here as *“a broad statement of intent, direction and purpose; an enduring, visionary description of where you want to go.”* A goal is not necessarily completely obtainable. However, its vision is used as the compass of a plan’s progress: are we continuing to move in the agreed upon direction? Without the compass, a plan can easily wander off course.

Goal—Ensure the long-term health, recovery, and protection of San Diego Bay’s ecosystem in concert with the Bay’s economic, Naval, recreational, navigational, and fisheries needs.

Habitat conservation and restoration are implied in the first part of the Goal Statement, as well as protection of ecosystem processes that depend on these habitats, such as productivity, nutrient cycling, and support of a complex food web. These habitats and related processes are specifically addressed in objectives and strategies in later chapters.

1.1.2 Plan Origin

Beginning in 1992, biologists within the Navy’s Southwest Division office, as well as from the US Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), observed that project-by-project management of natural resources in San Diego Bay resulted in lengthy and often redundant efforts by the Navy and the regulatory agencies. Biologically, managing resources was frustrating when based on political boundaries instead of natural, ecosystem boundaries. The project-by-project approach led resources to be managed on a very site-specific basis. In 1993, these biologists began the collection of data necessary to the development of a Baywide resources management plan.

- Navy and agency biologists were frustrated with project-by-project management of the Bay within political, instead of natural, boundaries.

In 1996, the Navy decided to prepare an Integrated Natural Resource Management Plan (INRMP) for San Diego Bay that would address Navy-owned and -controlled tidelands and waters only. Already, INRMPS had been completed for the land portion of each Naval installation around the Bay, as required by Navy policy (Chief of Naval Operations Instruction [OPNAVINST] 5090.1B), but not for the water or Bay as a whole. The Navy had decided that a “big picture” approach to managing the Bay’s resources and planning for future needs would prove more valuable in the long run than a piecemeal approach.

San Diego Bay and Vicinity

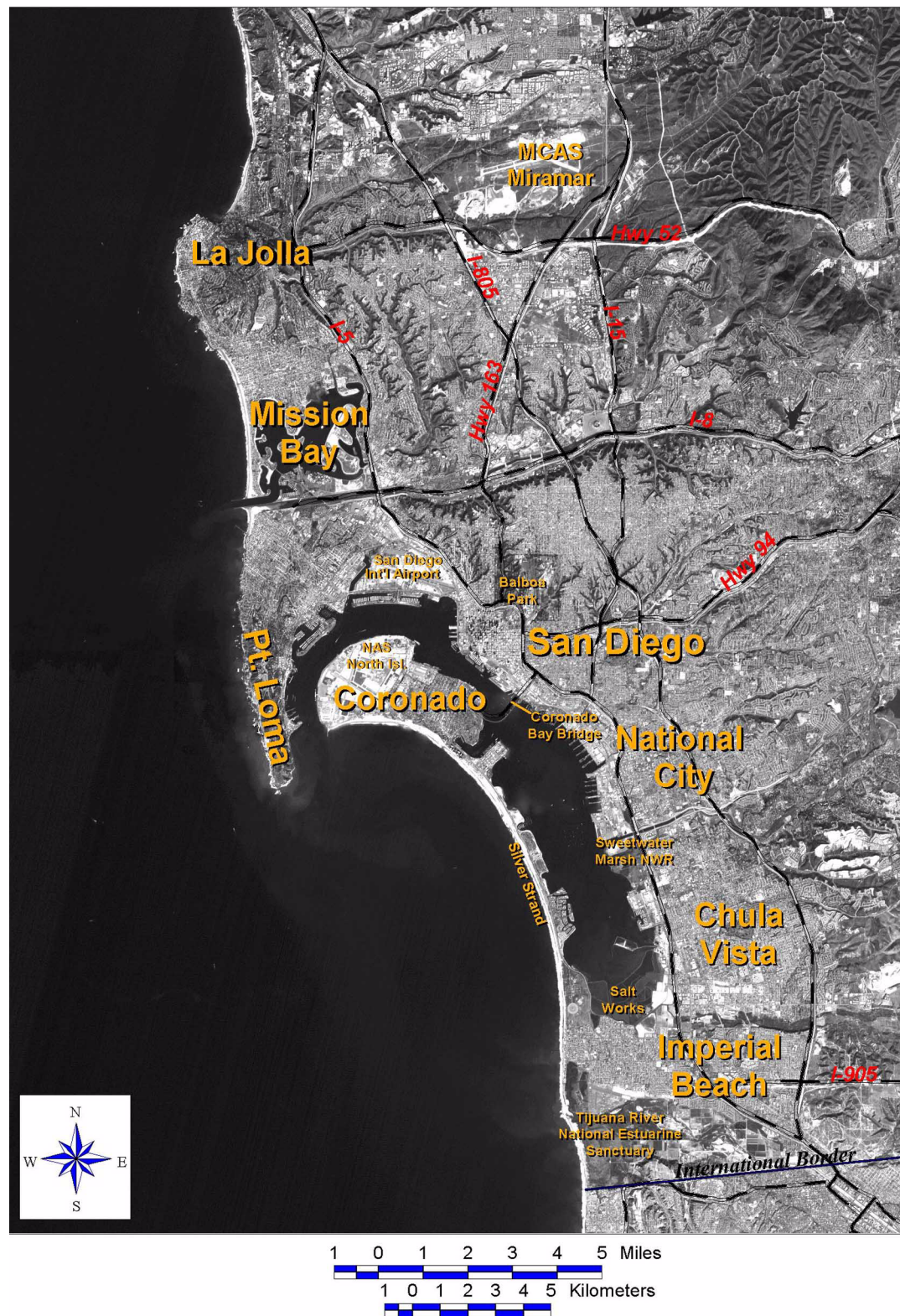


Photo 1-1. Aerial Photo of San Diego Bay Region.

- The Port also wanted to avoid piecemeal management and signed on as a partner with its Navy neighbor in January 1997.

Sharing similar experiences, the SDUPD became interested in working collaboratively with its neighbor on a single natural resource plan for the Bay. As a result, the Board of Port Commissioners voted on January 7, 1997 to become a partner with the Navy in jointly developing a natural resource management plan for the Bay, expressing concern that “a balance be achieved in designating sites for mitigation and preserving the valuable natural resources while not precluding development opportunities.” This Plan builds on an earlier planning effort by the Port, the South San Diego Bay Enhancement Plan (Macdonald *et al.* 1990).

Environmental community interests and pressures also contributed to the widely felt need for a Baywide plan. Representation from the nongovernment environmental community in the planning process was sought in response to this interest. Contributing to the Plan’s information base are surveys of natural resources funded by the Navy between 1993 and 1997, with contributions from the Port and other agencies.

1.1.3 Purpose

- This Plan serves as a nonregulatory guide to improved, more cost-effective decisions by the Navy, Port, and other decision-makers for the Bay’s resources.

This INRMP provides the goal, objectives, and policy recommendations to guide planning, management, conservation, restoration, and enhancement of the San Diego Bay ecosystem. It also provides support to the US Navy and the Port missions. As such, it will serve as a nonregulatory guide to better, more cost-effective decisions by those involved with the Bay.

The Plan meets some particular needs of the principal proponents, the US Navy and the Port of San Diego, as well as the regulatory community:

1. Improved coordination by the Navy and Port and other natural resource managers for managing, protecting, and restoring the Bay’s ecosystem.
2. Recognition of the current status of the Bay’s natural ecosystem, and making the information that supports this status broadly available.
3. Recognition of the current status of human use of the Bay’s ecosystem.
4. Development of practical management strategies for the Bay’s ecosystem to reach conservation, restoration, and enhancement objectives.
5. More effective support for project planning and compatible use of the Bay.
6. Identification of long-term ecosystem monitoring and research priorities needed to make better management decisions.
7. Timely and effective implementation of the recommended strategies, including an annual meeting to serve as a forum to discuss proposed projects, management priorities, and mitigation and enhancement strategies.

These seven purposes are parallel to and are reflected in the titles and contents of Chapters 1 through 7 of the Plan.

- No special emphasis is given to water quality or endangered species issues. These are well-covered in other plans and processes.

Certain topics, particularly water quality, as it relates to contaminant regulation, or endangered species and take permits, are not considered in depth because of their coverage in other plans or processes. The Plan instead addresses water and endangered species along with other important components of the Bay ecosystem. By considering the Bay as one ecosystem that encompasses many political jurisdictions, the Plan covers the natural components as well as the geographic and time scales necessary to address the ecosystem’s needs.

1.1.4 Planning Zones

- Map 1-2 depicts the Plan's "footprint" or Functional Planning Zone, an area amounting to 12,132 acres (4,912 ha).

San Diego Bay is part of the greater ecosystem of the southern California Bight (SCB) (see Map 1-1 and discussion of the Bight in Section 2.1 "Ecoregional Setting") and covers 10,532 acres (4,262 hectares [ha]) of water and 4,419 acres (1,788 ha) of tidelands around the Bay, according to Port maps (San Diego Unified Port District 1995b). "Tidelands" legally include land below the historic (1850) mean high tide line; some are now filled in and developed (e.g. Lindbergh Field, Coronado golf course, Naval Amphibious Base). These developed fill areas are not intended to be a primary focus of the Plan, so they are not included in the Plan's Functional Planning Zone, or "footprint."

The footprint was specially delineated for this Plan to reflect the current conditions. As shown in Map 1-2, this zone includes everything bayward of the current mean high tide line west to Ballast Point, with the addition of the Salt Works at South Bay and the entire Sweetwater Marsh National Wildlife Refuge (SMNWR) on the east. This area of water, tidelands, and land encompasses 12,132 acres (4,912 ha).

Map 1-3 shows the Conceptual Watershed Influence Zone, an area of 277,129 acre (112,198 ha) directly linked to the Bay's resources. This zone includes the Sweetwater River and Otay River drainages, small urban creeks (e.g. Chollas Creek) and stormwater drains flowing directly into the Bay, and portions of Silver Strand and Point Loma. This zone includes the waterfront areas of the cities, Navy, and Port adjacent to the Bay. Watersheds are important to include in concept because of the functional connectivity and interrelationships between the Bay and upstream processes—biological, physical, and chemical. However, upper watershed issues affecting the Bay will take more time to address thoroughly than can be done within the original time frame of this Plan.

1.1.5 Roles of Plan Collaborators

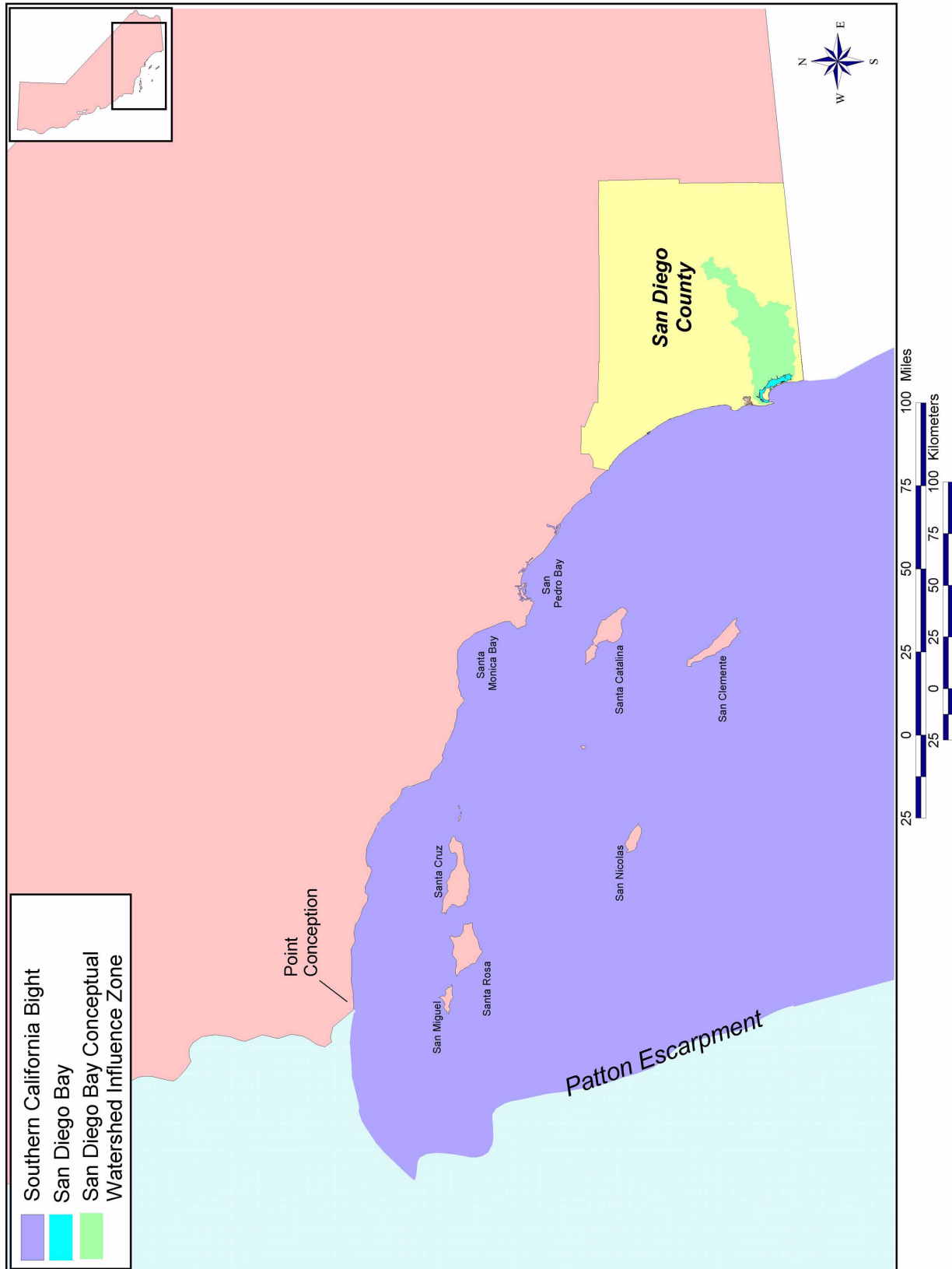
- Figure 1-1 shows the various groups and processes involved in collaborating on the Plan. Decision-making was centered in the Technical Oversight Committee, representing thirteen diverse groups. Consensus was sought on all parts of the Plan.

A cooperative effort of many people has brought this Plan together. As depicted in Figure 1-1, each oval represents a category of Plan collaborators. Names and affiliations of the members within each group can be found on the credit page of this Plan.

The primary "umbrella" group is the Technical Oversight Committee (TOC). This diverse group of thirteen different organizations, represented by eighteen individuals, was created to include those entities that are most directly affected by the Plan and could contribute significantly to its development. The size of the TOC was purposely limited since it had the role of making cooperative, consensus-based decisions about the Plan's approach, content, policy, and implementation. The members also provided professional and personal experience, scientific data, and a "reality check" on the material and ideas used. Their varying perspectives helped ensure that ecosystem management strategies were considered in institutional, social, and economic contexts to validate the Plan's ecosystem approach. Meeting bimonthly or monthly since November 1996, the TOC has used its meetings as a forum for sharing information, debating key issues, and making decisions. Drafts of the Plan were first reviewed, discussed, and approved by the TOC on a consensus basis.

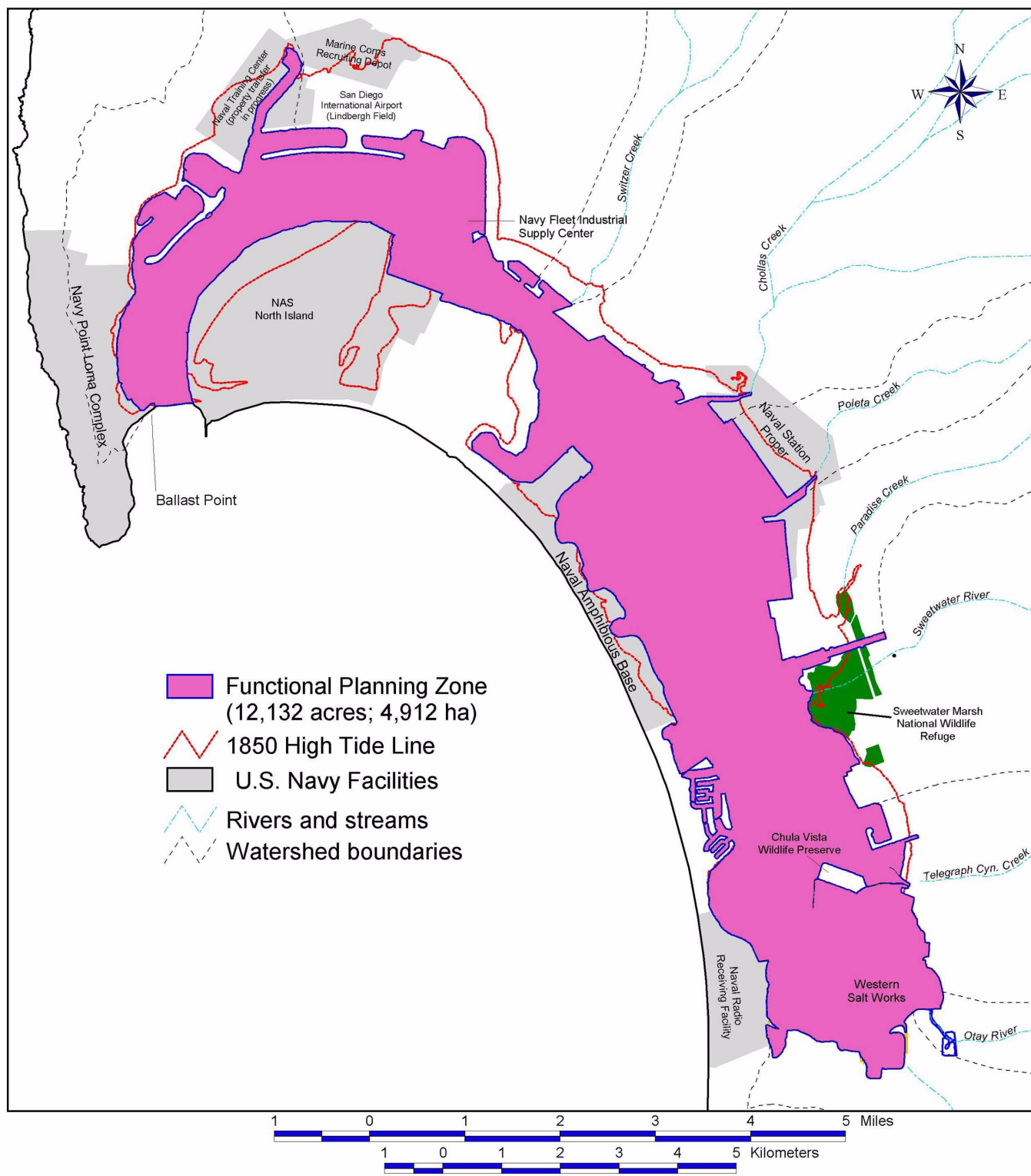
Another advisory committee is the Navy Installation Oversight Committee (NIOC), composed of representatives from each of the major Navy installations around the Bay as well as from the US Coast Guard (USCG) and Cabrillo National Monument. This committee met as needed and provided data, professional experience, and a check on the Plan's consistency with the Navy mission.

San Diego Bay in the Southern California Bight



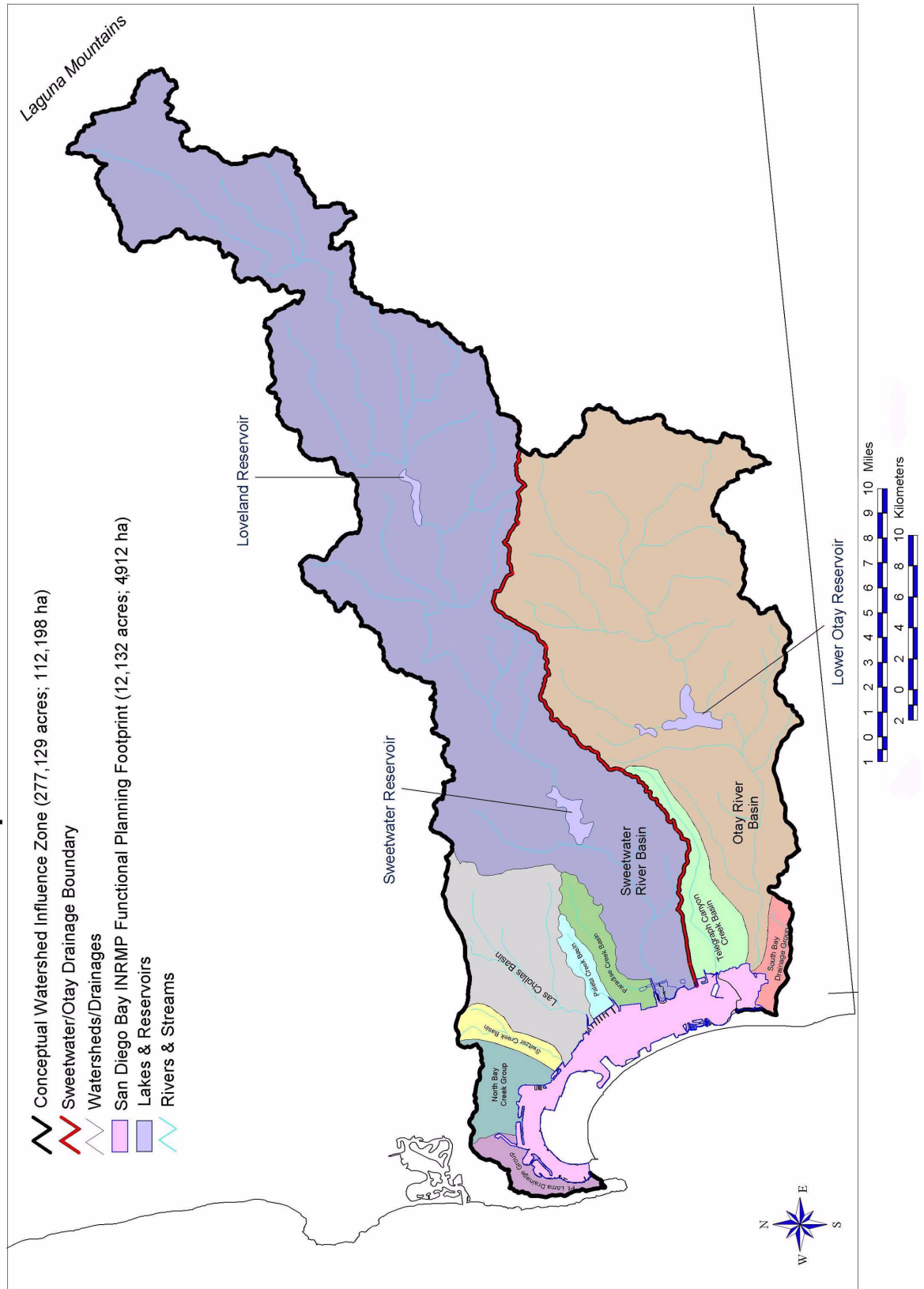
Map 1-1. San Diego Bay, the "Conceptual Watershed Influence Zone," in the Southern California Bight.

San Diego Bay INRMP Footprint: Functional Planning Zone



Map 1-2. San Diego Bay INRMP Functional Planning Zone, or "Footprint."

San Diego Bay INRMP Functional Planning Zone and Conceptual Watershed Influence Zone



Map 1-3. San Diego Bay INRMP Functional Planning Zone and Conceptual Watershed Influence Zone.

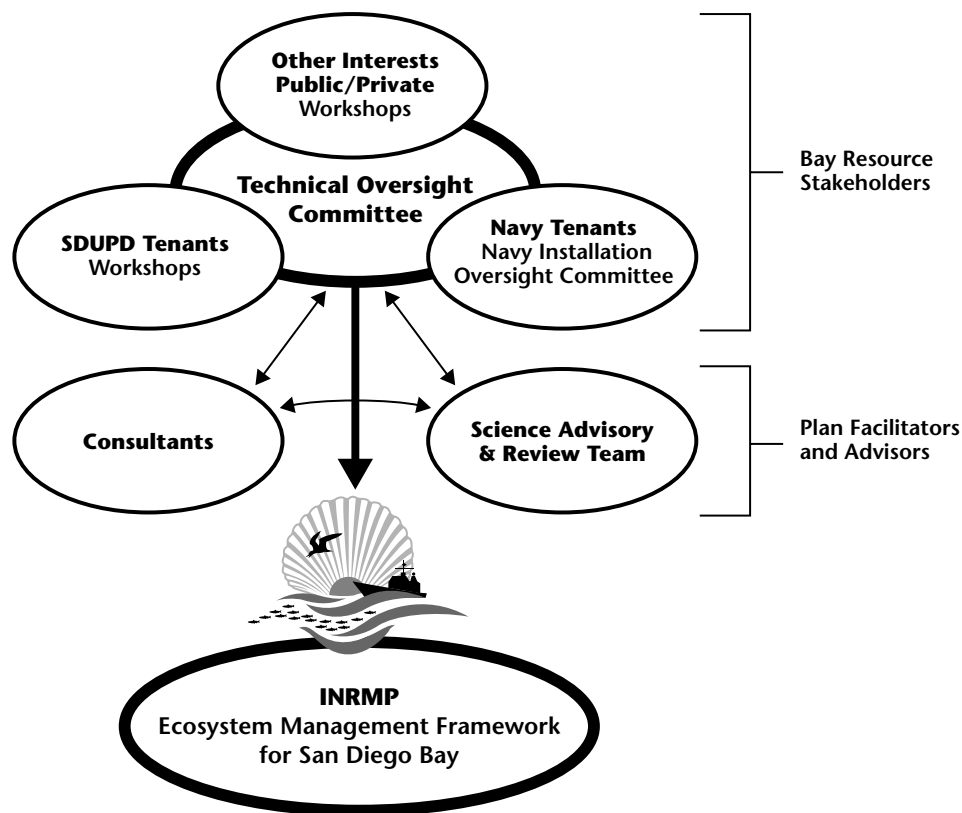


Figure 1-1. Roles of Plan Collaborators.

Public comment by those interests not represented on any of the committees was actively sought. Public workshops sponsored by the TOC in July 1997, July 1998, and September 1999 were advertised widely, including several television interviews. Each workshop was attended by 20 to 50 people. Verbal and written comments helped identify new data sources, important issues for the Plan, and some recommendations on strategy.

University and consultant scientists were asked to participate on the Science Advisory and Review Team, based on their area of expertise and willingness to serve. Diverse specialties were represented. Their role was to provide and help frame the Plan from an ecosystem perspective, to bring scientific data as well as imagination and creativity to the problem, and to share professional knowledge about the functioning and history of the Bay ecosystem.

Serving in the role as staff was the Consultant, Tierra Data Systems, and their subcontractors. The consultant was to assemble the available scientific information into an ecosystem management framework for consideration by the TOC, assemble the needed technical people, facilitate better decisions by stimulating the imagination and creativity of the group, and integrate the complexities and uncertainties of all of the above into potential strategies.

1.1.6 Missions of US Navy and Port

US Navy

It is the mission of the US Navy in San Diego Bay and its environs to equip, maintain, train and support Naval surface and aviation units of the Pacific Fleet in order to conduct military operations in support of the Fleet's operational commanders. Additionally, the US Navy in San Diego Bay will conduct Naval operations in the eastern and northern Pacific Ocean, protecting the western sea approaches to the United States.

The Bay's Naval installations are described in detail in Chapter 3 "State of the Bay—Human Use." San Diego Bay is said to be home to the largest Naval complex in the free world, leading one Navy captain to observe, *"To say that it is impressive, spectacular, even dazzling to the uninitiated and uninformed is an understatement on the order of saying Pavarotti can sing a little"* (Halpern 1991).

Beyond the Navy's immediate mission at San Diego Bay is the US Department of Defense's (USDoD) mission to prevent pollution, protect the environment, and protect natural, historic, and cultural resources (US Department of the Navy 1994; US Department of Defense 1996). Stewardship responsibilities for natural resources on all USDoD installations are emphasized in its regulations. USDoD's Ecosystem Initiative (1996) states that "ecosystem management is a process that considers the environment as a complex system functioning as a whole, not as a collection of parts, and recognizes that people and their communities are part of the whole."

San Diego Unified Port District

Created in 1962 by an act of the state legislature and approved by area voters, the SDUPD is a special-purpose unit of government. It was established to manage the harbor, operate the international airport at Lindbergh Field, and administer the public tidelands "in order to further the development of commerce, navigation, fisheries and recreation" (San Diego Unified Port District 1995a).

Displayed prominently at the SDUPD office is this Vision Statement: "Visionary people in partnership, propelling economic growth while creating the most exciting, dynamic and environmentally sensitive place to live, work and play. Come aboard!" Its recent Mission Statement is "A public benefit corporation providing aviation, maritime, and real estate services and infrastructure to enhance the regional economy, while providing recreational opportunities and protecting the tideland trust resources."

The Chairman of the Board of Port Commissioners remarked in 1998 that *"As the Port strives to increase maritime trade and plan further waterfront development for the public good, we must continue our careful stewardship of the San Diego Bay ecosystem"* (Malcolm 1998).

1.1.7 Relationship to Other Regional Plans

Several related, regional efforts have gone on concurrently with this Plan. The San Diego Bay Interagency Water Quality Panel met for five years to develop a Comprehensive Management Plan for San Diego Bay (San Diego Bay Interagency Water Quality Panel 1998). Water quality issues were the main focus of this effort, but also addressed were a range of natural resource, wildlife, and human use issues. The panel offered recommendations to the California Regional Water Quality Control Board (RWQCB) and other agencies active on the Bay. Pertinent data gathered during the effort were stored at the San Diego Supercomputer website. On related issues, this INRMP reiterates and can carry on the work of the Bay Panel, as well as help implement some of its recommendations. However, the intent is not to overlap with water quality regulatory issues.

- Water quality and endangered species are the focus of at least two other Plans. The Bay Ecosystem Plan will complement these efforts where applicable.

The southwestern region of San Diego County is covered by the City of San Diego's Multiple Species Conservation Plan (MSCP). The cities of San Diego and Chula Vista, among others, are active participants in the MSCP and have jurisdiction over some Bay marsh lands and waters. This regional habitat conservation plan is aimed at protecting multiple species and their habitats in place of the single species protection approaches of the past (San Diego Association of Governments 1995; City of San Diego and MSCP Policy Committee. 1996). By creating an interconnected habitat preserve system for the region, and obtaining approval from the regulatory agencies, the local governments and landowners can receive permission to "take" species listed under the state and federal endangered species acts. Their plan is complete and was recently adopted by both the City and County of San Diego (City of San Diego and US Fish and Wildlife Service 1997). Funding for implementation is the next step. With the MSCP's emphasis on terrestrial habitats, little overlap occurs between the two planning efforts. The only part of the Bay conserved by the MSCP is the privately owned sections in and adjacent to the Western Salt Company ponds in the southeast corner (US Fish and Wildlife Service 1998).

- Useful databases and a listing of enhancement options were provided by the Port's 1990 South San Diego Bay Enhancement Plan.

In 1990, a South San Diego Bay Enhancement Plan was prepared for the Port and the California State Coastal Conservancy (Macdonald *et al.* 1990). One of its purposes was to provide a comprehensive ecological baseline and historical perspective that could be used as guidance for environmental projects to maintain, enhance, restore, mitigate, or create natural resource values. The South Bay Plan was never adopted by the boards of either agency and the plan was deemed "informational" rather than "advisory." Its scope was south of the Sweetwater Channel only, and focused on identifying enhancement and mitigation opportunities for tidelands and submerged lands within the Port's jurisdiction that were not designated for development in the Port's master plan. While narrower in scope than this INRMP, the 1990 South Bay Plan provides a useful synthesis of historic data, includes additional field survey data (particularly for birds), and identifies some alternative strategies for enhancement. This area is now encompassed in the newly-dedicated South San Diego Bay Unit of the San Diego National Wildlife Refuge (US Fish and Wildlife Service 1998), as well as the Bay Ecosystem Plan.

San Diego Association of Governments (SANDAG) has recently prepared a Water Quality Element to its Regional Growth Management Strategy (San Diego Association of Governments 1997c). Its purpose is to address measures that can be incorporated into development planning and environmental review processes to improve the region's water quality and protect surface and groundwaters. As a source of recommended actions, this document is reflected in relevant water quality strategies in the Bay Ecosystem Plan.

1.1.8 Relationship to Local Plans

Local land use planning is performed by each incorporated city and the county. The cities of Chula Vista, Coronado, Imperial Beach, National City, and San Diego as well as San Diego County have all adopted general plans and implemented zoning ordinances, as required by the state. Within general plans are elements (e.g. Land Use, Conservation, Open Space) that may or may not address San Diego Bay's natural resources. Sensitive resources such as wetlands, wildlife corridors, and threatened habitats can be designated, with adoption and implementation of resource protection ordinances (as cited in San Diego Association of Governments 1992). Since the Port and the state have jurisdiction on most of the Bay's nonfederal tidelands and submerged lands, the city and county plans can only recom-

mend changes in use within these areas, while applicants must apply to the Port and state for leases or change in leases. The local general plans and the Port master plan overlap in these sites.

In addition, the California Coastal Act (CCA) requires each local government with property within the coastal zone to prepare and adopt a Local Coastal Plan (LCP), which has more stringent environmental protections than a general plan. Once certified by the California Coastal Commission (CCC), a LCP is used as the basis for local government approval of proposed developments. Each local entity in the San Diego Bay region has an adopted and certified LCP, with amendments sent periodically to the CCC for approval. The Port's Master Plan is considered their LCP. The intent of this INRMP is to exchange information and strategies with local planning efforts.

1.2 San Diego Bay: An Important and Sensitive Resource

1.2.1 Values



Bay view From Point Loma.

- Together, the Navy and the Port of San Diego generate an annual economic benefit of about \$18 billion to San Diego.

Framed by palm trees, boats, or the Coronado Bridge, San Diego Bay provides a scenic backdrop for many picture postcards. Its presence is almost synonymous with the region. With its sheltered harbor, the Bay naturally attracted the US Navy to base a large portion of its Pacific Fleet in San Diego. Today more than 25% of the American Naval fleet is homeported here, amounting to 75 ships (including eleven submarines and two aircraft carriers). Over 87,000 sailors and 240,000 family members live and work in the San Diego area, with 29,000 civilian employees working at the Navy and Marine Corps bases. The USDoD's annual financial benefit to San Diego's economy is estimated at \$10.6 billion (San Diego Bay Inter-agency Water Quality Panel 1998).

The Port of San Diego refers to the Bay as "one of the most beautiful natural deep harbors in the world" and its coastal property as "among the most beautiful in the world." It is also proud of their achievements in creating jobs, providing public access to the waterfront, and developing recreational opportunities along the Bay. Bayfront locations for real estate development and Port trade generate \$7.4 billion annually in total economic impact (San Diego Unified Port District 1997).

Yet the Bay's function as a natural ecosystem is still largely a mystery. There are no postcards of the Bay's underwater life, even though fascinating creatures like octopus, sea horses, butterfly rays, fiddler crabs, sand dollars, sea hares, and green sea turtles can be found here.

Habitat and Species Richness Values of San Diego Bay (See also Appendix D).

- 280 species of dependent marine and coastal birds.
- 102 species of marine fish and one marine reptile.
- 621 species of marine invertebrates.
- 109 species of marine algae and plants.
- 9 species listed federal or state threatened or endangered.

- 823 acres (333 ha) of salt marsh.
- 978 acres (396 ha) of tidal flats.
- 1,065 acres (431 ha) of eelgrass beds.
- 45.4 miles (73.1 km) of hard substrate and fouling communities.
- 9,331 acres (3,776 ha) of mud and sand bottom assemblages in shallow to deep water.

Underneath the water's surface are aquatic communities that are only beginning to be understood by the scientific community, much less by the urban neighbors above. Historically, the Bay's natural resources were valued only for their potential human use: whales and waterfowl for hunting, fish and shellfish for sport or commercial harvesting, wetlands for landfill sites. When garbage and pollution contaminated the Bay during the first part of this century, the diversity of fish and wildlife was greatly reduced (Browning *et al.* 1973; Smith and Graham 1976).

Earlier pollution stresses to the Bay have been reduced, but new pressures are challenging its ecological integrity and biodiversity. The control of waste discharges to the Bay in the 1960s initiated the recovery of the Bay's ecosystem as well as its water quality (San Diego Unified Port District 1995b). Monitoring efforts largely focused on water quality measurements or on certain organisms (e.g. mussels, benthic invertebrates) as indicators of contamination. With the recognition in the 1970s and 1980s of the toxic effects of heavy metals and other contaminants in the sediments and waters of San Diego Bay, the health of the biological community was called into question. In the 1990s, human health advisories were issued for the consumption of the Bay's fish and for water contact following rain storms because of coliform-contaminated runoff. However, human health advisories do not necessarily reflect ecological damage or risks.

Concerns have been raised about the future security of the Bay's remaining habitats and their dependent bird populations as pressures increase for more intensive use of the Bay's shoreline and open water. With an increasing number of nonnative aquatic nuisance species also being found, the Bay's ecological integrity is being challenged in many ways (Crooks 1997). Many agencies and organizations are working to protect the Bay's resources, but a concerted approach has been lacking for its ecosystem.

1.2.2 Key Management Issues

To help provide focus to the planning process, an initial effort by the Plan's TOC was to list and discuss over 30 issues, some of which were suggested by the public at a July 1997 workshop. This list was revised and reworded to contain the following five key management issues:

1. Ensuring compatibility of Bay use with protection of natural resources.
2. Providing an ecosystem basis for planning, restoration, and management, including management of cumulative effects.
3. Building a shared information base that guides restoration and management of the Bay's natural resources.
4. Limiting activities that negatively impact the health of the Bay.
5. Providing a strategy for successful implementation of the Plan across jurisdictions, including an organizational mechanism to pool resources and jointly oversee implementation.

In addition to the above key issues, numerous specific concerns are listed and addressed in later chapters.

1.3 Ecosystem Management Framework



Photo © 1999 San Diego Unified Port District

Photo 1-2. San Diego Bay's Urban Shoreline.

1.3.1 Defining Ecosystem Management

The popularity of the words “ecosystem” and “ecosystem management” has caused some debate and confusion in their definition and use. To help with the intent of these terms as used in the Plan’s Goal Statement, definitions were agreed upon by the TOC.

“Ecosystem” is commonly defined as *“a unit of land or water comprising populations of organisms considered together with their physical environment and the interacting processes between them.”* A natural resource dictionary offers this clarification: “While many definitions tend to emphasize the component parts present, it is the processes acting on and/or initiated by the component parts that make the ecosystem function. Without the vital processes, the system is dysfunctional or, worse still, nonfunctional” (Dunster and Dunster 1996).

“Ecosystem management” is defined for the purposes of this Plan as *“a management practice and philosophy aimed at protecting, maintaining, or enhancing the ecosystem while providing resources, products, or nonconsumptive values for humans. It complements the time and space scales of environmental change and ecosystem response. Ecosystem management is realized through effective, collaborative partnerships among government and nongovernment interests.”*

- A separate, but compatible, definition comes from the USDoD.

This definition is compatible with USDoD’s Ecosystem Initiative (see Section 1.1.6 “Missions of US Navy and Port”). The above definition was derived from the USDoD definition as well as language suggested in two other sources (Dunster and Dunster 1996; Keystone Center 1996).

The Ecosystem Management Approach

What Ecosystem Management Means to the Bay Ecosystem Plan

1 Defining the Problem

- Emphasis is placed on healthy ecological processes and linkages, and on whole habitats and communities rather than individual species or projects.
- Problems are defined without regard to jurisdictional boundaries or technical disciplines, and cooperative solutions are sought when the problem crosses jurisdictional boundaries.

2 Assessing the State of the Bay—Natural and Human Components

- Assessment and monitoring strategies are prioritized in part based on their ability to provide insight into the strength and dependencies of one habitat or community upon another, and into both the structure and functional processes of the ecosystem.
- Assessment and monitoring strategies are prioritized in part based on their ability to detect long-term trends and the cause of significant ecosystem change.
- Assessment and monitoring strategies are identified that shed light on how the Bay sustains vibrant, healthy, and economically diverse human activities.

3 Ecosystem Planning Process

- Ecological, social, and economic goals are integrated.
- The process involves diverse government and nongovernment groups coming together with significant participation by community stakeholders.

4 Management Strategies

- Management works at multiple scales appropriate to the problem.
- Market- and incentive-based approaches are considered, as well as the need for regulation.
- Management approaches, including projects and mitigation, acknowledge the role of regulation in contributing to ecological and socio-economic objectives.

5 Implementation

- Management and research are implemented at multiple scales appropriate to the understanding of the problem, and to encourage experimentation and innovation. Small-scale prototypes with adaptive management and maximum dissemination of learned information are advocated.
 - Emphasis is on cooperative, interjurisdictional, cross-boundary conservation partnerships, with potential new roles for government and nongovernment groups.
 - Project evaluation draws on socio-economic and political experience and expertise, as well as that of biologists and natural resource managers.
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1.4 Strategic Design of Plan

1.4.1 Audience

While developed primarily to facilitate the Navy and Port missions, this INRMP was prepared with many different users in mind:

- The US Navy and the Port of San Diego, as the primary sponsors of this Plan. Included within the Navy are the Naval installations around the Bay.
- The regulatory community, the federal and state agencies mandated with ensuring compliance with environmental laws and regulations. These regulatory agencies include the NMFS, USFWS, US Army Corps of Engineers (USACOE), USCG, State Lands Commission (SLC), California Department of Fish and Game (CDFG), RWQCB (San Diego), and CCC.
- Agencies sharing jurisdiction of the Bay with the Port and the Navy are the cities of Chula Vista, Coronado, Imperial Beach, National City, and San Diego; state agencies (SLC, CCC, California Department of Parks and Recreation [CDPR]); federal agencies (USFWS and SMNWR); and those within the Bay's watershed (County of San Diego and several other incorporated cities).

- Users of the Bay, including commercial, recreational, and industrial Port tenants and leaseholders; residents; boaters; recreationists; tourists; fishermen; and others.
- The environmental community as voluntary protectors of the Bay's natural resources.
- The scientific community involved with research, analysis, monitoring, and restoration of the Bay's ecosystem.
- General public and community groups.

1.4.2 Intent of Use

This Plan should serve as a planning tool, management guide, reference document and policy strategy for the Navy and Port, as well as other agencies and organizations.

Policy Strategy: The proposed cooperative strategy for resolving key management issues within San Diego Bay is addressed throughout the Plan, but is emphasized in Chapters 4 through 7. Development of these policy recommendations by the TOC and NIOC members required a decision-making process based upon consensus, but compatibility with the Navy and Port missions had to be preserved. Through iteration, the groups proposed and refined objectives, decision criteria, and policies until each member was satisfied. Agency requirements need to be satisfied and the strategy must be acceptable to the owners of the Bay's tidelands and to the citizenry, resulting in a policy strategy that can then be broadly supported by all involved.

Reference Tool: Information provided within the Plan is intended to meet an original need, which was to pull together an accessible ecological database for the Bay. As a reference tool, the Plan offers a synthesis of what we know about the Bay's biological resources as well as a bibliography of all known biological surveys. Chapters 2 and 3, maps, and several appendices offer information that can be used as an objective reference by everyone. In addition, Chapter 6 proposes standardized means for assessing ecosystem health that can be updated periodically and used to guide a long-term monitoring program.

The Plan is to be reviewed and approved by the sponsoring decision-makers: the Commander, Naval Bases San Diego and the Board of Port Commissioners. This Plan is intended to be used by the Navy and the Port as guidance for new master plans, project planning, mitigation strategy, compliance monitoring, National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), Coastal Zone Management Act (CZMA), and Clean Water Act (CWA) documentation, and daily resource management decisions. It may be used as a springboard for a mitigation banking plan for the Port and Navy. Chapter 7 "Implementation Strategies" identifies potential sources of funding and other support.

1.4.3 Organization

Descriptive sections on the current state of ecosystem resources and human use of San Diego Bay are at the beginning of the Plan (Chapters 2 and 3, respectively). Within the strategy sections (Chapters 4 through 7), a synthesis of management issues and needs is first provided for each component. Following these findings is the proposed strategy, which includes a means to fill information gaps identified in earlier chapters.

The strategy statements in Chapters 4 through 7 are in a hierarchical format, beginning with broad, long-term statements and ending with specific, short-term methods. Because clear communication is very important, the definitions of the planning terms are described in Table 1-1. Their relationship from broad to specific is depicted in Figure 1-2.

Table 1-1. Planning Definitions.

Hierarchy	Definition
Goal	Broad statement of intent, direction, and purpose. An enduring, visionary description of where you want to go. A goal is not necessarily completely obtainable.
Objective	Specific statement that describes a desired condition. Can be quantitative. Should be good for five years or so.
Strategy	Explicit description of ways and means chosen to achieve objectives.
Policy	Formally-adopted strategy or decision to carry out a course of action.
Task/Activity/ Tactic	Specific step, practice, or method to get the job done, usually organized sequentially with timelines and duty assignments. These go out of date quickly and should be updated annually.

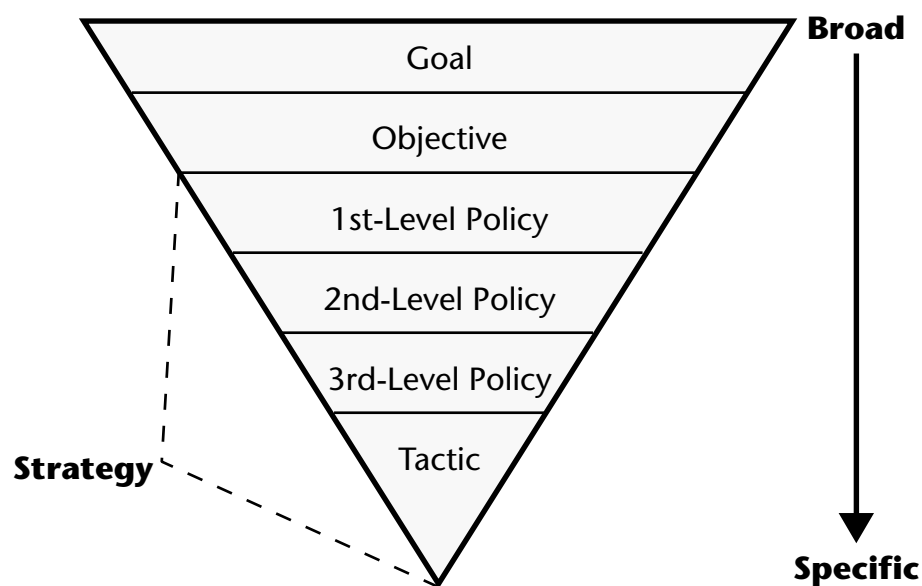


Figure 1-2. Relationship of Planning Terms and Strategy, from Broad to Specific.

Chapter 6 “Monitoring and Research” synthesizes information needs and proposes the means and priorities for filling them.

Guidance for implementation is described in Chapter 7 “Implementation Strategies.”

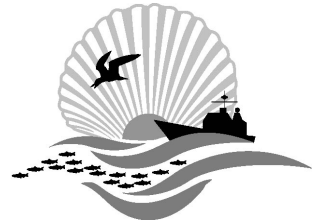
1.4.4 Implementation

Implementation is putting the Plan into effect. To be implemented the Plan must first be understandable, practical, and supportable by those who need to implement it. If those criteria are met, then the Plan will need a commitment of intent, time, and, in many cases, money by the implementers and their supporters. A framework for organizing stakeholders and resources is provided in Chapter 7.

Some of the strategy involves specific actions that may need cooperative funding (e.g. habitat monitoring). However, other strategies suggest changes in policy and do not necessarily require direct funding to implement (e.g. biological assessment methods or criteria for habitat protection). Whatever the case, cooperative efforts are essential to ensure the implementation of this Plan. Signature approval by the Navy and Port authorities as well as by other agencies and organizations provides an authority for implementation.

1.4.5 Updating

This Plan is intended to be dynamic and, as such, will require revision to remain current and relevant. Its loose-leaf format provides for changing or updating as frequently as needed. Entire sections or individual pages can be removed and replaced. New sections can also be appended. Updating would be appropriate, for example, when results of monitoring efforts reveal new insights and a change in strategy. As an INRMP, the Navy has an obligation to review and, as appropriate, update on a five-year basis. A “Plan maintenance” item in the Navy’s and Port’s annual budgets is one method to ensure regular evaluation of the Plan’s progress and need for updating.



San Diego Bay Integrated Natural Resources Management Plan

Part II: State of the Bay