

The Role of Public Support in Protecting Special Places in the Gulf of California and the Southern California Bight

A REPORT BASED ON A WORKSHOP HELD AT THE
AQUARIUM OF THE PACIFIC SEPTEMBER 23-24, 2010

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THE ROLE OF PUBLIC SUPPORT
IN THE GULF OF CALIFORNIA
AND
THE SOUTHERN CALIFORNIA BIGHT

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I. Introduction to the Workshop

On September 23-24, 2010 a workshop was held at the Aquarium of the Pacific that brought together scientists, environmental managers, policy-makers, informal educators, and stakeholders to explore

The Role of Public Support in Protecting Special Places in the Gulf of California and the Southern California Bight.

Background

The success of political environmental decision-making processes such as the designation of MPAs depends in great part on the involvement and participation of members of the public. The establishment of special ocean places has implications for many members of the public both near and far from the MPA area. Providing public access to the decision-making process, incorporating meaningful public input, and ensuring quality participation by those who will be affected by the process outcomes will increase the stability of planning processes, as well as the implementation. It is important to provide a forum for local communities to share historic and relevant knowledge, including firsthand observations, socioeconomic information, and suggestions for monitoring, evaluation, and stewardship of MPAs. Building robust networks of positive, mutually-reinforcing relationships and effective stakeholder involvement will help create an evolving structure that will help build support in establishing and maintaining MPAs.

There are two networks of MPAs in the Southern California Bight—the designated Central Coast Study Region (2007) and the South Coast Study Region (designation pending at time of preparation of this report). The Northern Channel Islands MPAs were designated outside the Marine Life Protection Act Initiative. They include designations in both state and federal waters.

The Workshop Focus

Workshop definition of public:
"Public" is inclusive of those who have a vested interest in the outcome of the MPA decision-making process, and also the public-at-large.

Public participation: *general term for diverse formal processes by which public concerns, needs, and values are incorporated into governmental decisions.*

The Role of Public Support in Protecting Special Places in the Gulf of California and the Southern California Bight workshop focused on the value and importance including public involvement and building support when designating and maintaining MPAs. Establishing collaborative relationships among stakeholders, community members, process facilitators, and decision makers: the importance of building capacity

within the local community; the need to support entrepreneurial endeavors and help maintain economic stability; and the role outreach and education tools and programs can play in engaging members of the public in the planning, management, and implementation of MPAs.

The Desired Workshop Outcomes

- A public deeply involved in designating and supporting an interactive international network of special ocean places to protect biological resources and cultural artifacts.
- Governments and non-governmental organizations (NGOs) committed to designating, monitoring, and modifying—as required—an interactive, international network of protected areas to achieve an agreed upon set of goals and objectives.
- Marine biodiversity and abundance are at robust sustainable levels; fisheries, both commercial and recreational fisheries are thriving; and Mexico's and Southern California's maritime cultural artifacts are fully protected for present and future generations through an international network of MPAs.
- Special ocean places designated throughout the Gulf of California and establishment of a network along the California coast that includes the south coast.

The Desired Workshop Outputs

To help develop tools to achieve the workshop outcomes, two key outputs were identified:

- A summary of public outreach strategies proven to be effective (or having significant potential) in increasing public awareness of the importance of protecting special ocean places that could be integrated into government and NGO programs; and
- Initial ideas for an educational exhibit and/or public outreach programs adaptable for international informal education institutions (e.g., the Aquarium of the Pacific, the Caracol, Centro Científico y Cultural, etc.).

The Workshop Report

This report provides a summary of public outreach strategies presented by workshop participants. The discussion centered on four subject matter sections.

- Public Engagement
- Capacity Building
- Entrepreneurship
- Education and Outreach

Supplemental information is also included throughout the report to provide additional context and resources for readers who did not attend the workshop.

II. Comparing the Gulf of California and Southern California Bight

Designation of MPAs and MPA Networks

California Marine Life Protection Act (MLPA)

The MLPA, signed into law in 1999, directs the state to redesign California's system of marine protected areas to increase its coherence and effectiveness in protecting the state's marine life and habitats, marine ecosystems and marine natural heritage, as well as to improve recreational, educational, and study opportunities provided by marine ecosystems. In 2004, the MLPA Initiative, a public-private partnership, was established to help the State of California implement the MLPA in using the best readily available science and the advice and assistance of scientists, resource managers, experts, stakeholders, and members of the public.

Since 2004, a regional approach that divided the coastline into five geographic areas has been used to implement the MLPA along California's 1,100-mile coastline. In September of 2007, regulations for the first of the five study regions were implemented for the central coast (Pigeon Point in San Mateo County to Point Conception in Santa Barbara County). In August of 2009, regulations for the north central coast (Alder Creek near Point Arena in Mendocino County to Pigeon Point in San Mateo County, including the Farallon Islands) were adopted by the California Fish and Game Commission and implemented in May 2010. In November 2010, the MLPA planning process was completed in the north coast (California/Oregon border to Alder Creek near Pigeon Point) and at the time of preparation of this report (November 2010), the California Fish and Game Commission is considering an MPA network for the south coast (Point Conception to the California/Mexico border). The central and south coast regions are both in the Southern California Bight. The final geographic area on which the MLPA Initiative will focus is San Francisco Bay (Golden Gate Bridge northeast to the Carquinez Bridge). This study is scheduled to begin in late December 2010.

The success of the MLPA Initiative is dependent upon the active involvement of stakeholders and the general public in a variety of ways. An appointed, regional stakeholder group makes proposals for MPAs with advice and guidance from other groups and the public; these proposals are reviewed by a science advisory team, and then by a policy level blue ribbon task force that makes recommendations to the California Fish and Game Commission, the decision-making body under the MLPA. Opportunities for public involvement include participating in a regional stakeholder group, attending workshops and public meetings, and providing input on MPA proposals and supporting documents as they are developed.

Currently, the State of California has 29 MPAs in the central coast region (13 are no-take MPAs), and 31 MPAs in the north central coast (10 are no-take MPAs). Designation of MPAs in the south coast and north coast is pending final decisions by the Fish and Game Commission. For more information, visit www.dfg.ca.gov/mlpa.

Natural Protected Areas in the Gulf of California

Over the past 15+ years, the Mexican government has made efforts to conserve the country's biodiversity, with a great deal of emphasis being placed on the Gulf of California marine habitats. The creation of natural protected areas (NPAs) and the recognition of the importance of a national NPA network have led to the establishment of a number of management actions designed to protect the area's marine resources.

The Gulf of California region includes 29 NPAs for the protection and conservation of regional biodiversity. Of these, 16 NPAs include marine and coastal habitats; seven protect islands and terrestrial and coastal areas, while may include marine habitats. In 1973 the first NPA in the Gulf of California, Cabo San Lucas, was established for the protection of flora and fauna. Two decades later (1993), one of the first, more recent management actions was implemented by the Mexican Government through the declaration of the Colorado River Delta and the Upper Gulf of California as a Biosphere Reserve (recognized by UNESCO in 1995). Two additional marine parks, the National Park Cabo Pulmo and the National Park Bahia de Loreto, were designated in 1995 and 1996 respectively. In the state of Nayarit, located outside the basin circumscribed by the Gulf of California but within its range of influence, there are two more protected areas: the Biosphere Reserve Islas Mariás (2000) and the National Park Isla Isabel (1980). A general overview of management policies for the Gulf of California is summarized by the Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT; <<http://www.semarnat.gob.mx>>, consulted December 1, 2006).

To further the successful implementation of NPAs in the Gulf of Mexico, partnerships among NGOs, government agencies, and local groups continue to be an essential component to achieving regional goals. The "Comission Nacional para el Conocimiento y Uso de la Biodiversidad" (CONABIO), The Nature Conservancy (TNC), World Wildlife Fund for Nature (WWF), and the "Coalición para la sustentabilidad del Golfo de California" are some of the groups that have helped move toward a unified network of NPAs along the coastline of the Gulf of California. Due to the efforts of these public-private collaborations, local communities are becoming more aware of—and more involved in—how NPAs can contribute to the ecological sustainability and economic health of the Gulf of California.

Some Ecological and Socioeconomic Comparisons

The Southern California Bight (SCB), a part of the California Large Marine Ecosystem (LME),) and the Gulf of California have a direct and inextricable connection.

The SCB is a highly developed region with multiple and diverse uses by a population of more than 20 million people. It is appropriately called an urban ocean and the challenge is to allocate human uses and uses by marine life in a sustainable way. Marine protected areas are an important component of a comprehensive marine spatial planning effort in the Bight to accomplish this.

The challenges in the Gulf of California, a LME and a UNESCO World Heritage Site, are different. The gulf has a population of about 8.6 million people, largely concentrated in the upper gulf. In the part of the gulf, the drainage basis of the Colorado River, there has been little development to date; however, there are some ambitious plans for marinas, resorts, aquaculture, etc. Now is the time to guide this development to conserve the qualities of the gulf and the surrounding region and their natural resources that make the Gulf of California a very special place.

The gulf contributes 10 percent of Mexico's GNP and many of the people who live on the gulf coast depend upon it for their living through fishing and in some cases, industries centered on providing tourists with opportunities to whale watch, bird watch, dive, and sports fish. The United States is the source for about 50 percent of the gulf's tourism industry. Any effective plans for designation of NPAs will have to enhance the standard of living of those whose livelihood depends on the Gulf of California resources.

III. Public Engagement

Public Engagement: the process by which an agency actively involves members of the public at large and/or representatives of stakeholder organizations in group dialogue and deliberations to better inform and possibly shape decision-making processes.

Engagement of the public is a powerful vehicle for bringing about environmental and behavioral changes. Public engagement can improve the socioeconomic health of a community and its members, while conserving its natural resources. It may involve partnerships and coalitions that help mobilize resources and influence systems, change relationships among partners, and serve as

catalysts for changing policies, programs, and practices.

The engagement process should include a creative search for sustainable solutions that conserve natural and cultural resources, while expanding and enhancing the range of livelihood opportunities of those most impacted by the designation of ocean places for special protection. Community engagement must be open, inclusive, and transparent; participants must feel their input is considered relevant and concerns are being heard.

According to the CDC/ATSDR Committee for Community Engagement:

In practice, community engagement is a blend of social science and art. The science comes from sociology, political science, cultural anthropology, organizational development, psychology, social work, and other disciplines. Organizing concepts [are] drawn from the literature on community participation, community mobilization, constituency building, community psychology, cultural influences, and other sources... The equally important artistic element necessary to the process, however, involves using understanding, skill, and sensitivity to apply and adapt the science in ways that fit the community and purposes of specific engagement efforts. (CDC/ATSDR 1997)

The structure of the engagement process needs to be carefully designed to reflect the needs and concerns of the affected community, as well as the goals of the lead agency. Key components to ensuring successful community engagement may include the following:

Early Public Involvement

Public engagement is an important first step toward ensuring a successful planning process and increasing compliance once decisions are implemented. By initiating early engagement, trust is established and relationships are created. These are critical ingredients to implementing a rewarding environmental decision-making process, both for the short- and long-term.

To bring about desired changes, community engagement efforts should address multiple levels of the social environment, rather than only individual behaviors. Desired outputs and outcomes need to be discussed, debated, and negotiated up front and in the initial stages, and they must represent group goals, not goals of any individual, community, or group of communities. If the process is perceived as being dominated by one community or individual representing a community, the process will have difficulty maintaining public support and buy-in. It is also important to acknowledge that the goals of the public may not coincide with the goals of the management agency.

It is possible that during the early engagement process the public may have knowledge about the proposed site for designation as an MPA not known to the agency. For example, how weather, such as storms or an El Niño, can change behaviors of fish and fishermen. These differing perspectives need to be discussed and addressed as part of the engagement process.

Early engagement can also help identify what representative groups are missing from the discussions. Key, underrepresented sectors —specifically indigenous groups, seasonal residents and non-native language speakers—should be recognized and sought out to ensure inclusive participation. In the designation of MPAs in California’s north coast study region, an important aspect has been the participation of diverse Native American communities with cultural knowledge of the area under study.

Structuring Public Participation

Good, effective engagement processes are characterized by patience and a constancy of commitment. They distinguish between efficiency and effectiveness and devote the time and resources required to build an effective community. One effective way of building community and consensus is through the development of scenarios as part of a planning process. Scenarios are not predictions. They are plausible alternative pathways to the future. They are rich descriptions of how the future might turn out depending upon the interplay of what are called "critical uncertainties" and "pre-determined elements." By developing these stories, stakeholder, communities and groups gain new insights and understandings of the complexity of the issues and often form strong bonds with other group members from different stakeholder groups.

Public participation needs to be made explicit and agreed upon early in the process. The detail of this composition is in large part determined by the lead agency; however input from the local community regarding the makeup of process participants is valuable. Within the constructs of any given process, public participation could exist in a number of forms, including workgroups, standing committees, general public input, etc. The roles and responsibilities of each of these groups should be defined and could potentially shift

depending on the stage of engagement (i.e., planning, regulatory, implementation, etc.). Considerations when considering the composition of public participation include:

- **Establish** the lead agency's project goals and objective.
- **Identify** the communities that may be impacted by the proposed MPA and/or network. These communities, the stakeholders, at all levels both internal and external, need to be engaged from the outset and sustained throughout the process and will need to be a part of the management team beyond the actual designation involved in the monitoring, evaluation, and decisions to make changes in the management.
- **Understand** stakeholder characteristics and how communities function with regard to the use and conservation of marine resources, including community decision-making, information flow, community character, socioeconomics, etc.
- **Identify and engage** local champions from key stakeholder groups. They can give credibility to the process. Having stakeholders from different sectors take ownership and responsibility for achieving the goals and outcomes identified by the larger group has proven to be a powerful driver of sustained development.
- **Determine** how members of the public will be invited to participate, i.e., *who does the engaging?* Is this done by the lead agency? Community leaders? Peers? Others? Example: As part of California's Marine Life Protection Act (MLPA) Initiative, affiliated groups were selected in a number of ways, including appointment by the California Secretary for Natural Resources and the California Department of Fish and Game, as well as peer recommendations.
- **Be prepared** to add public members overlooked in the initial selection process.
- **Establish** the role and composition of public groups, i.e., which communities or stakeholders are included in the groups? Clearly not everyone can be "at the table", however, an effort should be made to have members of the public in official "roles" be an inclusive group with official "roles" representing most, if not all, interests and impacted sectors.
- **Create** a shared compelling vision that combines conservation with better livelihoods, particularly for those who live near the areas of designation for special protection and also with consideration of cultural mores. This can help contribute to ensuring success. This is especially important in places such as the Gulf of California and parts of rural, coastal California where communities depend on access to ocean resources for their livelihoods. People living in these areas need to be involved in decision-making processes that affect the uses and management of these coastal resources.
- **Promote** cross-pollination of groups. While it is possible, and perhaps strategic, to have different expertise separated into different groups (see Table 1), it is valuable to encourage members of each group to interact with one another, formally or informally. For example, during the MLPA Initiative MPA planning process,

members from different groups provided feedback and evaluation of MPA proposals (within the limits of the law). This iterative process helped to build relationships among groups, while providing an opportunity for concerns and issues to be raised and addressed in a timely manner.

California Marine Life Protection Act Planning Groups
Blue Ribbon Task Force (BRTF): composed of public leaders selected for their knowledge, vision, public policy experience, and diversity of professional expertise. Responsible for overseeing a regional project to develop alternative MPA proposals; preparing information and recommendations for coordinating management of MPAs with federal agencies, and; providing direction for expenditure of private funds.
Master Plan Science Advisory Team (SAT): provides the scientific information and technical judgment that assists with meeting the goals of the MLPA; reviews alternative MPA proposals; and provides informed recommendations to the BRTF. Members of the SAT are technical experts in a range of fields including marine ecology, fisheries, the design MPAs, economics and social sciences.
Regional Stakeholder Group (RSG): provides local expertise and knowledge of each geographic region under study for informing the MLPA planning process. Evaluates existing regional MPAs and develops alternative proposals for MPAs; conducts outreach to constituent groups for involvement in the project, including community groups, elected officials, etc., and; strives for a high degree of cross-interest involvement and support in crafting marine protected area proposals. In the process to develop MPA proposals, RSG members can be divided into working groups to help address focused areas of interests, including socioeconomics, conservation, tribal rights, etc.
Statewide Interest Group (SIG): composed of members from key interest groups throughout California with a willingness and capacity to communicate with as broad a constituency as possible; provides a forum for enhanced communication between the BRTF and stakeholders regarding implementation of the MLPA Initiative; advises the chair of the BRTF and MLPA staff regarding strategies for outreach to constituent groups, ways to increase public and stakeholder participation in the MLPA Initiative, and how to improve the progress in implementing, and to identify statewide issues that relate to or may affect, the MLPA Initiative.
California Fish and Game Commission: selects the final MPA network from alternative proposal(s) developed by the RSG and recommended by the BRTF.

Table 1. Planning groups developed for implementation of California’s Marine Life Protection Act (MLPA) (DFG 2010).

Facilitating the Group Process

Use of a skillful facilitator is a valuable asset in orchestrating group dynamics involved in environmental decision-making. Worldwide experience has shown that the engagement

process benefits from having a good facilitator to assist with process design and conflict resolution; one who is committed to a fair and balanced process and not to any particular end result. If the facilitator is seen as having a bias toward a particular outcome, he or she may well polarize stakeholders and compromise the process. Additionally, having the process orchestrated and coordinated by people living within the affected region often is helpful in establishing credibility and gaining confidence and cooperation.

Barriers to Public Engagement

Barriers to participation need to be eliminated or overcome. This can be especially challenging when working within insular communities that have little trust of “outsiders,” particularly those who bring the potential of changes to the community’s way of life.

It is especially important that those responsible for the project recognize that it may be necessary to adjust the groups if new information is presented (i.e., an underrepresented community has been identified), or if group dynamics are irresolvable (i.e., lack of participation/commitment from group members). Barriers impacting effective community engagement include: commitments of time, money, travel, locations of meetings, language and nomenclature, etc. It may be necessary to provide financial subsidies for individuals from some stakeholder communities to be able to participate both in the initial efforts and subsequent monitoring and enforcement.

A "wicked problem": Establishing and maintaining marine protected areas fall into the category of "wicked problems"—problems that can never be solved, only managed; problems that do not fall into any one discipline, but are trans-disciplinary. Multiple and diverse perspectives are needed to identify and characterize the real problems and to state them clearly. An imperfect solution to the "right" problem is more valuable than a perfect solution to the "wrong" problem.

Additionally, a successful engagement process requires an appropriate level of sustained financial support—support that has no strings attached in terms of expectations of a pre-determined outcome.

The engagement process needs to exploit multiple approaches so that the broader community can be informed about the decision-making process and be given opportunities for input. Vehicles of communication include public meetings, brochures and newsletters, websites, aquarium exhibits and programs, and the full portfolio of social media.

IV. Capacity Building

Capacity building: a process of building capabilities in individuals, communities, institutions, organizations, and societies at the local, national and international level to more effectively prepare for and respond to environmental issues in a sustainable manner.

Capacity building and public engagement work together. Capacity building helps individuals and communities to evaluate and address the crucial questions related to policy choices, economic impacts, and modes of implementation within specific development options. It is an ongoing process through which stakeholders from a variety of communities

can enhance their ability to identify and meet development challenges. The process is based on an understanding of environmental potentials and limits, and of needs as perceived by the public. The capacity of a community or region's people, institutions, governing agencies, and political structures, as well as its ecological and geographical conditions, can determine its ability to follow an ecologically sustainable path to socioeconomic development and growth. Capacity building as part of the MPA designation process includes communities in close geographic proximity to the area where designation is under consideration, as well as scientific, environmental and ecological organizations, and institutional and business communities with both internal and external connections to the area. Successful implementation of capacity building strategies may lead to local and regional acceptance of sustainable development.

The Role of Sustainable Development in Capacity Building

Sustainable development of MPAs is the goal and capacity building is a means to achieve it.

Sustainable development as used in this report was defined in *Our Common Future* (Brundtland Commission 1983) as “development that allows the present generation to meet its needs without

compromising the ability of future generations to meet their needs.”

The increasing evidence that future—and current—generations will not have their needs met due to the failing health of our natural environment is an issue that has economic, scientific, moral and ethical dimensions. Currently, increasing attention is being directed at promoting a new job category, “green jobs,” which will provide new opportunities that will help transform unsustainable development into sustainable development and increase the odds that future generations will be able to maintain or exceed our current quality of life.

The linked pillars of sustainable development, social progress, economic growth and environmental protection must all be taken into consideration in building capacity to support a sustainable future for humankind. It is necessary for communities to understand

how growing pressures from human activities are affecting the future of the marine environment and its ability to deliver ecosystem services needed for human survival. One of the major challenges is the pressure of short-term demands for economic growth.

Sustainable development must be rooted in MPA-related entrepreneurship and innovation and provide opportunities for those whose opportunities have been limited. This is true for many who live around the Gulf of California, as well as those living in rural California, who depend on access to marine resources for their livelihoods. In addition to building opportunities for environmentally-conscious industries, involving local communities in research, monitoring and management of MPAs can provide an additional source of income while helping to build understanding and awareness in the function of MPAs.

Development and Conservation in the Gulf of California

The Good News:

- Increasing awareness of The Gulf and its importance
- Gulf is extremely valuable from both economic and ecological perspectives
- Gulf is relatively untransformed
- Gulf is under jurisdiction of one nation

The Bad News:

- Economic values have not been translated into high standards of living for coast communities.
- Many resources used in an unsustainable way; therefore future expectations of an improved standard of living are not encouraged.
- Current institutional setting, (BAT scenario), may lead to rapid degradation of the gulf's ecologic and economic values. (After Andrade workshop presentation 2010)

Capacity Building and Social Change

Capacity building should be considered in the context of a disruptive technology—in this case a disruptive social technology—a technology that can help steer socioeconomic development onto a more sustainable trajectory. This begins with training community members to become organization leaders by providing Forum to explore alternative pathways to the future by identifying the strategies that will address socioeconomic priorities and concerns, while considering environmental services and values. The challenge is to identify a portfolio of robust strategies—strategies that will work across a number of political and environmental futures. An opportunity to create and develop a shared vision of the desired future; one that is in alignment with the implementation of a given statewide or national environmental policy.

At present, the capacity to engage in this kind of a collaborative process is low, particularly in the Gulf of California region which requires support at the individual, institutional and governmental levels to further explore the potential of capacity building within local communities. Capacity needs to be built across a continuum of competencies and constituencies beginning at the ground level, to adequately deal with specific and relevant challenges. It will require coaching at a variety of levels to develop the leadership skills needed for success of a complex participatory process.

Citizen Science: A Tool for Capacity Building

Citizen science is the gathering of important data and information needed for identification and evaluation of alternative models for achieving desired outcomes, and on-going monitoring of areas designated as MPAs. It can be an effective strategy in engaging the public and building capacity, and can engender pride of ownership and support for marine protected areas. Reef Check, Earth Watch, the Aquarium of the Pacific, Audubon, and a number of other organizations have used citizen science effectively. If a citizen science program is to be effective, citizens must be trained to gather data that are scientifically valid and the data must be used. The data can and should be incorporated into vertical and horizontal synthesis efforts around key sets of questions. Citizen science should also be built into education and outreach efforts.

NOAAs Team Ocean; An example of citizen science

NOAA's Office of National Marine Sanctuaries (NMS) has incorporated citizen science divers into its formal volunteer program Team Ocean. This national program is designed to integrate citizen scientists into NMS missions in the areas of maritime heritage, marine conservation, and public education and stewardship. The program provides a "hands-on" opportunity for the public to become involved in the protection and preservation of their National Marine Sanctuaries. Volunteers actively participate in research and monitoring, education, underwater projects, office and administrative tasks, and in representing the Sanctuary at certain events and functions.

Effective Elements for Consideration in Capacity Building

It is important to recognize that building capacity within communities that have lost, or fear losing, their fundamental way of life can be challenging. It is critical, then, that leaders have the ability to listen, to evaluate, and to address the crucial questions related to policy, biological, and socioeconomic choices and modes of implementation among development options. This comprehensive process should be based on an understanding of environment potentials and limits, and on needs perceived by the people of the community concerned.

Effective capacity building includes:

- **Identification** of the needs of the community and building on existing capacities.
- **Analysis** of the economic impacts of the each MPA designation project with extensive involvement of the shareholders in the process.
- **Development** of objectives with assistance from the community and making sure they are clearly understood.
- **Utilization** of scenario planning which can be a powerful way of building community participation and lead to the discovery and exploration of the range of probable futures for the Gulf of California and identification of the driving forces behind each future path.
- **Targeting** the right people to build a critical mass of people who share the same values, have the same objectives, and are provided with the necessary knowledge and skills to be part of the process described in Section IV. The Engagement Process.
- **Use** of a train-the-trainers approach that starts by answering these questions before selecting trainers. What knowledge and skills does a person need to be able to train others? What structures will be available for the person to pass on knowledge to others in his/her community or group?
- **Institution** of capacity building at community and regional levels utilizing local knowledge and assistance from local experts in tailoring the program to the community.
- **Use** of a wide range of capacity building approaches including designing workshops that feature interactive activities with a learn-by-doing focus.
- **Inclusion** of the general public throughout outreach efforts. It is essential that education and outreach programs be designed to reach the general public. This is especially important in the Gulf of California because of its special and unique environmental and socioeconomic characteristics.

V. Entrepreneurship Including Social Science¹

Entrepreneurship: the process in which individuals or groups identify opportunities, allocate resources, and create value by transforming innovations into economic goods and services.

Healthy local economies are particularly important for rural and underdeveloped communities. However, the economic stability of any community is a high priority to its residents and visitors. Considering local businesses when developing MPA management plans is an essential step in the

environmental decision-making process. Under the guise of sustainable development, economic analysis should hold as much value and importance as the potential environmental impacts of any MPA management plan. Additionally, investing time and focusing attention on local economies is an important layer in relationship building and establishing trust with members of the public.

Workshop participants identified four business types in the Gulf of California for which the designation of MPAs could potentially benefit or impact negatively.

- **Existing local businesses** that could be impacted by designation of a marine protected areas or that alternatively could impact the resources the marine protected area is designed to protect, e.g., sportfishing.
- **New local sustainable businesses** that are consistent with conservation of marine resources through designation of marine protected areas, e.g. shrimp harvesting advertised as collected sustainably. For example; shrimp fishing gear developed to not only save vaquita, but also juvenile totobaba.
- **Existing external businesses** that utilize the Gulf of California (e.g. sardine boats from Mazatlan, dive trips from southern California, cruise ships providing water sport adventures for passengers).
- **New external businesses** that are consistent with conservation and that benefit from the resources of the Gulf of California, e.g., eco-tourism development

¹ In 2003 NOAA organized and facilitated a workshop, North American MPA Network Symposium on Financing and Economic Benefits of MPAs. Based on inputs at the workshop, the report, *Social Sciences for Marine Protected Areas* was developed in 2003 and updated in 2005. Material on social science for MPAs, particularly economics as a social science theme, in the above Entrepreneurship section of this report was abstracted from the Social Science for Marine Protected Areas website developed by NOAA Coastal Services Center. <http://www.csc.noaa.gov/mass/mpas.pdf>.

Economic Analysis

Economists, business leaders, local elected officials and other community leaders should be involved in exploring socioeconomic impacts and opportunities to assess how current and future local businesses will align with the goals of the MPA management plan. Additionally, it is important to factor in those existing external businesses that contribute to the local economy, such as tourism, imports, etc. Understanding potential trade-offs among the needs of the community, economic growth, and sustainable development will help inform the development of capacity building tools, education and outreach efforts, and entrepreneurial opportunities. Information gathered during this stage could be compiled into a business plan that would complement and become an integral part of the MPA management plan. A **business plan** is a *written document describing the nature of the business and its objectives, the sales and marketing strategy, and the financial background, and containing a projected profit and loss statement.*

Considerations for inclusion in the business plan:

- **Promotion** of “green” businesses will help inform and inspire investments and additional entrepreneurial initiatives. Workshops, courses and other capacity building opportunities should be developed and made available.
- **Access** to financial assistance (start-up funds, equipment, new technologies, etc.) should be streamlined and set up as part of the management plan development process.

Linking Development with Conservation

In economics and other social sciences, “development” refers to the process by which societies increase the standards of living, or quality of life. This should not be confused with increasing “economic growth,” or gross domestic product. (Defined by Robert R. Enriquez Andrade in his workshop presentation)

As part of building entrepreneurial opportunities that mirror the goals of an MPA management plan, it is important to consider how:

- Economic activities and human well-being depend on a healthy, functioning ecosystem.
- Benefits received from ecosystems are vast (i.e., ecosystem services, which are components of nature, directly enjoyed, consumed, or used to yield human well-being such as food, water, materials, energy, protection, as well as opportunities for recreation, cultural inspiration, and spiritual fulfillment).
- Ecosystems are socially valuable.

By focusing on the various benefits humans receive from ecosystems we can see more clearly the direct and indirect ways that human well-being depends on conservation of the natural environment.

There are opportunities to make conservation and development compatible through “greening” of the markets, requiring a shift of regional economic policies from growth oriented to development oriented.

The Role of Economics in MPA Design

The preceding sections of this report on engagement, capacity building, entrepreneurship, and education and outreach have all included discussion of the economics involved in the MPA designation process.

Engagement: *The economics—short-term and long term—of different options should be explored and quantified using experts.*

Capacity building: *Effective capacity building includes analysis of the economics of the MPA designation project with extensive involvement of the stakeholders.*

Entrepreneurship: *Business opportunities need to be developed to help create new jobs both in the present and the future, while also designed to conserve present resources without adversely impacting today’s economic needs.*

Education and Outreach: *Achievement of outcomes will require funding of the educational and outreach programs and availability of financial assistance to ensure stakeholders have an opportunity to participate in them.*

Economics assesses the financial implications of decision-making and looks at the impact on people and communities. Areas for consideration include market and nonmarket valuation, costs and benefits, and socioeconomic data. In determining the total economic value of a MPA, all value forms that may be derived from the resources they protect need to be considered. (Figure 2). Integrating these “values” into strategies developed for engaging the community, building capacity, and designing outreach and education tools will better inform and engage those who rely on marine resources for an improved quality of life.

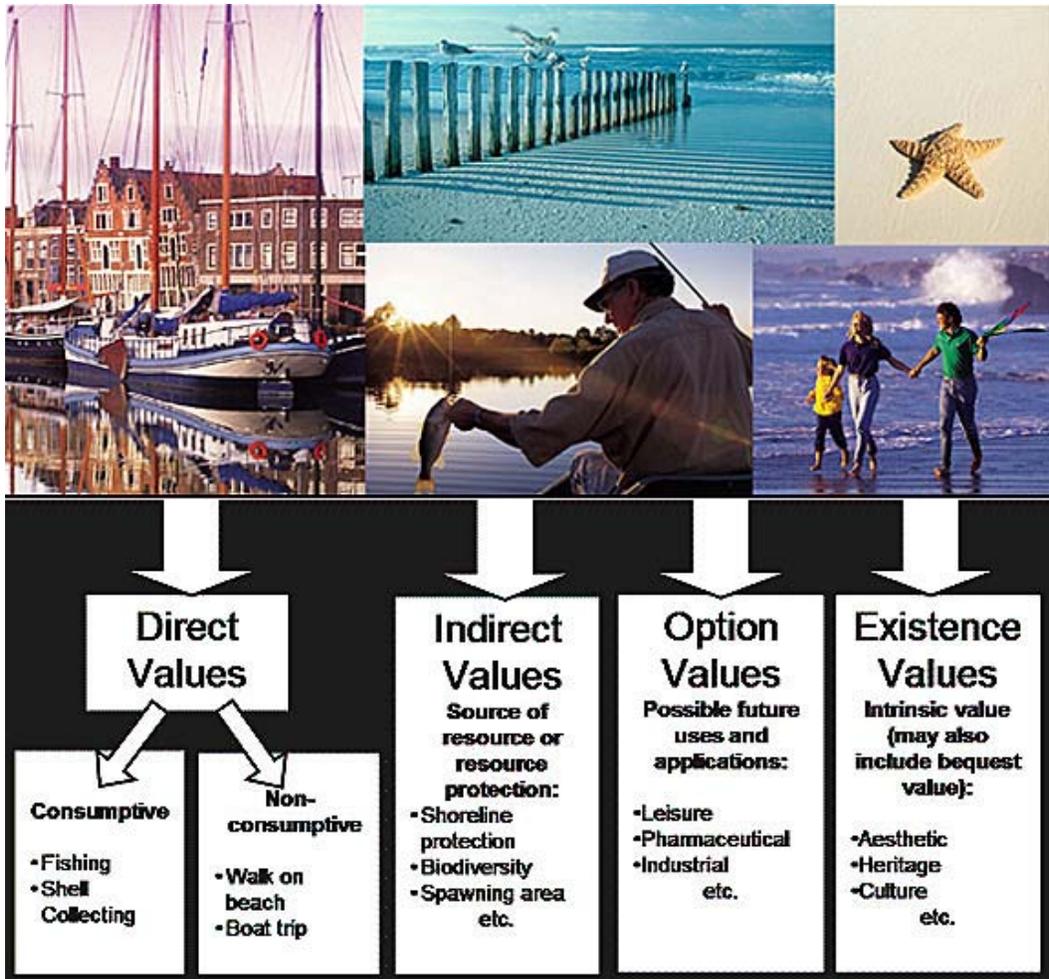


Fig.2
Economic values associated with marine and coastal ecosystems. (NOAA 2005).

Figure 2 shows the range of economic values applicable to the marine and coastal ecosystems and examples that are part of an MPA or network of MPAs. The indirect, option, and existence values are the most difficult to arrive at and may require the most education and acceptance of shareholders. The major activity in the gulf is consumptive fishing whereas in the Southern California Bight (SCB) there is a wide range of primarily non-consumptive activities that while having minimal impact on the environment, are revenue producing. The revenue derived from these activities is a considerable portion of the state’s marine GNP. In designated State Marine Reserves, the “no-take” MPAs, non-consumptive activities are permitted.

As was pointed out in section II. Comparison of the Gulf of California and the Southern California Bight, the SCB is an urban ocean where the coast is lined with industries, ports, residential and commercial housing. However, there is still open space, public access to beaches and hiking trails in densely populated areas, and what is called a “string of pearls”, 20 coastal wetlands, some federally and some state protected. Public participation to

maintain these areas is organized and intense. In addition, protection is provided by the California Coastal Commission, an agency within the California Department of Natural Resources that oversees coastal development. As interest in commercial development along the Gulf of California's coast intensifies with the perceived economic benefits, public participation and governmental oversight will be increasingly important if the natural resources of the Gulf of California, often called the World's Aquarium, are to be protected.

Nonmarket Evaluation or Existence Values

Highlighting the value of environmental outputs (such as a healthier ecosystem, an underwater reef viewshed, or a thriving and sustainable fish population) should be factored into any economic analysis conducted as part of an MPA management plan. As discussed earlier in this section, placing value on ecosystem services requires a shift in thinking to consider conservation as part of economic development. Specific economic tools can be used to estimate the economic value of environmental outputs, including:

- Conducting surveys designed to help respondents assign values to nonmarket goods or services
- Studying market transactions that are influenced by the environmental good or service of interest
- Adapting estimates of value developed for one study area for use in another.

Nonmarket valuation can also be used to estimate a user's willingness to pay for access to a resource. This may be useful information if considering establishing access fees or enforcement penalties. Also, nonmarket valuation may be used in education and outreach to demonstrate the significance of a resource to business-minded stakeholders who are more accustomed to economic analysis.

When applied to the MPA designation process, nonmarket valuation can be used to estimate the monetary value of the resources of MPAs to help guide management decisions. If, for example, fishing practices are damaging to a coral reef, contingent valuation methods can be used to estimate the value of those damages for comparison to the cost to fishermen of restricting the damaging practices. If the value of the damage prevented can be shown to be greater than the value of the income that will be lost, this serves as a strong economic justification of the regulatory practice.

Cost-benefit Analysis

Cost-benefit analysis relates cost to the value of the output or outcome while cost-effectiveness analysis relates cost to a measure of output or outcome. It provides valuable information to decision-makers at all levels. It offer a framework for organizing thoughts, listing the pros and cons of alternatives, and determining values for all relevant factors so that the alternatives can be ranked. It is a mechanical process that determines policy or

action, substituting for a political or other process that can take other considerations into account.

Cost-benefit analysis requires the conversion of all benefits and costs into common units, typically dollars. Because many environmental outputs cannot be easily measured in monetary terms, it may be possible to apply this tool in only a limited range of project decisions. It can be used in:

- Justifying program expenditures
 - Sizing of impacted sectors
 - Assessing benefits
 - Assessing benefits in relation to costs and/or effectiveness
- Making choices among programs and deciding how much to spend or invest
 - Choosing among programs for alternative goals or for the same goals
 - Taking into account how payoff varies with scale
 - Determining contributions of complementary inputs or programs
- Designing programs
 - Defining features of products, target users and uses and distribution systems
- Defining public/private sector roles

When Costs Are Difficult to or Cannot be Measured

Cost-benefit analysis is designed to compare the pluses and minuses of alternatives to help make a better choice. However, not all costs and benefits, especially for environmental projects such as designating MPAs are readily measured in dollars. Several economic tools exist that help estimate monetary values of environmental goods and services. In these situations NOAA recommends:

- Specialized *analytical methods*, such as cost-effectiveness analysis and incremental cost analysis, can be used to allow the "apples and oranges" comparisons of monetary costs and non-monetary outputs.
- Specialized *measurement techniques* or nonmarket valuation methods, can be used to estimate the dollar value of environmental goods and services produced by the project tools designed to convert oranges to apples.

Social Science Considerations

Social science: the process of describing, explaining, and predicting human behavior as practiced by individuals or groups (NOAA Science Advisory Board)

Understanding how MPAs may impact the people who use them and how users, in turn, impact MPAs, can be helpful as part of MPA planning, development, management, and monitoring and can help determine the success of an MPA or MPA network.

Social science research can help identify:

- Public attitudes and perceptions
- Use patterns, uses of the marine environment, users of the environment, and relationships between different user groups
- Impacts of MPAs on the character of a community
- Direct and indirect economic impacts of the MPA over time
- Relationships between submerged cultural resources and local populations
- Existence of difference in opinion between users and government
- Socioeconomic trends or demographic characteristics

Social science can support and improve MPA management through:

- **Assessment** – can identify affected groups and potential areas of conflict.
- **Feedback** – can gauge public perceptions of management focus and effectiveness while provide the public an opportunity to suggest management changes.
- **Prediction** – by developing models (the use of economic tools, case studies, etc.) to predict the outcomes of specific management action, save time and effort and identify potential problems.
- **Mitigation** – identifying stakeholder motivations and areas of concern may help reduce, or even avoid, conflicts among users.
- **Acceptance** – concerns can be address through targeted outreach and education programs which may lead to increased support from the public.

Economic challenges for consideration

- Fighting the myth that it is conservation and ecology versus economics.
- Matching sustainable businesses within the influences in the MPA areas with the goals of the marine protected area network.
- Eliminating market power and instead, empowering the local community
- Benefitting the local community, not external groups
- Addressing the property rights issue
- Educating the free market sector to recognize the importance of conservation

VI. Education & Outreach

Formal and informal education and outreach are critical to the sustained success of any environmental decision-making process. Implementing a comprehensive outreach strategy to engage stakeholders in supporting environmental projects, such as the establishment and maintenance of a marine protected area or network of marine protected areas, should be a high priority in any planning or management process.

Formal education: Learning within a structured educational system in which children or adults are required to demonstrate proficiencies.

Informal education: Lifelong learning process whereby individuals acquire attitudes, values, skills and knowledge from daily experience and the educational influences and resources in his or her environment, from family and neighbors, from work and play, from the market place, from museums, science centers, and the library, and the mass media.

Outreach: Opportunities designed to build awareness; develop relationships; and inspire audiences to pursue further learning opportunities.

Providing the public with information about how MPAs fit into the greater context of the management and sustainability of our marine resources is an important message to include in outreach and education materials.

As described in Section III, of the report Public Engagement, those stakeholders directly involved should be representative of the larger community and its various sectors. However, by necessity, the size of affiliated groups will be small and primarily comprised of adults. Public education and outreach will help inform and involve the community-at-large, providing access to members of the general public, individuals, and families. Outreach will also engage a greater number of people to help generate and sustain the political will needed to ensure the planning and implementation processes are carried out.

To successfully reach people of all ages, socioeconomic backgrounds, and education levels, a comprehensive and diverse outreach strategy must be developed. Communities need to take responsibility for their local environments and ecosystems and become champions for their protection. They must also be involved in making the case for how they contribute to quality of life—including standard of living. To do this, community members must be knowledgeable about the areas and informal and outreach education are key factors in providing them with the relevant information. A combination of formal education—K-graduate school—and informal education programming should involve an inclusive array of teaching modes, learning approaches, and information distribution.

Desired Outcomes of MPA Education and Outreach

- Raise public awareness of the need to conserve natural resources (i.e., natural capital)
- Allow people to discover how conserving natural capital is essential to improving quality of life, not just for future generations, but for the present generation; and
- Generate a broad coalition of support for identifying and protecting special places in the ocean.

Connecting the Public with the Marine Environment

Currently there is a growing disconnect of young people from nature. Outreach programs offered in more urbanized areas can provide opportunities for families to experience nature firsthand, particularly to those areas considered for special protection. Helping the public discover the marine environment will establish and strengthen the connection with areas that require special protection. Attention should be drawn to areas where people can walk trails or view wildlife without getting into a boat or putting on SCUBA gear. Additionally, establishing a link between outreach and education and ecotourism businesses can help raise public awareness while supporting the local economy.

Increase Public Access

Capability to watch group meetings on live telecasts, opportunities to mail, phone, or email comments, meetings for the general public, a newsletter, dedicated website, provision for public comments at group meetings are all part of the package.

While it may be difficult to use some of these technologies in rural parts of the Gulf of California, some may be possible. Achievement of these outcomes will require funding of educational and outreach programs, as well as the availability of financial assistance to enable members of the public to participate.

The Role of Technology

Utilizing online tools, such as interactive mapping, as well as online surveys, message boards, and list servers help to involve a diverse public in the MPA planning and management processes. During California's MPA planning process, a web-based decision support tool, MarineMap (users were able to draw prospective MPAs and receive immediate feedback on the protections and impacts afforded by the drawn proposal). This resource was made available to regional stakeholders, as well as members of the general public. MarineMap's intuitive format coupled with a responsive support team enabled a wide array of users to utilize, and become comfortable with, this interactive tool.

Understanding the limitations of the community, particularly rural locations with limited computer and Internet access is important. Cell phone applications and social networking

sites are continuing to gain in popularity and should also be considered as viable outreach tools.

Marine Spatial Planning

Marine spatial planning (MSP) is a process of analyzing and allocating parts of three-dimensional marine spaces (or ecosystems) to specific uses or objectives, to achieve ecological, economic, and/or social objectives that are usually specified through a political process. MPAs are one of a number of tools in the marine spatial planning toolbox. Spatial planning maximizes the economic return on space.

MSP pathway includes:

- Mapping of human uses and interests
- Mapping where things are evaluating their status, and identifying critical areas
- Creating integrated planning capacity to consider interactions between human uses and ecosystems
- Providing the public with information about how MPAs fit into the greater context of the management and sustainability of our marine resources is an important message to include in outreach and education materials.

The Value of Ecosystem Services

Targeting the business community will help increase an understanding of the value of ecosystems and the business opportunities healthy ecosystems can provide. It is through education that the perceived conflict between conservation and the economy can be reframed to show the linkages between sustained economic success and healthy ecosystems.

Involving the business community in outreach efforts can also help nurture a culture of entrepreneurship and expand the options for new businesses and new jobs that are consistent with conservation. This is key for communities that rely on marine resources for subsistence living. Without the incentive of an economic benefit as an outcome of MPAs, allocating special ocean places that would restrict harvesting will, understandably, be of low priority.

The Power of Sustainable Development

Public education can lead to informed consumers who will change market forces to demand a greener, more sustainable future through sustainable development. The Gulf of California presents a unique opportunity to demonstrate the power of sustainable development and the conservation of marine resources; however, there needs to be a well-designed program to educate and convince people whose livelihoods may be at risk.

Weighing an expanded job market resulting from development against the consequences for the environment is not an easy task.

Targeted Outreach to Consumptive Community

It is essential that education and outreach programs be designed to reach fishing communities. Fishing has long been an intergenerational activity with boats, nets, licenses, and knowledge passed down from generation to generation. That tradition remains, but restrictions on fishing in parts of the Southern California Bight and Gulf of California put this enterprise at risk. The Gulf of California fishing community is a major component of the stakeholder group impacted by designation of an MPA or network.

Targeting Elected Officials and Community Leaders

MPAs can be established and governed by federal, state, local, or tribal authorities. Involving elected and appointed officials at all levels can help to ensure a successful and collaborative process. Many additional governmental and institutional partners are likely to be involved in how resources are managed, with each entity operating under its own mandates with its own structure. Balancing the relationships between and among these groups, community groups, NGOs, and others, as well as the formal and informal rules in place, can be complex and challenging. It is important to identify which entities will affect an MPA, what authorities and responsibilities each entity has, and how these entities will interact with each other and with public stakeholders.

The Role of Scenarios in MPA Capacity Building

Scenarios, long used in business plans and more recently in exploring environmental issues, can be especially valuable for planning and decision-making in complex and uncertain circumstances, such as designation of MPAs. In preparing the answer to the question “What if?”, scenarios can be powerful tools for stimulating creative thinking about potential future outcomes. Outputs can be qualitative, quantitative, or a combination of both. Successful use in stakeholder groups settings does, however, require a skilled trained facilitator who can assure a productive and focused discussion without discouraging the free expressive of ideas.

Velarde et al (2007) list as the main benefits of the use of scenarios as a tool in environmental education:

- **Flexibility:** scenarios can be adapted to fit the local resources available and does not need to be an expensive exercise.
- **Adaptability:** scenarios can develop planning capacity along with long-term thinking. Decision-makers can consider two or more alternative futures, which can

increase the chances of success rather than strategies based on only one kind of possible future.

- **Investment in long-term benefits:** scenarios can increase capacity of forward looking, planning, and critical thinking.
- **Awareness** of roles in communities. Scenarios can help participants to gain a sense of their roles and others within their communities. This awareness can help shape their future and the actions needed to make it happen.
- **Community ownership:** Creating their own vision of their future and provides stakeholders with tools for monitoring their own progress.
- **Identification of underlying socio-cultural values:** Key driving forces or factors that bring about different types of change are identified in the assessment of different futures.

VI. A. California's Marine Life Protection Act Initiative: an Adaptive Approach to Effective Public Outreach and Stakeholder Involvement

Implementing an adaptive and responsive strategy for effectively engaging a diverse public is essential to the success of any stakeholder-driven process. Since 2004, the MLPA Initiative has recognized the value of public input and involvement in the development of a state-wide MPA network. Outreach and collaboration with the public was formally incorporated into the MLPA Initiative's framework during MPA planning in the south coast and quickly became a central part of the process.

Understanding the needs and limitations of regional communities, directly working with those communities to identify the appropriate ways to engage them, and responding to public feedback on outreach tools and techniques ensure that information and opportunities for involvement are accessible to a disparate public.

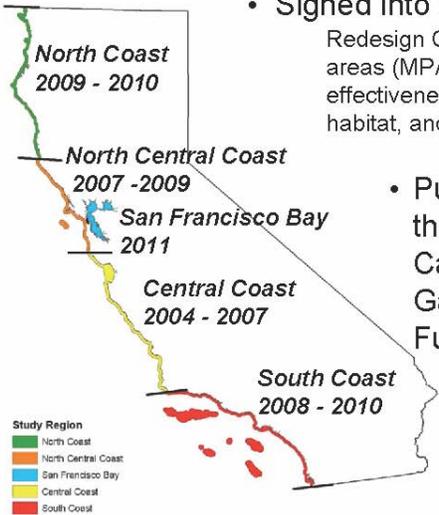
Based on lessons learned, the MLPA Initiative has coupled traditional outreach methods including print materials and public meetings with an opportunity for public comment, workshops and open houses with creative, more inclusive outreach tools, such as the establishment of a "Key Communicators" network, community events (e.g. community potlucks or public dinners), web-based technologies, and social networking sites. Over the last six years, this adaptive outreach approach has helped evolve the level and quality of public input and participation in California's MPA planning process, which is evident in the public's important role in informing and influencing the design of California's MPA network.

Addressing Input of Tribal Stakeholders in Designing MPAs

In October 2010, the MLPA Blue Ribbon Task Force (BRTF) unanimously voted to forward a community-based marine protected area (MPA) proposal for the north coast study region. The MPA proposal, developed by the 33-member north coast regional stakeholder group (NCRSG), will be presented to the California Fish and Game Commission (FGC) together with a modified enhanced compliance alternative MPA proposal and other recommendations on February 2, 2011 in Sacramento. In addition to the NCRSG MPA proposal and modified enhanced compliance alternative MPA proposal, the BRTF adopted two additional recommendations related to traditional tribal uses in the north coast region and recognizing a tribal use category within MPAs, a recommendation for the state to seek co-management partnerships between sister agencies and California tribes and tribal communities. The MLPA Initiative's adaptive approach to public outreach helped to support the unique characteristics of the north coast and assist the NCRSG in its goal to create a single MPA proposal for the north coast community.

This presentation, *An Adaptive Approach to Effective Public Outreach and Stakeholder Involvement*, was prepared for the California World Ocean 2010 Conference by Kelly Sayce, a workshop participant and Public Outreach and Education Coordinator for the MLPA Initiative. Parts of the presentation were given during group discussions and breakout sessions.

California MLPA Initiative



- Signed into California law in 1999
Redesign California's system of marine protected areas (MPAs); increase coherence and effectiveness at protecting the state's marine life, habitat, and ecosystems
- Public-private partnership among the CA Natural Resources Agency, California Department of Fish and Game, and Resources Legacy Fund Foundation
- Stakeholder-based, transparent process with public input at every stage

Central & North Central Study Regions

- Recognized importance of public outreach
 - Developed strategies and tools
- Outreach responsibility spread throughout I-Team
 - Lacked ability to refine and respond to community's needs
- Reliance on regional stakeholders and media to inform public
- Reactive rather than proactive



Photo Credit: Kevin Lee



New Strategies for South Coast

- Public Outreach and Education Team (POE)
 - Increase access and understanding
 - Identify concerns
 - Refine approach
- Focus on outreach to underrepresented communities
- Develop targeted outreach tools



Photo Credit: ©Stockphoto/Amanda Colton



South Coast Outreach Tools

- E-newsletter
- Informational brochure, poster
- “Key Communicators”
- Reaching out to underrepresented public
- MarineMap
- New media
- Open houses, community events, presentations



December 2008

- Executive Director's Message
- Meeting Highlights
 - BRTF
 - SAT
 - RSG
- Meetings & Events
- FAQs
- Get Involved
- Contact Us

Executive Director's Message

The most recent meeting of the MLPA South Coast Regional Stakeholder Group put me in a festive mood – just in time for the holidays – as we introduced a new product to help with our outreach efforts. Our recently unveiled new brochure to help encourage public participation. We will be using our [Key Communicators](#) and regional stakeholder group networks to help distribute the brochure far and wide. Attached to this email is an electronic copy of the brochure and please [contact us](#) if you would like to receive a print copy.

On behalf of the Marine Life Protection Act Initiative, I would like to wish you all a happy and healthy holiday season. Your comments and participation continue to be a vital part of the process – keep it up!

–Ken Wiseman, Executive Director

Meeting Highlights

Blue Ribbon Task Force
[Agenda & Meeting Materials](#)

On November 4, 2008 in Los Angeles, the task force held its second public meeting. The task force kicked off the morning with a field trip to various sites in San Pedro to provide an opportunity for task force members to interact with public educators, commercial and recreational fishermen, resource managers and fisheries-dependent business operators. The task force visited Tri-Marine Fish Company, Fish Harbor, Casillo Marine Aquarium, Point Fermin State Marine Park and L.A. Harbor Sportfishing.



SCSR: Key Communicators

- Community leaders help inform and educate their constituencies
- Provide feedback on materials development and outreach efforts
- Raise public perception issues
- Regular e-blasts and direct communication



SCSR: Underrepresented Public

- California Tribes and Tribal Communities
 - Extensive outreach conducted to five south coast tribal governments
- Non-English speaking public
 - Working with Key Communicators, developed strategy for involvement of non-English speakers





South Coast Lessons Learned

- Dedicated team to develop, discuss and refine public outreach strategies and tools
- Benefits of “Key Communicators” approach
- Improved integration between SCRSG and public
- Challenge reaching underrepresented communities



Photo Credit: ©iStockphoto/Robert Deal



Outreach Adaptations for NC

- Recognition of unique community structure and relationships
- Barriers to access
- Value of personal interaction
- Small population
- Fourth study region
- North coast tribes and tribal communities

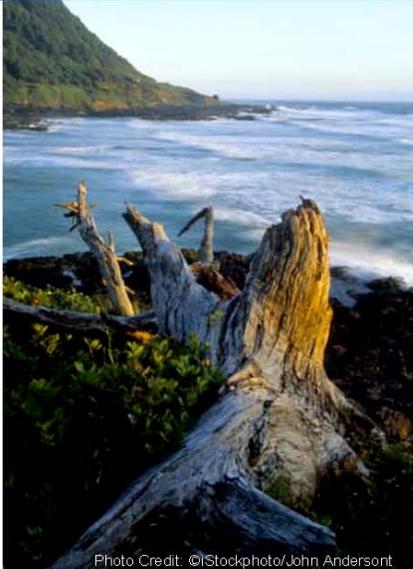


Photo Credit: ©iStockphoto/John Anderson

Strategies for North Coast

- Public workshops, trainings and office hours
- “Key Resources” webpage
- Informational videos
- Community events
- Remote public participation locations
- Print copies of meeting materials



Photo Credit: Kelly Sayce

NCSR: Increasing Access

Public Participation Locations

- Challenges with access
 - Transportation
 - Internet/computer
- Feedback from Key Communicators need for remote meeting locations
- Opportunity for public to participate in meetings



Photo Credit: Rebecca Studebaker



NCSR: Proactive Outreach

Petrolia, California

- Lost coast community excluded from Round 1
- Public outreach event to help inform community
- Local public mobilization to develop MPAs suitable for community
- NCRSG proposed these community-based shapes



Chronicle / Kim Komenich



Beyond MLPA

- Value of integrating outreach team into all public processes
- How to effectively relay and receive information
- Differences exist within communities at local and regional scales
- Requires a responsive and adaptive outreach approach



Photo Credit: Alan Drum

VII. Case Studies

Studying the experiences reported by others and the lessons learned can be a valuable strategy for use in designing an MPA or network of MPAs. What Worked? What didn't work? What occurred that was unexpected? The case studies in this report were selected from various studies described by workshop participants. They represent an array of MPA projects, national and international, from stakeholder selection to community engagement.

CS1. Identifying Communication Networks Among Fishermen in North Carolina

Goal: to identify the most influential or key individuals within the fishing community. Knowledge of these individuals could help identify who should be invited to participate in advisory panels and be involved in the planning of potential regulatory schemes.

Methods used

Interviews were conducted with king mackerel fishermen in North Carolina to determine with whom to talk about the fishery. Charter, commercial, and recreational fishermen were included. Data about each fisherman's contacts were compiled to generate a social network map that demonstrated the connections the fishermen had to one another.

Tools used

Social Network Analysis,

The snowball sampling technique was used to identify survey participants. This technique involved asking the participants for the three individuals with whom they "talked to the most about the mackerel fishery." The individuals identified were asked the same question, and so on, until no new names were identified. Several smaller individual networks were identified within the larger network.

Cluster analysis, a statistical sorting tool, was used to understand the sub groupings of fishermen and based on their patterns of relationships. Centrality measures, notably degree centrality, were used to identify important fishermen in the networks.

Interviewing

Fishermen were interviewed over the telephone and on-site both at home and at work. Interviews were administered by locals trained in interview administration and supervised by experienced interviewers from East Carolina University. In addition to gathering the names of individuals with whom they talked about the king mackerel fishery, the fishermen were asked about their age, experience, number of years in the community, education, membership in organizations, periodicals they subscribed to, and income generated through fishing.

Outcomes

1. The social network map of 238 king mackerel fishermen revealed 10 individuals who have primary importance in the larger communication network. Two individuals were identified for recreational and commercial fisheries and the remaining were charter boat fishermen.
2. When resource managers were asked by researchers whom they thought were most influential in the communication network, only one of the ten individuals identified by the fishermen was mentioned.
3. Researchers attempted to profile the more influential commercial and recreational fishermen. Commercial fishermen were characterized by the high number of periodical subscriptions, high level of education, and membership in many organizations. The more influential recreational fishermen had higher percent income from king mackerel, much experience, and membership in many organizations.

Researchers found that the ten individuals identified by participants as most influential also had a high level of influence on each other.

Lessons Learned

- Telephone interviews were as effective as on-site interviews and cost significantly less.
- Research revealed that in the area studied that individuals with the most influence usually had a high number of periodical subscriptions and were members of many organizations. If cost were prohibitive, these factors could be used to identify influential individuals in the future.

(Adapted from NOAA Coastal Services Center Case Studies:
http://www.csc.noaa.gov/mpass/casestudies_northcarolina.html)

CS2. A Fishery in Transition: Impact of a Community Marine Reserve on a Coastal Fishery in Northern Mindanao, Philippines (Is there a benefit from MPAs?)

Goal: to determine whether an established MPA worked **Study area:** Established in 1991, Baliangao Protected Landscape and Seascape (BPLS) reserve is a 74-hectare marine protected area of mangrove, seagrass and coral reef ecosystems It is located in Danao Bay, Baliangao, which opens into the Mindanao Sea.

Methods and tools used

- 1) To get a picture of how fish catches translate into profits, a **survey** of costs and off-vessel prices for fish was conducted on a random sample of fishermen. Data on past fish catches were obtained from a detailed resource-users survey,
- 2) **Focus group** was also used. Through this method, older fishermen helped construct a fishery history for fish and invertebrate production in the bay.

- 3) To determine whether the MPA had benefited surrounding fisheries, how the fishermen had fared both economically, fish catch was researched. Because the fisheries around the MPA are open-access and were over-fished, it was argued that if people were making a sustainable living from the fisheries, then the reserve must be acting as a source of new fish stocks.
- 4) A combination of strategies was used to get information on current levels of fish catches. Whenever possible, a participatory approach was employed where fishermen recorded their catches on prepared data forms. Logbooks were also left with fish buyers to collect data and field enumerators recorded catches as they arrived from the sea.

Results of the research study

Establishment of the MPA has had a significant positive effect on the overall ecological condition of both the Baliangao marine reserve area and of some of the reefs outside it. There has been improved live coral cover and mangrove diversity, and increases in fish diversity and populations.

The MPA had also had a positive impact on surrounding fish stocks and fisheries. Observations of fish movements found that large adult 'food' fish, such as emperors, rabbitfish and snappers, frequently moved out of the sanctuary core. It was also found that the juvenile populations of important food fishes inside the sanctuary were almost certainly the source of young fish caught outside the reserve.

Data on fish corral catches indicated a slight increase in daily catch rates. This suggested that the sanctuary had helped protect spawning fish and so helped boost catches. In addition, an economic analysis of fish catches in the region showed that without the MPA, people would get zero return from fishing—again pointing to the importance of the reserve in keeping fish stocks viable.

The ecological evidence for the positive impact of the reserve on fishing was backed up by the fishermen themselves. Some of the community members claimed increased catches since the establishment of the marine reserve. Over 73% supported the reserve and a large number of these believed that the sanctuary helped increase fish abundance by providing protection for breeding populations.

Lessons learned

Although a definitive answer on biodiversity 'spill over' would have to wait for the results of a future research project using fish tagging, the reserve was playing an important part in transforming Danao Bay into a sustainable fishery area; however, this process was, far from complete and that the region's coastal fishery is still open-access and in distress:

Poaching occurs, fish stocks are dominated by small, low value fish, daily gross incomes remain small and profits are small or marginal.

For the MPA to be fully effective, other policy instruments and fishery management strategies are needed to back it up, possibly a reduction in overall fishing effort in Danao Bay which could be achieved by excluding non-residents, issuing strict fishing permits and implementing effective policing and stiffer penalties.

An integrated management body needs to be set up to implement an overall coastal development plan for the bay along with improved public information and improved community management of the reserve to ensure that the positive impact of the MPA is fully capitalized upon – a model for a fishery system where biodiversity is restored, protected and conserved.

(Abstracted from Guzman, Asuncion (2009). *A fishery in transition: Impact of a community marine reserve on a coastal fishery in Northern Mindanao, Philippines*.

<http://econpapers.repec.org/paper/eepreport/rr2004092.htm>)

CS3. Saving the Critically Endangered Vaquita (Strategies Beyond the Biosphere and Refuge)

Goal: to develop a buy-out and buy-in vaquita initiative as part of the international and national efforts to save the vaquita from extinction.



Plate 1. Critically endangered vaquita (WWF 2010)

the stakeholder fishermen and those advocating conservation In addition, on the government side, the natural protection areas commission and the fisheries commission have different mandate.

Setting: The vaquita, one of the smallest cetaceans in the world, is endemic to a small area in the upper Gulf of California. Not described scientifically until 195*, today they are listed as critically endangered as a result of entanglement in gill nets used by commercial and artisan fishermen primarily for capturing shrimp. Shrimp fishing is done both legally and illegally and to a great extent, there is a historical tolerance of illegal fishermen, Property rights for the fishing resources are poorly defined within the zone. There is also a history of conflict between

Various steps have been taken in efforts to save the vaquita:

- Designation of the upper Gulf as a biosphere reserve in 1993.

- Creation of refuge area for vaquita in their limited area of distribution in 2005
- Fishing permits tied to a one fisherman, specific fishing gear, and specific boats, and specific zones such as the upper gulf
- Coordinated agreement between the Environment and Agriculture (Fisheries) Miniserries allowing for coordination of the vaquita conservation program
- An enforcement agreement between three agencies and the navy for boat and plane surveillance of the zone to enforce compliance with the gill net ban in the fishing exclusive zone for 100 days a year
- Creation of a stakeholder evaluation and monitoring committee for the vaquita program
- Buy-out for alternative livelihoods to compensate fishermen for the retirement or modification of fishing practices for the total artisanal fleet

The Buy-out and Buy-in Program

The program, to remove gill nets from the vaquita's range and compensate fishermen with alternative livelihood options, is supported by the Mexican government, international organizations, and philanthropic funds.

There are three options in the program. ((12 pesos to 1 US Dollar.))

Alternative livelihood (Buy-out):– Fishermen turn in one or several permits with their respective boat, engine, and fishing gear and set up a new business. There are three categories in this option depending on the # of permits someone turns in:

- 1 permit: \$400,000 pesos
- 2 permits: \$500,000 pesos
- 3 or more permits: \$600,000 pesos

Rent-out: also known as “Biodiversity Conservation Activities”. Fishermen are paid to not go into the refuge and use gillnets. They are not required to turn in permits since they are only required to stay out of the refuge and other NPAs that are no-take. Payment varied on where the boat is based.

- \$45,000 pesos (San Felipe, B.C.)
- \$35,000 pesos (Golfo de Santa Clara and Puerto Peñasco, Sonora)

Alternative fishing gears: (switch-out) Turn in of gillnets and begin use of “vaquita safe” gear (pots hook and line, long lines, etc.). This option does not require fishermen to give up their permits but do have to turn them in so they can be modified to specifically state the type of gear they are allowed to use.

- \$300,000 pesos.

Lessons Learned

According to the World Wildlife Fund and the Nature Conservancy, two organizations involved in the private sector agreement, “the Vaquita Initiative was a very messy business with many errors in application. However, the urgency for saving the vaquita did not allow the initiative to reach perfect solution”.

The project proved that conservation organizations can work with national government agencies and local fishermen to establish protection for a specific species through permit and equipment acquisitions and leases. In addition the World Wildlife Fund and the Nature Conservancy summarized their experience with these six points.

- **Urgency:** We had to significantly reduce mortality immediately or the vaquita would go extinct. Trying to discover the perfect solution may be the enemy of success; the right solutions may be messy.
- **Enforcement is key:** Success depends on effective enforcement. Without ways to keep retired nets out of the water and new fishing effort from leaking back in, the buy-out efforts will be wasted.
- **Social solutions are indispensable:** Gill net elimination, without meaningful compensations and/or transitions to alternative livelihoods, was politically infeasible.
- **Durable management solutions must follow short-term fixes:** The political will to create and enforce a permanent ban on gill nets is the key to making this investment last and saving the vaquita.
- **Without clear property rights private agreements will not stand:** An important lesson, applicable to other private agreements, is that without clear property rights there will no certainty of compliance with a private agreement. In this particular case it was not possible to buy the fishing rights of someone who did not have a clear and individual property right.
- **Buy-outs require buy-in:** Mexican government leaders—from the presidency to local agents—had to buy in to the plan and work hard to implement it. International actors have to play more intelligent, nuanced and less visible supporting roles.

CS4. Community-based Management of Whale Shark Tourism (Public Engagement: Public Action)

Goal: *to investigate the impact of proposed marina development and human activities on Bahia de los Angeles, its natural resources, and whale shark population.*

Setting:



Plate2 1 Swimming with a shark (EcoNews 2010)

Whale shark ecotourism, observation of and swimming with whale sharks, has become an important economic activity in the Gulf of California's Bahia de La Paz and Bahia de los Angeles, especially in the latter. The bay is one of the few places worldwide where whale sharks (*Rhincodontypus*) aggregate on a regular, predictable, and lengthy basis. Opening toward the Canal de Ballenas "Whales Channel, the bay is one of the most biologically productive areas in the Gulf of California.

Prior to the late 1980's sport fishing was the most important source of revenue until some entrepreneurial fishermen, capitalizing on the presence of whale sharks in the area, began supplementing their income by taking tourists out to watch shark watch. The industry has grown rapidly, reaching a point in which some fishermen have turned into full time tour operators.

Concerned about the potential impact of development of a marina and its infrastructure with its accompanying human activities being proposed by the federal government might have on the bay and on its natural resource and also on the whale sharks, their behavior and

habitat, conservation efforts were initiated by a group of local tour operators. The group requested a study of the whale shark population and tourism activities by the Reserve of the Islands of the Gulf of California (RIGC) and the Autonomous University of Baja California (UABC).

Methods:

- Survey of local tour operators to establish baseline information about whale sharks
- Field observations of ecotourism activities
- Meeting with the shareholder tour operators for input and feedback into the Code of Ethics proposed
- Interviews of local community stakeholders to gather information on perceptions of development of a marina and infrastructure
- Qualitative analysis of impacts of proposed development over the whale shark population
- Assessment of food availability for whale sharks
- Workshops, information meetings, and school visits conducted for communication

Results:

- An analysis of the property right regime (Rodríguez-Dowdell et al.2007), so as to understand both the characteristics of the resource and the social context where used;
- Identification of the demand for the activity and its threats
- In collaboration with the local tour operators
 - development of a Code of Conduct, one for tourists and one for tour operators that is specific for Bahia de los Angeles;
 - implementation of the with the main focus on avoiding potential damage to the whale sharks and to increasing the safety of tourists; and
 - inclusion of the local community in ongoing data collection and monitoring
- Establishment of a Bahia de los Angeles specific Code of Conduct, one for tourists and one for tour operators developed collaboratively with tour operators, the university, and the government
- Proposal to The National Commission of Natural Protected Areas (CONANP) for adoption of the whale shark as an iconic symbol for conservation
- Implementation of a fixed quota per year
- Whale shark information added to the environmental education

programs of the local junior and high schools including the ecology and biology of whale sharks, their conservation, management, threats and the new Code of Conduct for Bahia de los Angeles.

- A webpage and some material for communication developed (<http://www.tiburonballena.com>).

Lessons Learned

The direct participation, support and co-operation of local tour operators was a key factor in the analysis of the possible impacts of human interaction to the whale sharks, the study of whale shark behavior, and the development of a suitable and practical Code of Conduct. In Bahia de los Angeles,

There are important challenges to overcome in order to insure that whale shark ecotourism in Mexico will be sustainable and beneficial for the local communities. The continued participation of local stakeholders, and their empowerment as a group, is a key element to achieve such objectives at a national level.

The monitored and appropriately managed whale shark ecotourism industria in Bahia de los Ángeles, México, sets a precedent for other coastal communities in Baja California, which additionally benefit from conservation of the species.

Although some regulation measures have been brought about, whale shark watching activities in Bahia de los Angeles is carried out practically without restrictions. In recent years, the number of foreign enterprises that offer trips to the bay to observe whale sharks has increased dramatically. In some instances, tourist vessels have been disguised as scientific research vessels. Foreign enterprises compete with local tour operators, taking a greater proportion of the benefits.

CS5. Designating MPAs Areas around the Channel Islands (**Stakeholder Process Successes and Failures**)

After completion of each study region the lessons learned are compiled and posted on the Department of Fish and Game MLPAL website. These include input from facilitators work groups and staff. The information that follows was abstracted from CDFG Lessons Learned project(Central Coast Study Region) http://www.dfg.ca.gov/mlpa/lessonslearned_phase1.asp.

Goal: to protect ecosystem biodiversity; maintain long-term socioeconomic viability; and achieve sustainable fisheries by designating MPAs around the north Channel Islands

Setting: The north Channel Islands are part of a chain of islands off the coast of southern California. They include the Channel Islands National Park and the Channel Islands National Marine Sanctuary. The islands provide extensive recreational opportunities (e.g., sportfishing, diving, pleasure boating, etc.) to a large urban population. They are also fished commercially for a wide range of species including sea urchins.

The islands are near major transit lanes for shipping in and out of the Ports of Los Angeles and Long Beach, as well as to military training and weapons testing activities at U.S. Navy facilities at Port Hueneme and Point Mugu.

The marine resources of the islands and their adjacent waters are managed by a variety of state and federal jurisdictions, many of which overlap, including the California Department of Fish and Game (CDFG), California State Lands Commission, National Marine Sanctuary Program, the National Parks Service, National Marine Fisheries Service, and the U.S. Coast Guard.

Creating MPAs around the north Channel Islands by closure of 20 percent of a one-mile (1.6 km) wide zone surrounding the islands to all fishing was proposed in 1998 by a group of recreational fishermen. From that time until who proposed The proposal was motivated by the concern of the fishermen about the potential over-utilization of the fish stocks. The path from this point forward to the final designation of a system of MPA reserve, conservation areas, and parks in 2007 was tortuous.

The designation of MPAs around the north Channel Islands was the start of the MPLAI process in California There were many lessons learned as a result of this project (DFG 2008) but one of the most important was the search for stakeholder consensus.

One important conclusion from the Channel Islands stakeholder process is that identifying consensus as the single criterion of a successful process can promote unrealistic expectations, provide an opportunity for what can be perceived as gaming behavior, and leave the process without the ability to capture the progress toward agreement that has been made.

The stakeholder process in the Channel Islands is considered both a success and a failure, depending on which stakeholder group talks to and what criteria are used in the evaluation. The following sets of statements summarize these divergent perceptions; while each statement reflects the “success” or “failure” point of view, no statement is either true or false in an absolute sense.

The stakeholder process in the Channel Islands is considered a success because it:

- Developed new approaches for applying reserve theory to reserve design,
- Used science advice as the basis for the MRWG’s design negotiations,
- Used concrete economic data from stakeholders to estimate the economic effects of alternative reserve designs, and
- Created a mapping tool that helped stakeholders evaluate the biological and economic implications of multiple design scenarios.

The stakeholder process in the Channel Islands is considered a failure because it:

- Did not adequately consider the complex set of roles and relationships involved in the process,
- Did not reach consensus on a single design alternative²,
- Changed goals without the full agreement of all stakeholders,
- Used fishery benefits arguments without fully exploring the full range of fisheries science issues,
- Was driven by science advice that was interpreted as an inflexible goal,
- Limited communication between the MRWG and the science panel, and
- Did not implement an effective monitoring program.

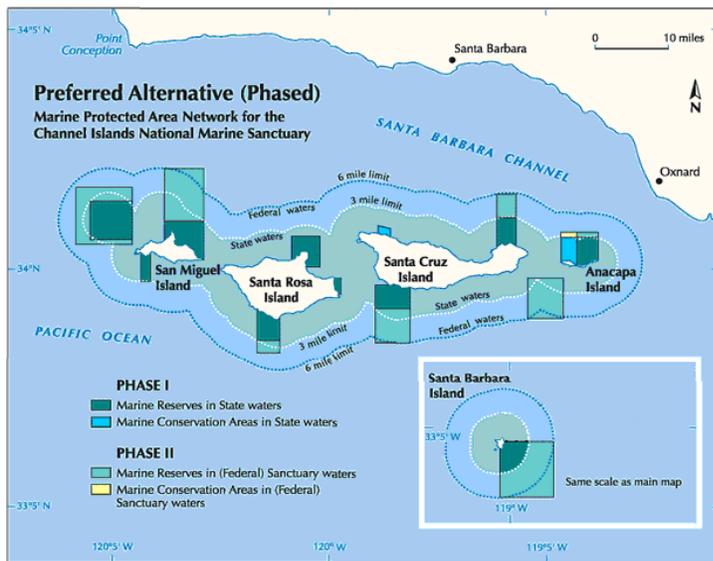


Fig. 3 MPAs around the north Channel Islands

² Regional stakeholder groups in the following south coast and north central coast study regions also did not achieve consensus on one proposal. It was not until the fourth study, the north coast, that the stakeholders were able to reach consensus. (http://www.dfg.ca.gov/mrd/channel_islands)

VIII. Conclusions and Recommendations

Observations made at the workshop during group discussions, breakout sessions, speaker presentations and interactions between speakers and participants in QA sessions were markedly similar to the findings and recommendations in the report to the National Marine Protected Areas Center NOAA Bernstein & A, Judicello 2004). The observations of the authors of that report have been supplemented with specific conclusions generated at the workshop.

Time and again during this 2010 workshop, statements were made about the importance of stakeholder involvement if public support is to be developed for special ocean places that were in agreement with this statement made by Bernstein in 2004.

...one important conclusion from the Channel Islands stakeholder process is that identifying consensus as the single criterion of a successful process can promote unrealistic expectations, provide an opportunity for what can be perceived as gaming behavior, and leave the process without the ability to capture the progress toward agreement that has been made. (Bernstein 2004, 30pp)

- History, process design, goal setting, and science all play critical roles in laying the foundation for a productive effort to designate an MPA.
- Authorizing statutory or regulatory language plays a central role in determining explicit goals and objectives.
- In the process the management phase includes: political considerations, the presence or absence of effective leadership, conflict management techniques, the role and timing of map making, and the availability of resources to fund a process. Once initiated, it affects how efficiently and effectively a process moves through the twists and turns that occur in any designation.
- Intensive processes cost money, especially when facilitators, process design specialists, and sophisticated process techniques are utilized.
- There needs to be clear staff oversight of a process and staff must have the experience, stature, and core skills needed to understand and influence a processes' evolution, and to successfully flag and discuss emerging issues with program leadership.
- Expectations among stakeholders must be managed by ensuring that they understand the role they play in making decisions, and what happens to their decisions or recommendations once a stakeholder's participant's role in the process is concluded. For example: Is the process collaborative, consensus building, or

simply input to the agency? Where does the decision-making authority lie?
Participants must know the answers to these questions.

Recommendations

1. Early planning efforts must include a thorough assessment of past history and its potential effects on stakeholder perceptions and the goals to which they will agree, as well as on their willingness to participate, and the ground rules they will accept.
2. Process managers must have a grasp of the underlying authority for a designation process, as well as the ability to explain it to participants.
3. Managers must have a vision of the process steps from beginning to end, not just the stakeholder participation stage.
4. Managers should design and manage MPA processes with an understanding of stakeholder motivation, an expectation that stakeholder goals will differ, and be prepared to handle disagreements and conflict.
5. Processes should incorporate appropriate flexibility and adaptability. Conveners and process managers should look at the full array of decision tools that are available and not feel locked into a complex consensus model or a rigid fishery management model.
6. Process managers need to remember that scientists are people, with motivations and biases like other stakeholders. Scientists should not work separately from other stakeholders, even on seemingly non-controversial issues. Scientists should be selected to ensure that their skills match the areas of expertise defined by the objectives of the process, and their role made clear to stakeholders.
7. Planners and managers should treat politics as the natural expression of human and interest group dynamics that reflect stakeholders' genuine interests and perceptions. They are part of the policy process and need to be recognized, accommodated and planned for. Such interest group dynamics often lead to conflict, which should be seen as a natural part of such complex processes.
8. Leadership is needed at the political level that initiates and supports the process, at the upper levels of involved agencies that ensure consistent commitment and follow through on decisions, at the process level where facilitation, negotiation, and conflict management skills are crucial, and at the interest group level, where perceived stature, relationships with constituents, and the effective framing, control, and communication of a core message are important.
9. Value-laden conflicts can and should be addressed through the use of skilled, experienced facilitators. Where possible, third-party process managers should guide

the process from the outset. If this is not possible, neutral third-party professional facilitators should at a minimum be employed to run the meetings.

10. Maps have many applications from identifying gaps to analyzing the implications of proposed boundaries. Process planners should consider three important aspects of maps—the process by which they are made, the information they contain, and how, when, and by whom they are used.
11. Upper level managers and agency decision-makers must ensure that key program staffs are formally assigned to manage the process from start to finish, and that they have the experience, stature, and core skills needed to understand and influence its evolution, and to successfully flag and negotiate emerging issues with the program leadership.
12. Process planners should be familiar with every stage in an MPA designation process, how long each step takes, and how much of it is set in law and regulation. They must know not only the stages of the stakeholder process and how long they will take, but be familiar with actions beyond the stakeholder process, where the stakeholder results go, what weight they carry, where results go in the next stage and how much of this is set in law and regulation. They must be able to communicate the overall picture to participants, and may need to do so more than once to be sure stakeholders do not lose sight of where their deliberations fit in the overall picture, or conceive unrealistic expectations about the outcome.

IX. Next Steps

The organizers of this workshop are committed to working together to design an exhibit to be displayed both in Mexico and the United States. Integrating a unified message in educational exhibits and teaching materials suitable for informal education institutions in both California and México will help inform the public about MPAs /NPAs and their roles in designating and securing special ocean places.

Preliminary ideas for exhibits that evolved during the workshop will be explored in depth over the coming months through a series of exchange visits between the Aquarium of the Pacific and the Caracol, Centro Científico y Cultural. Progress on the development of these concepts and will be the foundation for the discussions during the anticipated 2011 follow-on this workshop: *The Role of Public Support in Protecting Special Places in the Gulf of California and the Southern California Bight* to be held in Baja, Mexico. They will also be reported back to workshop participants.

Appendix A. Workshop Agenda

September 23, 2010

Gulf of California

- 9:00-9:15 Welcome and Overview of the Goals and Objectives of the Workshop
Jerry Schubel, José Zertuche-González, Antonio Reséndiz
- 9:15-10:00 The Value of the Gulf of California—including its Fisheries Value and
Recreational/Tourism Value
Saúl Alvarez-Borrego
- 10:00-11:00 Break
Approaches Taken for the Conservation of the Gulf of California
(Lessons Learned)
Antonio Díaz de León Corral
- 11:00-11:20 Potential Connections with the North American MPA Network (NAMPAN) a system
of People and Places
Joseph Uravitch
- 11:20-12:00 The Economic Value of the Southern California Bight
Junjie Zhang
- 12:15-1:00 Open Discussion to Identify Key Roles of the Public & Ways to Engage Them
Jerry Schubel, Facilitador

Southern California Bight (SCB)

- 1:00-1:15 Opening Remarks
Jerry Schubel
- 1:15-1:45 The Importance of Public Involvement in Designating Areas for Special Protection
& Thoughts on Achieving & Sustaining It
Brock Bernstein

Case Studies: Gulf of California and SCB

- 1:45-2:00 Context for the Case Studies
José Zertuche-González, Jerry Schubel
- 2:00-2:20 Marine Reserves in the Larger Context of Marine Spatial Planning
Luis Bojorquez
- 2:20-2:45 Case Studies of Marine Reserves of the Gulf of California
Carlos Godinez-Reyes
- 2:45-3:15 Protecting the Vaquita in the Upper Gulf
Jose Campoy
- 3:15-3:30 Break
- 3:30-3:40 Group Discussion: Search for the Roles of Public Education and Outreach in
Conservation in The Gulf of California.
Jerry Schubel, Facilitator
- 3:40-4:00 The Roles—Real and Perceived—of Marine Reserves in Conservation in the Gulf of
California
Group Discussion

The Role of Public Support in Protecting Special Places...

4:00-4:05	Setting The Stage For Public Initiated Programs to Connect People with Nature José Zertuche-González, Jerry Schubel
4:05-4:25	The Whale Shark Program Abraham Vasquez
4:25-4:45	The Sea Turtle Program Antonio Reséndiz
4:45-5:30	Open Discussion to Explore & Clarify the Roles of Public Education and Outreach in Conservation in the Gulf Of California & the Southern California Bight Jerry Schubel, Glenn Page, José Zertuche-González, Facilitators
5:30	Adjourn
6:30	Reception/Dinner at the Aquarium

September 24, 2010

9:00-9:15	Re-Cap of Day 1 and Opening Remarks Jerry Schubel, and José Zertuche-González
9:15-10:00	Conservation and Human Development in the Gulf of California Roberto Enriquez Andrade
10:00-10:15	Break
10:15-11:30	Reaffirming the Charge and Assembling the Pieces: Open Discussion Jerry Schubel, Facilitator
11:30-1:00	Working Lunch Breakout groups Engagement Process: Antonio Diaz de Leon & Kelly Sayce Capacity Building: José Zertuche-González & Glenn Page Education and Outreach: Roberto Enriquez & Annie Hillary Entrepreneurship: Abraham Vazquez & Joseph Uravitch
1:15-1:45	Report by Breakout Groups and the Search for Strategies to Engage the Public
1:45-2:45	Rearranging the Pieces
2:45-3:45	Closing Observations” Round Robin
2:15-3:15	Group Discussion and Closing Comments
3:15	Adjourn

Appendix B. Workshop Participants

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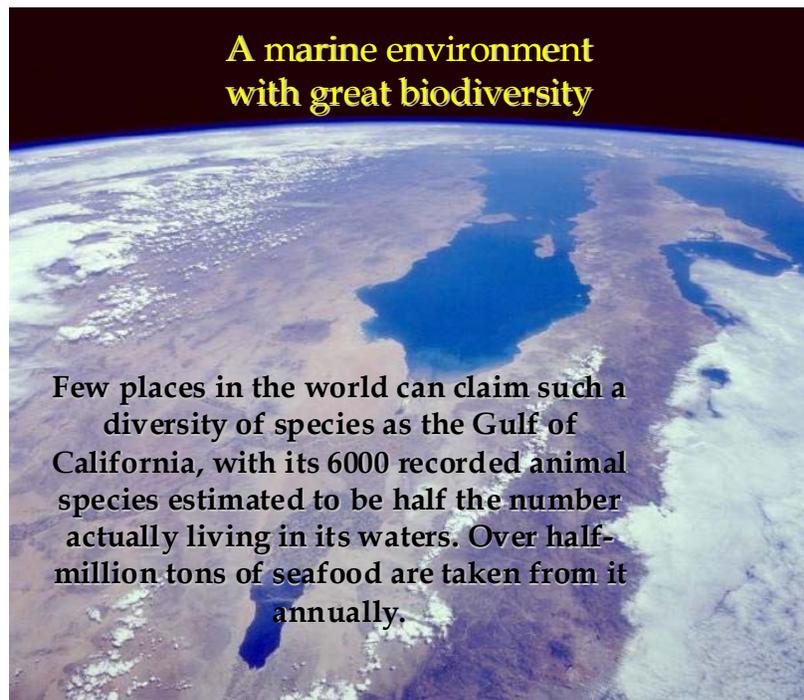
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Appendix E. Participant Presentations

Appendix E!. Saul Alvarea Borrega: *The Value of the Gulf of California Including its Fisheries and Recreation/turism Values*



The Gulf is home to over 4900 species of named and described invertebrates. This is estimated to be about 70% of the actual invertebrate fauna of the Gulf of California. Invertebrate diversity increases from north to south in the Gulf.

In the intertidal region of the Gulf 2,158 species occur. There have been 329 species recorded from coastal lagoons in the Gulf, 260 of these from mangrove lagoons.

There is high invertebrate endemism in the Northern Gulf (128 species)

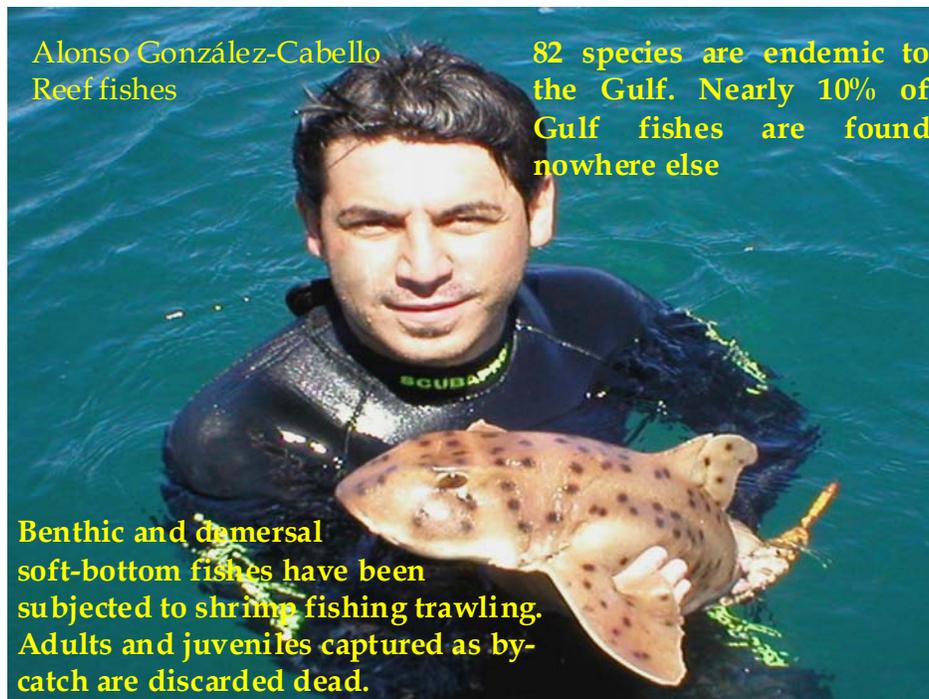
The greatest threat to invertebrates in the Gulf are bottom trawling, hand collecting by humans during low tides, coastal development, and pollution.

Diversity on islands and on some largely inaccessible stretches of shore are critically important refuges for littoral species now largely extirpated from mainland coasts



The Gulf of California lies at the intersection of two vast coastal regions. To the north is the temperate Californian Province, and to the south lies the tropical Panamic region. The Macrofauna Gulf survey has records of 911 species of fishes within the Gulf.

The diversity of Gulf fishes varies considerably from north to south, with nearly twice the number of species in the southern Gulf as in the northern Gulf.

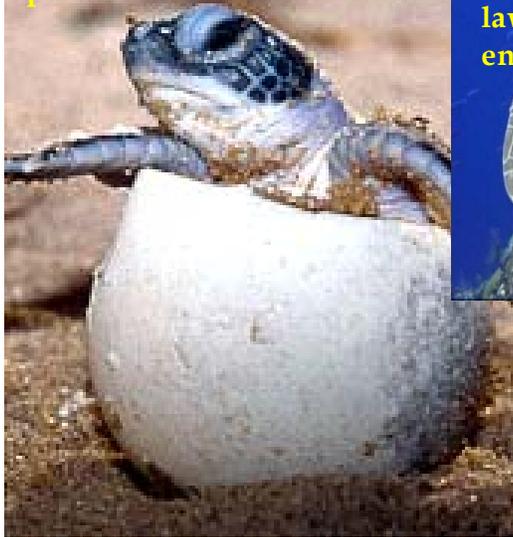


Alonso González-Cabello
Reef fishes

82 species are endemic to the Gulf. Nearly 10% of Gulf fishes are found nowhere else

Benthic and demersal soft-bottom fishes have been subjected to shrimp fishing trawling. Adults and juveniles captured as by-catch are discarded dead.

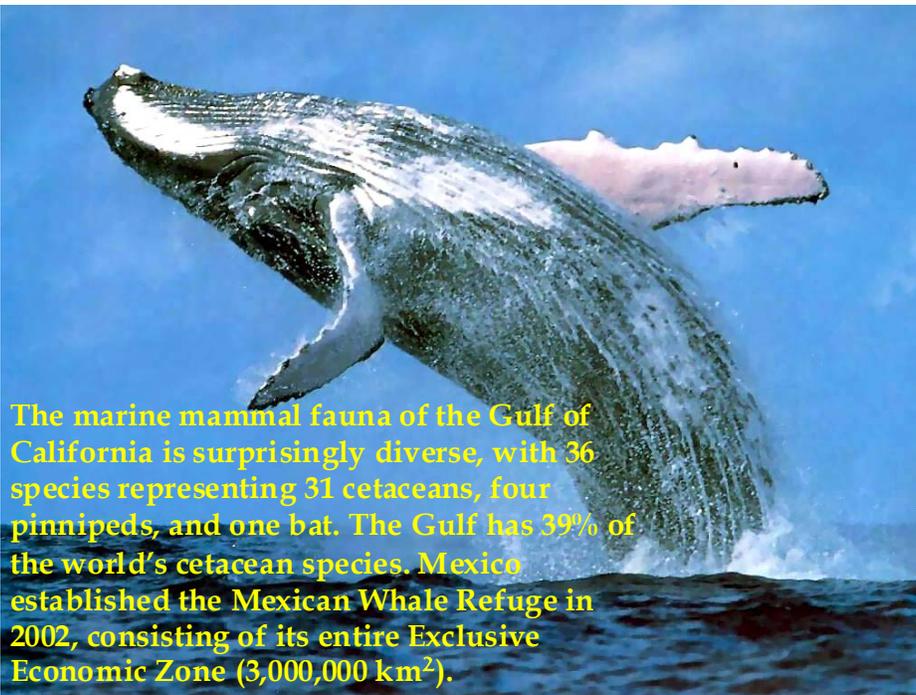
The Gulf of California provides habitats for five of the world's seven sea turtle species.



Sea turtle conservation in Mexico has been ongoing since 1966. However, existing laws need increased enforcements



Two of the five species are considered as critically endangered, two are endangered and one is vulnerable.



The marine mammal fauna of the Gulf of California is surprisingly diverse, with 36 species representing 31 cetaceans, four pinnipeds, and one bat. The Gulf has 39% of the world's cetacean species. Mexico established the Mexican Whale Refuge in 2002, consisting of its entire Exclusive Economic Zone (3,000,000 km²).



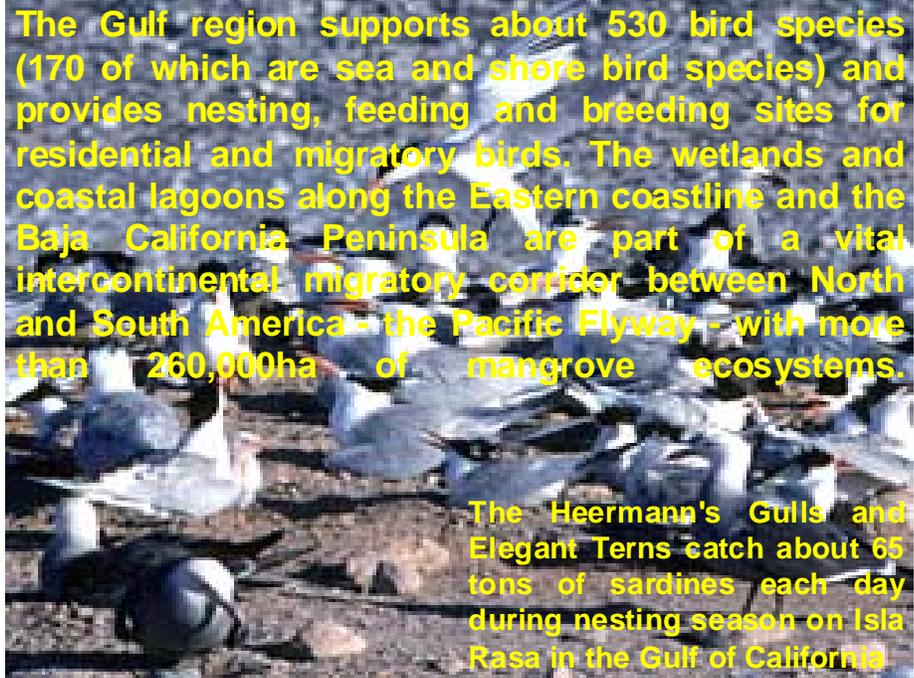
The most endangered marine mammal is the vaquita. Also, there are four endangered whales, and two that are vulnerable.



The marine algae of the Gulf of California are a diverse assemblage of more than 300 subtropical, tropical, and temperate species.

© Pristine Aquariums

The Gulf region supports about 530 bird species (170 of which are sea and shore bird species) and provides nesting, feeding and breeding sites for residential and migratory birds. The wetlands and coastal lagoons along the Eastern coastline and the Baja California Peninsula are part of a vital intercontinental migratory corridor between North and South America - the Pacific Flyway - with more than 260,000ha of mangrove ecosystems.



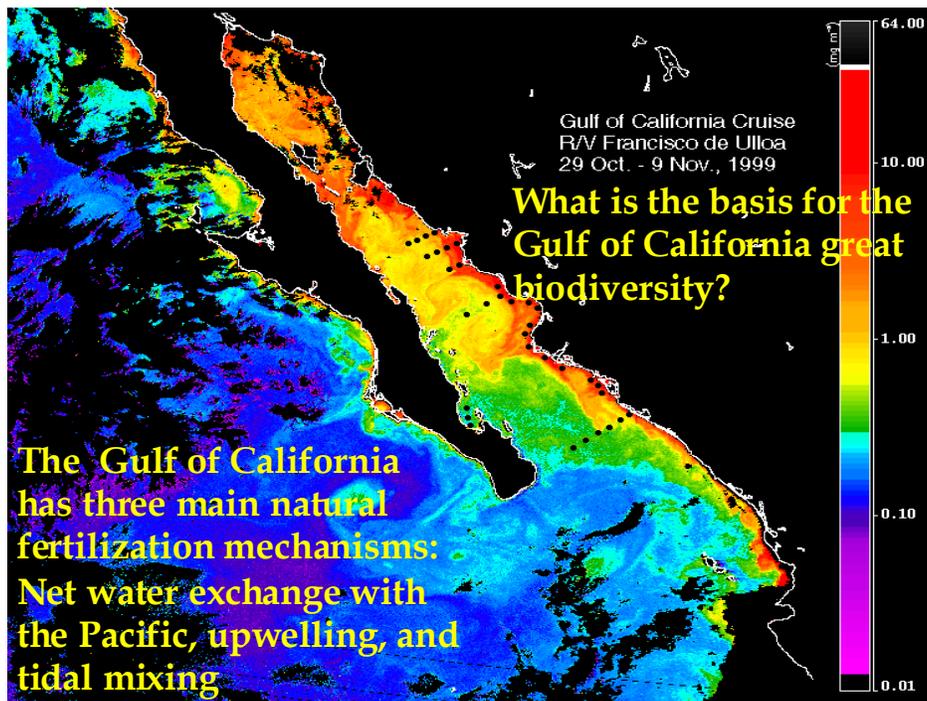
The Heermann's Gulls and Elegant Terns catch about 65 tons of sardines each day during nesting season on Isla Rasa in the Gulf of California.



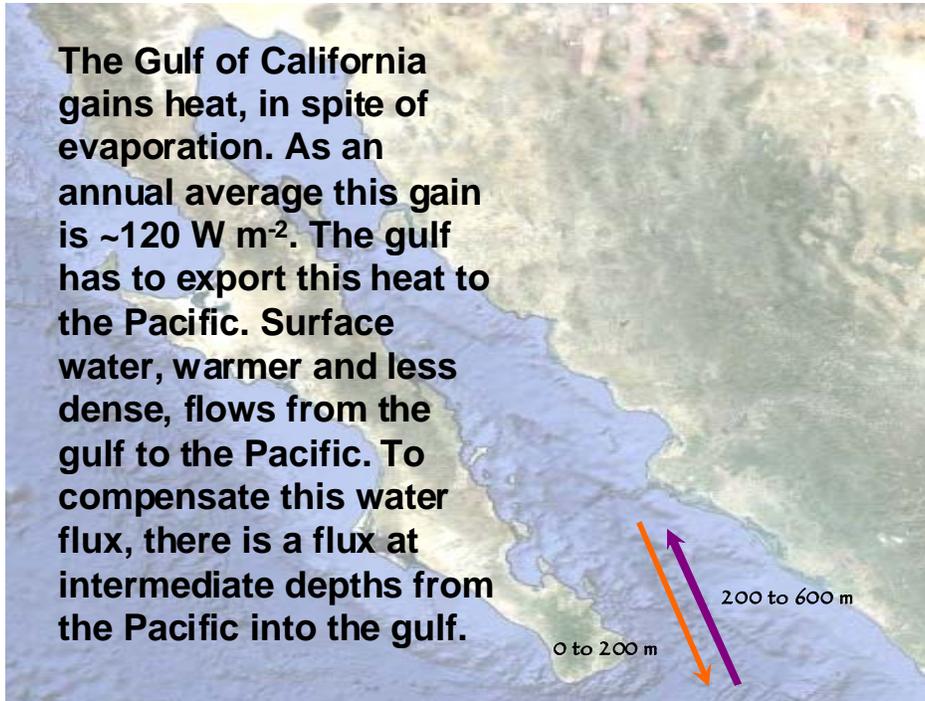
Gulf of California commercial fisheries landings in 2002 was ~600,000 metric tons. They fish for sardine, shrimp, tuna, anchovy, mackerel, squid, clams, mojaras, crabs, sharks, croakers, bass, mullets, etc.

Management and conservation strategies for the Gulf's fisheries should be implemented in an integrated manner. Fishers should be the stewards of their target resources and should be allowed to participate actively in management decisions and in research and monitoring activities. A set of structural changes should also be implemented in the Gulf's fisheries, including the FAO Code of Conduct, and enforcing the new National Fishing Law to promote recovery of depleted stocks. Biodiversity conservation should and can be achieved with a combination of fisheries management and conservation tools and with an explicit goal of improving the livelihoods of legal fishers.

Miguel A. Cisneros-Mata (Head of the National Institute for Fisheries of Mexico)



The Gulf of California gains heat, in spite of evaporation. As an annual average this gain is $\sim 120 \text{ W m}^{-2}$. The gulf has to export this heat to the Pacific. Surface water, warmer and less dense, flows from the gulf to the Pacific. To compensate this water flux, there is a flux at intermediate depths from the Pacific into the gulf.



Estimates of the net water exchange between the Pacific and the Gulf of California

$$1 \text{ Sverdrup} = 1 \text{ Sv} = 10^6 \text{ m}^3 \text{ s}^{-1}$$

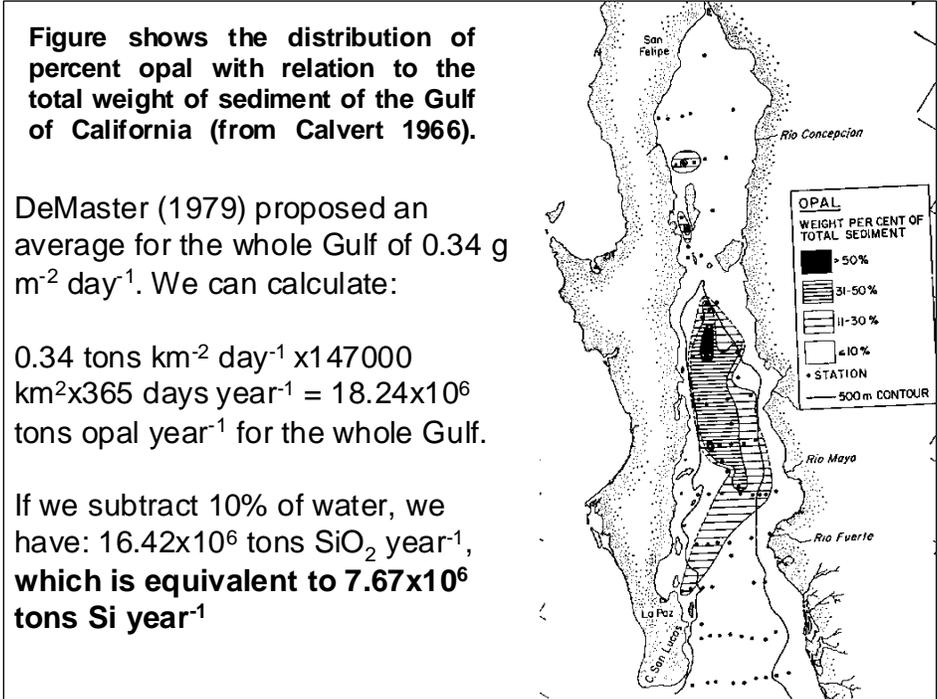
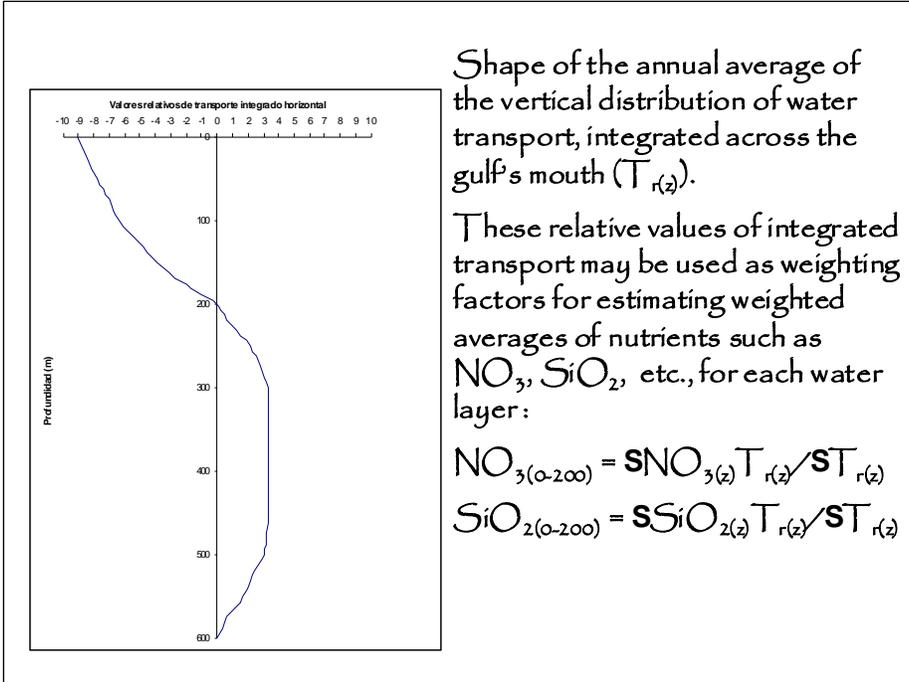
Roden (1958) (1.19 Sv) (water and salt)

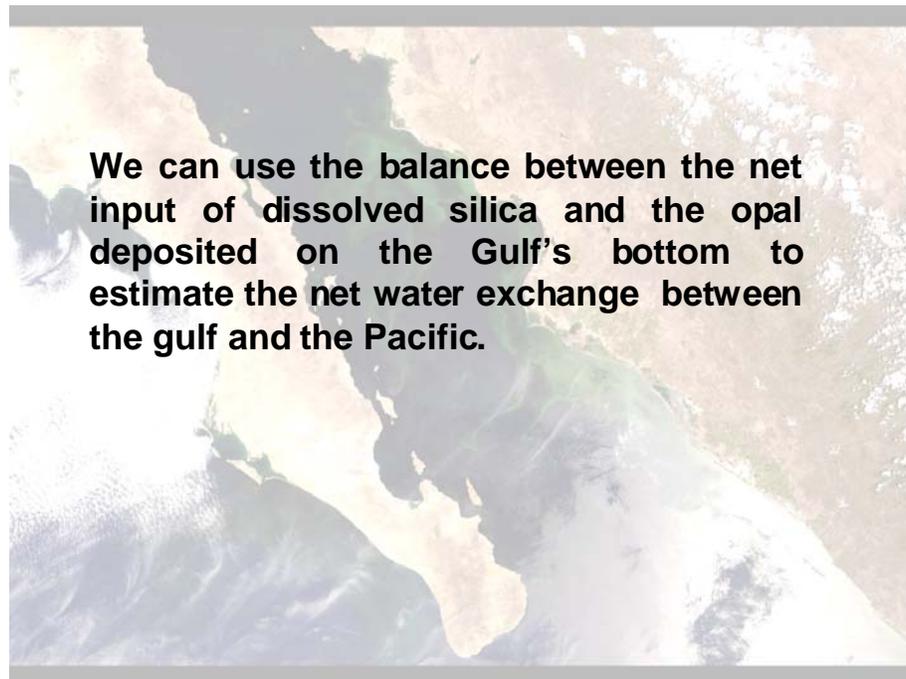
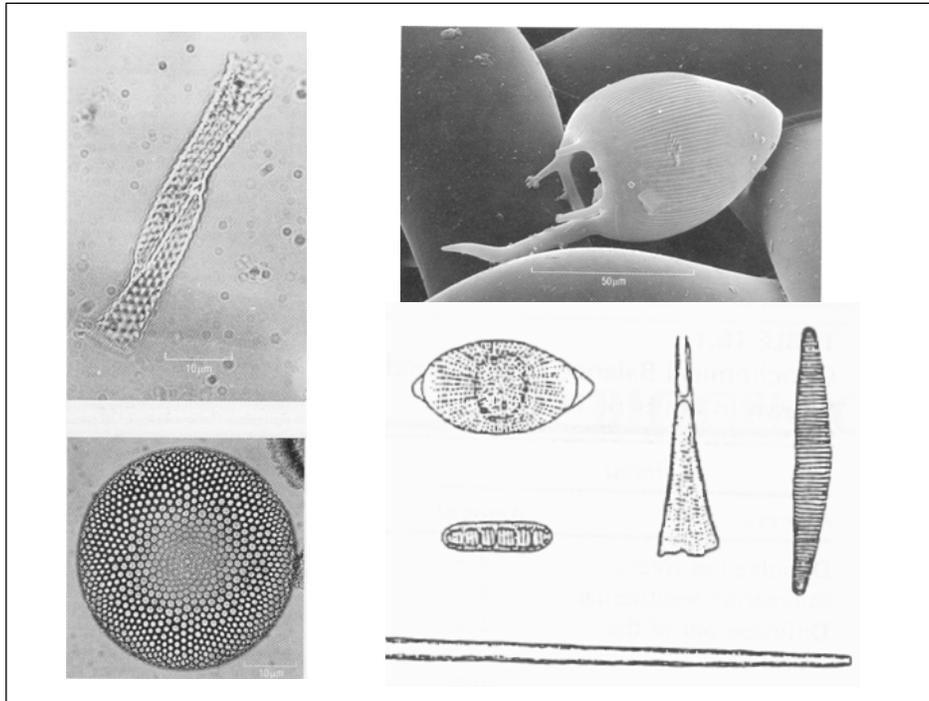
Roden and Groves (1959) (3.5 and 1.6 Sv) (salt and geostrophic method)

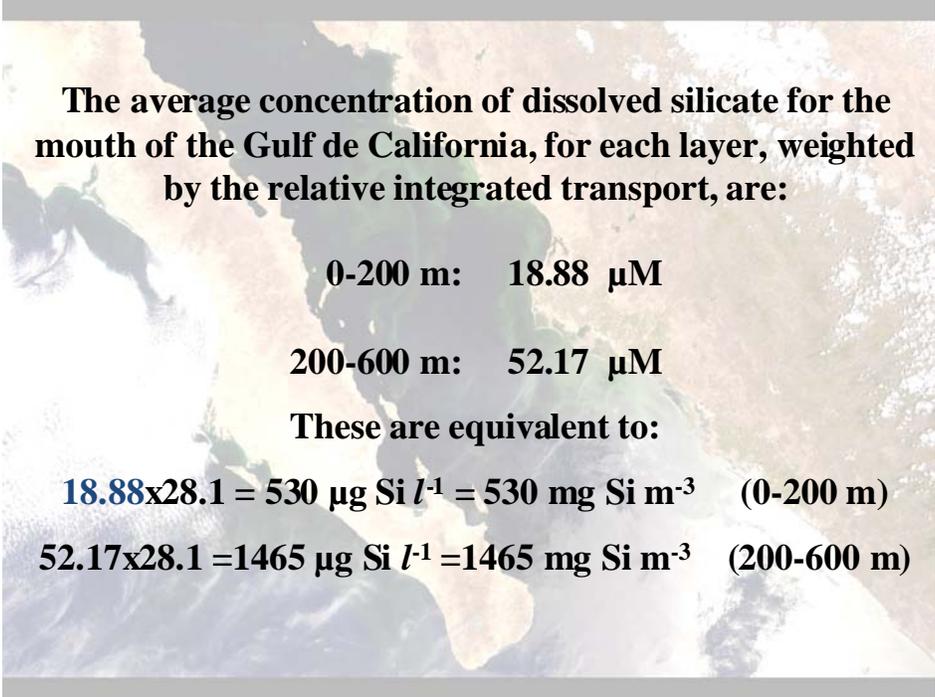
Warsh and Warsh (1971) (2.57 to 3.65 Sv)

Roden (1972) (10 to 12 Sv)

Bray (1988) ($0.4 \pm 0.05 \text{ Sv}$)







The average concentration of dissolved silicate for the mouth of the Gulf de California, for each layer, weighted by the relative integrated transport, are:

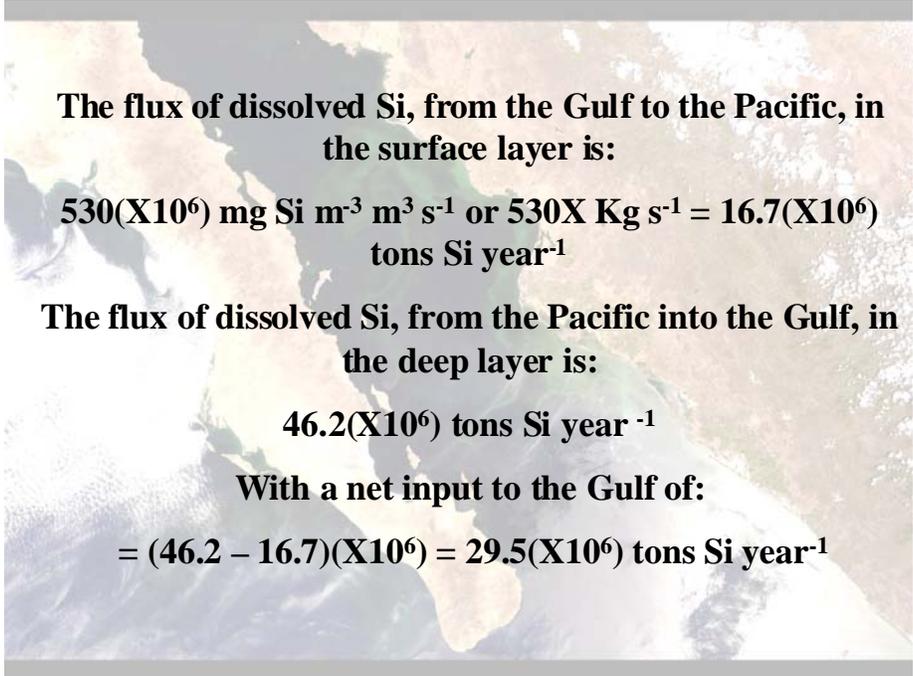
0-200 m: 18.88 μM

200-600 m: 52.17 μM

These are equivalent to:

$18.88 \times 28.1 = 530 \mu\text{g Si } l^{-1} = 530 \text{ mg Si m}^{-3}$ (0-200 m)

$52.17 \times 28.1 = 1465 \mu\text{g Si } l^{-1} = 1465 \text{ mg Si m}^{-3}$ (200-600 m)



The flux of dissolved Si, from the Gulf to the Pacific, in the surface layer is:

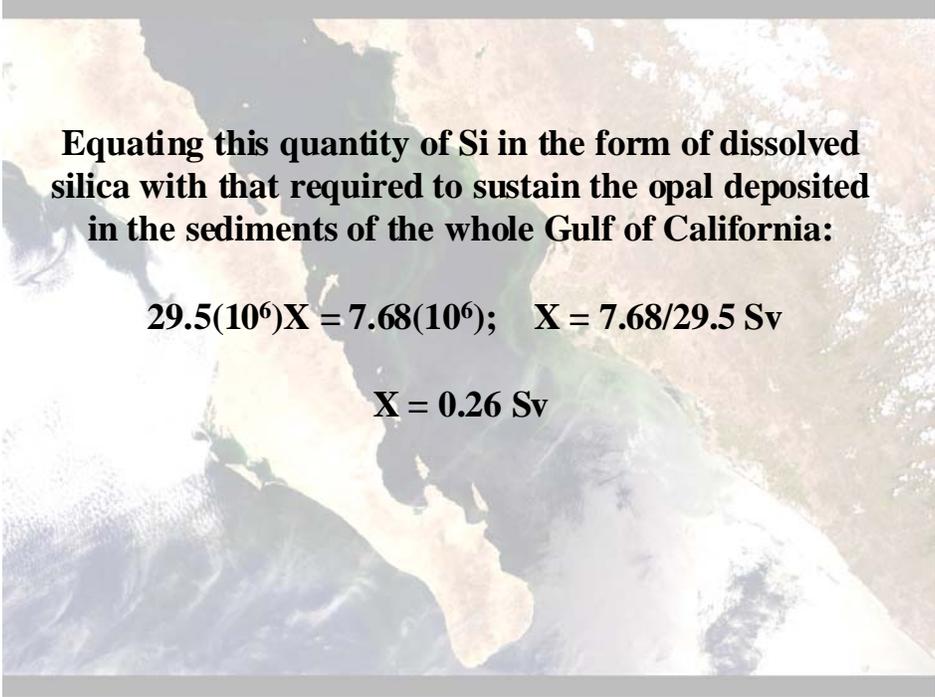
$530(\times 10^6) \text{ mg Si m}^{-3} \text{ m}^3 \text{ s}^{-1}$ or $530 \times \text{Kg s}^{-1} = 16.7(\times 10^6) \text{ tons Si year}^{-1}$

The flux of dissolved Si, from the Pacific into the Gulf, in the deep layer is:

$46.2(\times 10^6) \text{ tons Si year}^{-1}$

With a net input to the Gulf of:

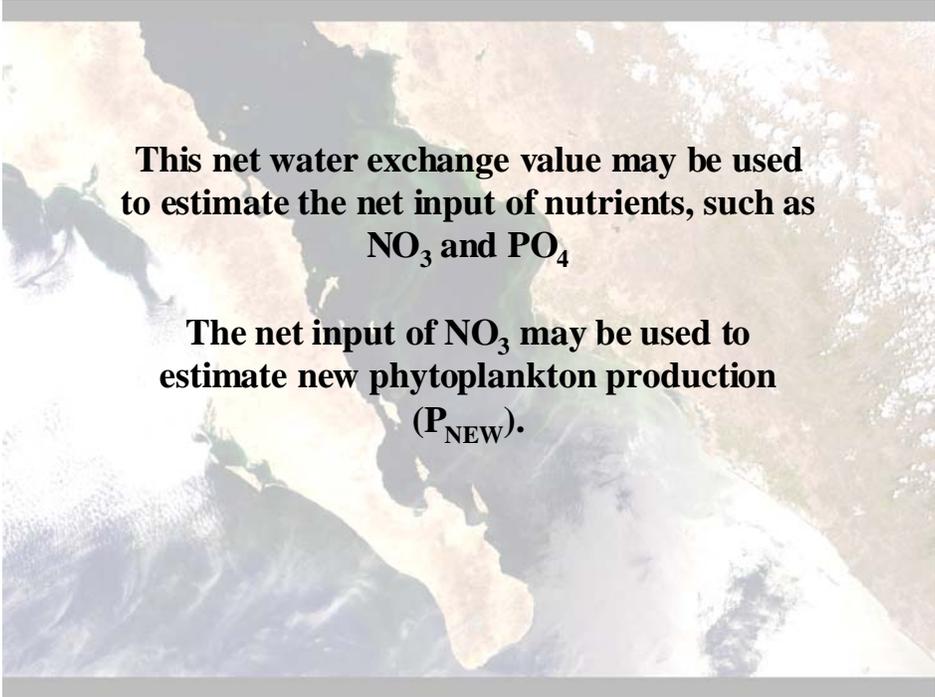
$= (46.2 - 16.7)(\times 10^6) = 29.5(\times 10^6) \text{ tons Si year}^{-1}$



Equating this quantity of Si in the form of dissolved silica with that required to sustain the opal deposited in the sediments of the whole Gulf of California:

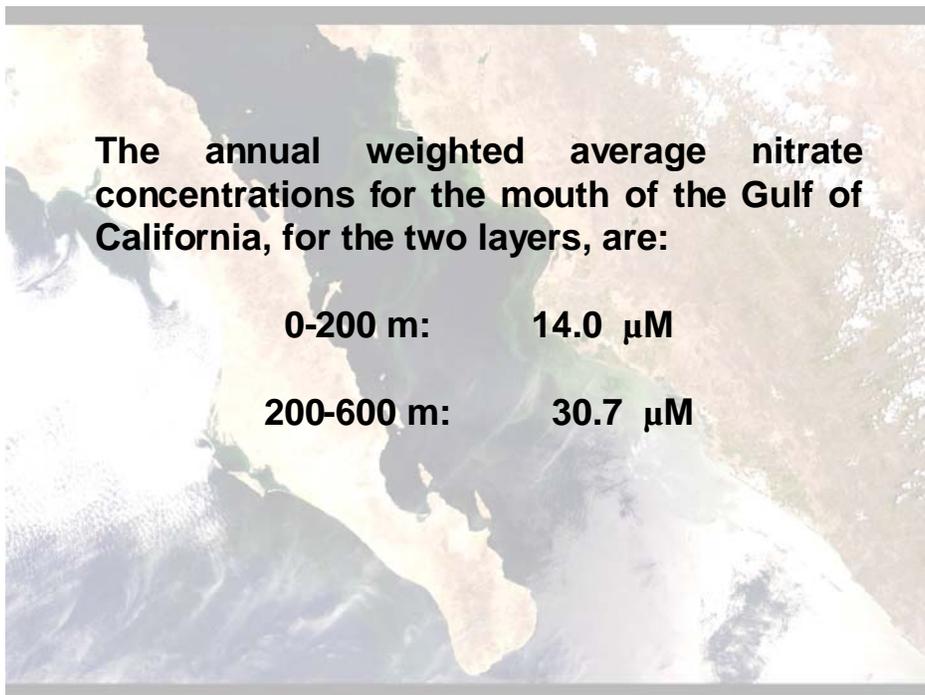
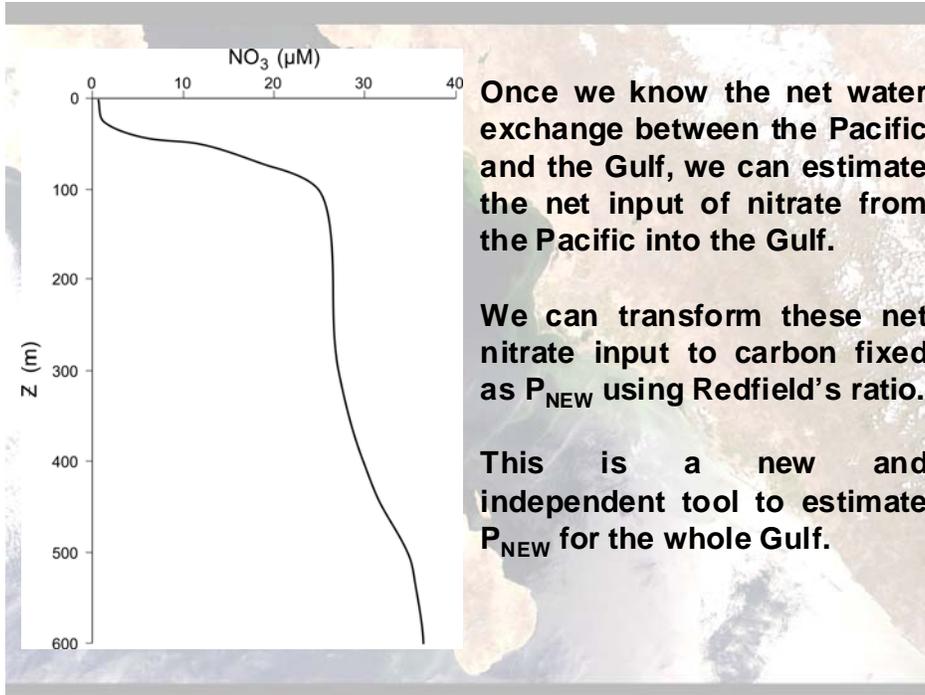
$$29.5(10^6)X = 7.68(10^6); \quad X = 7.68/29.5 \text{ Sv}$$

$$X = 0.26 \text{ Sv}$$



This net water exchange value may be used to estimate the net input of nutrients, such as NO_3 and PO_4

The net input of NO_3 may be used to estimate new phytoplankton production (P_{NEW}).



These are equivalent to:

14.0 mmols m⁻³ (0-200 m)
30.7 mmols m⁻³ (200-600 m)

The flux of NO₃ in the surface layer is:
14(0.26)(10⁶) mmols s⁻¹ = 114.79(10⁹) mols year⁻¹

The flux in the deep layer is:
251.72(10⁹) mols year⁻¹.

The net input of NO₃ from the Pacific into the Gulf is:
= (251.72 - 114.79)(10⁹) = 136.93(10⁹) mols year⁻¹.

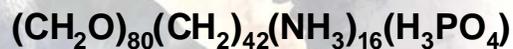
Considering that Redfield's ratios apply to Gulf's waters (Alvarez Borrego et al., 1978):

Redfield proposed the average organic molecule:

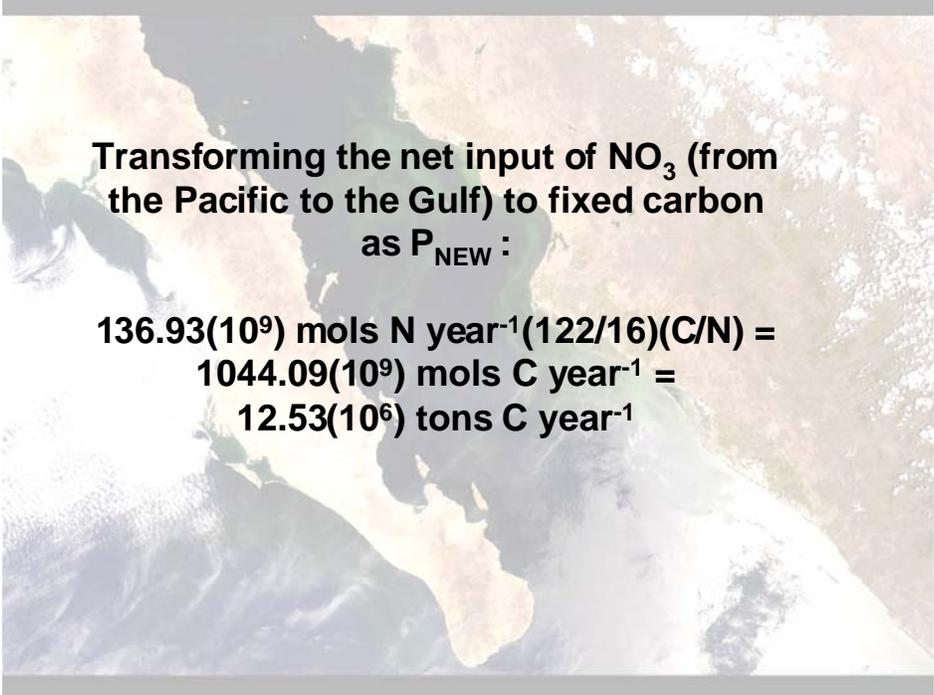


C:N = 106:16 in moles

More recently a new average molecule has been proposed:



C:N = 122:16 in mols



Transforming the net input of NO_3 (from
the Pacific to the Gulf) to fixed carbon
as P_{NEW} :

$$\begin{aligned} 136.93(10^9) \text{ mols N year}^{-1} (122/16)(\text{C/N}) &= \\ 1044.09(10^9) \text{ mols C year}^{-1} &= \\ 12.53(10^6) \text{ tons C year}^{-1} & \end{aligned}$$

E2. Bernstein, Brock: Importance of Public Involvement in Designations

Importance of Public Involvement in Designations

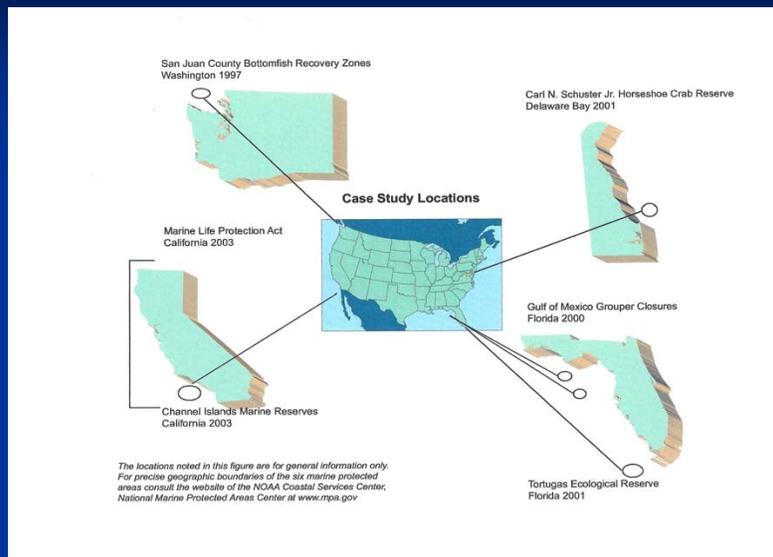
Brock Bernstein

Aquarium of the Pacific
September 23, 2010

NOAA Lessons Learned Project

- Sponsored by NOAA's National Marine Protected Areas Center
- Based on six case studies nationwide
 - Northwest Straits bottomfish recovery zones
 - California Marine Life Protection Act
 - Channel Islands (CA) Marine Reserves
 - Gulf of Mexico Grouper Closures
 - Tortugas 2000 Ecological Reserve
 - Horseshoe Crab Reserve

Case Studies



Northwest Straits

- Early sanctuary effort followed by more limited bottomfish recovery zones
- Preparation is key
 - Local concerns not well understood
 - Local interest groups not communicated with
- Develop and communicate clear goals
 - Affected credibility, effectiveness of responses
 - Sanctuary effort had no structure for follow-up
- Interagency coordination
 - Complex sanctuary efforts bogged down
 - County-led effort much simpler and effective
 - Understanding of local political context important

Northwest Straits (cont.)

- Manage disagreements
 - Go beyond simply asking for public input
 - Identify areas of common ground
 - Identify shared goals that help overcome disagreements
- Provide sustained leadership
 - Public leadership
 - Process leadership



Northwest Straits (cont.)

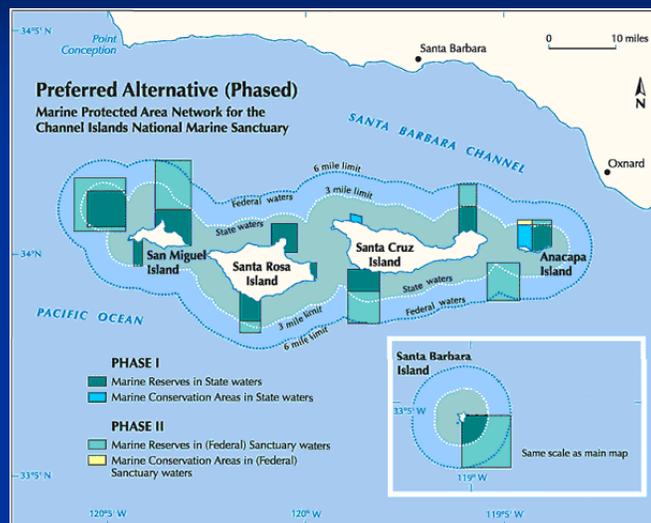
- Manage disagreements
 - Go beyond simply asking for public input
 - Identify areas of common ground
 - Identify shared goals that help overcome disagreements
- Provide sustained leadership
 - Public leadership
 - Process leadership



Channel Islands Marine Reserves

- Need up-front time for assessment, planning, goal setting
- Need ample communication with involved scientists
- Science advice should include key assumptions
- Consider outcomes other than consensus
- Convening entity should avoid dual roles
- Build maps collaboratively
- Consider long-term, both past and future

Channel Islands Proposal



Gulf of Mexico Grouper Closure

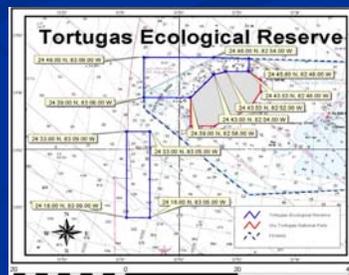
- Use existing processes (e.g., fisheries management)
- Evolving circumstances can make it difficult to define objectives
- New tools can require new processes
- Collaborative studies can overcome conflicts



Fish Havens: New Gulf marine reserves as set by federal managers this year:
A: Swanson and Madison site;
B: Steamboat Lumps

Tortugas Ecological Reserve

- Learn from past history, don't repeat it
- Use neutral facilitator
- Plan ahead and avoid surprises
- Include all major stakeholders
- But, stakeholders must have authority, be accountable
- Stick to groundrules
- Clarify goals early



Tortugas Ecological Reserve (cont.)

- Include fishermen's knowledge through an explicit process
- Manual map making can be better than GIS
- Create ongoing, innovative public input processes
- Avoid premature mapmaking

Horseshoe Crab Reserve

- Be aware of other related processes
- Take account of local politics
- Venerable leaders can have a large impact
- Treat economic interests fairly
- Develop simple, enforceable boundaries



Recommendations

- Early planning should include past history, relationships
- Process and planning / designation authority should be clear
- Stakeholder involvement should be embedded in the entire process, not treated in isolation
- Prepare for disagreement and conflict; understand their source(s)
- Avoid rigid consensus or other models
- Allow scientists to engage with stakeholders

Recommendations (cont.)

- Identify leadership for all phases / aspects of process
- Use skilled, neutral facilitation
- When using maps, consider how they are made, what they contain, how/when/by whom they will be used
- Understand what is flexible and what is not

Contact Information

Dr. Brock B. Bernstein

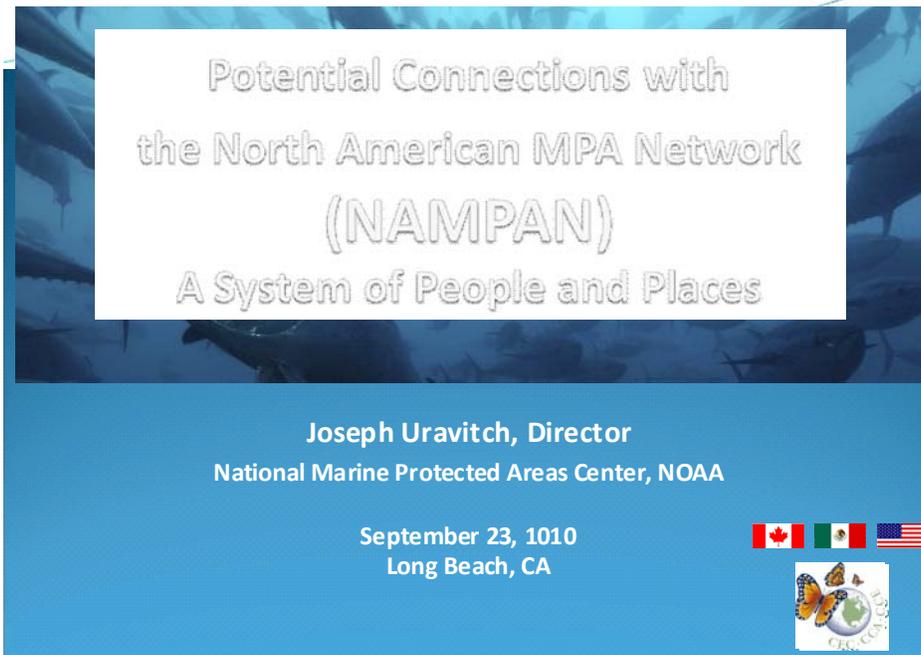
805-646-8369

brockbernstein@sbcglobal.net

B. Bernstein, S. Iudicello, C. Stringer, and MRAG Americas, Inc. 2004. Lessons learned from recent marine protected area designations in the United States. Prepared by the National Fisheries Conservation Center under contract to NOAA.

<http://www.mpa.gov/resources/publications/lessonslearned/>

E3. Uravitch, Joseph: *Potential Connections with the North American MPA Network (NAMPAN) A System of People and Places*



Potential Connections with
the North American MPA Network
(NAMPAN)
A System of People and Places

Joseph Uravitch, Director
National Marine Protected Areas Center, NOAA

September 23, 2010
Long Beach, CA



North American Marine Protected Areas Network (NAMPAN)

Goal of NAMPAN - work with a tri-national, multi-sectoral group of stakeholders to establish an effective system of North American MPA networks that enhances and strengthens the protection of marine biodiversity.

- Catalyzed by a tri-national, multi-disciplinary workshop in November 1999
- Products partially supported by Commission for Environmental Cooperation in North America's Conservation of Biodiversity Program.



NAMPAN Agencies

Mexico

- Comision Nacional de Ares Naturales Protegidas (lead)

USA

- Department of Commerce, NOAA (lead), Marine Sanctuaries, Estuarine Research Reserves, Fisheries Management Areas
- Department of the Interior – National Parks, National Wildlife Refuges
- State and Territorial Partners
- Tribes and Other Indigenous Peoples

Canada

- Parks Canada/Parcs Canada (lead) – National Parks
- Fisheries and Oceans/Peches et Oceans Canada – “MPAs”
- Environment/Environnement Canada – Sea/Shorebird Conservation
- Provincial and Territorial partners
- First Nations



NAMPAN Priorities



- Enhance collaboration among the three countries to address common challenges inherent in the protection of marine biodiversity
- Facilitate collaborative approaches to strategic design, establishment and monitoring of MPAs throughout North America.
- Develop effective conservation approaches and cross-cutting conservation initiatives that help conserve critical marine and coastal habitats and North American biodiversity
- Build regional, national and international capacity to manage, conserve, and monitor the status of critical marine and coastal habitats



NAMPAN OPERATIONAL CORE



Basic Information

- NAMPAN Contacts List
- North American Marine Ecoregions
- North American Areas of Ecological Importance and Threat
- North American Marine Priority Conservation Areas
- Map and Inventory of North American MPAs

Core Activities

- NAMPAN Web Site or Web Page
- Monitoring/Condition Reporting System (Public Scorecard)
- NAMPAN Plan

Other Project Areas

- As agreed upon by the parties (e.g. capacity building, training, exchanges, education, specialized workshops, etc.)

NAMPAN



North American-Wide Accomplishments

- Institutional Options for Integrated Management of a North American Marine Protected Areas Network (2002)
- Sustainable Whale Watching Practices for the B2B (2002)
- North American MPA Practitioners Exchange (2002)
- North American Action Plan Framework (2004)
- North American MPA Network Symposium on Financing and Economic Benefits of MPAs (2005)
- Marine Ecological Regions of North America Book, maps and website (2009)



NAMPAN Baja to Bering (B2B) Accomplishments

- Established functional network of managers of MPAs throughout B2B to protect shared species and spaces
- Identified list of 28 Marine Priority Conservation Areas (PCAs) along the west coast of North America
- Developed region wide system to assess and report on the ecological conditions of MPAs along the Pacific Coast of North America (in printing)
- Developed a continental and regional classification of marine ecological regions that improved our knowledge base of marine ecosystems



NAMPAN

Condition Report /Scorecard Pilot Project

14 common questions on water quality, habitat, and species condition



Canadian MPAs

- Pacific Rim National Park Reserve
- Xwayen Race Rocks Ecological Reserve
- Possible Atlantic coast sites in 2011



American MPAs

- South Slough National Estuarine Research Reserve
- California Channel Islands
- Tijuana River National Estuarine Research Reserve
- Atlantic coast sites in 2011 - planned



Mexican MPAs

- Isla Guadalupe Biosphere Reserve
- El Vizcaino Biosphere Reserve
- Bahía de Loreto National Park
- San Pedro Martir Island Biosphere Reserve
- Alto Golfo de California y Delta del Rio Colorado Biosphere Reserve
- Additional sites added



Sister Program: Marine Species of Common Conservation Concern



**E. Pacific Green
turtle**

Hawksbill turtle

Kemp's Ridley turtle

***Leatherback turtle**

Loggerhead turtle

***Pink-footed
shearwater**

**Short-tailed
albatross**

Xantus' murrelet

***Humpback whale**

Blue whale

Killer whale

Gray whale

Right whale

Guadalupe fur seal

Sea otter

***Vaquita**

* Conservation plan developed



Moving NAMPAN Forward in 2010-2011

Priority Conservation Area Identification

- ✓ Build upon the Baja to Bering Region process (PCAs in 2005)
- ✓ Adapt static PCA process to changing conditions in our oceans
- ✓ Adapt PCA process for consideration by new national initiatives

Atlantic to Caribbean Regional Workshop

“ICES Study Group on Designing Marine Protected Area (MPA) Networks in a Changing Climate” to inform the partner countries on potential considerations for new MPAs and MPA networks. (Woods Hole, MA - November 16-19, 2010)

Future: Inform New National Initiatives

- Canada: initiating a national gap analysis process
- Mexico: has completed its gap analysis process
- USA: initiating its national gap analysis process; also CMSP Initiative
- 2011-2012: define how to integrate “PCA” information of three nations



“NAMPAN and Coastal America/CELC Education Partnership”

Objective: elevates public awareness of the importance of Marine Protected Areas and that leads to designation, monitoring, and enforcement of an effective North American network of Marine Protected Areas, built on domestic MPA programs, that conserves marine life and cultural artifacts, and that promotes public ocean education.

Scoping workshop May 17-18, 2010 -- Long Beach, CA

- Stories that Make You Care about Marine Protected Areas and Networks
- Citizen Science

Proposed Second workshop, 2011 – Atlantic Coast



E4. Zhang, Juunjie: *The Economic Value of the Southern California Bight*

The Economic Value of the Southern California Bight

Junjie Zhang

Assistant Professor of Environmental Economics
School of International Relations & Pacific Studies
University of California, San Diego

The Role of Public Support in Protecting Special Places in the Gulf of California and the Southern California Bight Workshop

September 23-24, 2010

Introduction

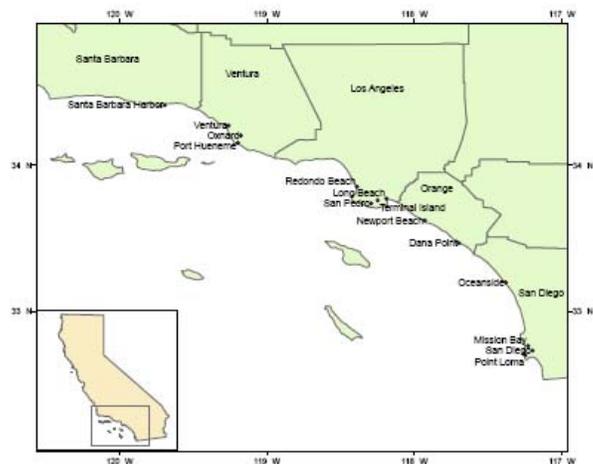
Southern California Bight (SCB)

- the stretch of coastline between Point Conception in Santa Barbara County to Cabo Colonett and Bahia de San Quintin in Baja California; we focus on the area within the U.S. border
- unique oceanographic conditions, marine ecosystems and biodiversity
- conflict of resource use

The data presented is from California Department of Fish and Game by default, otherwise it will be noted

1

Southern California Bight: Ports and Areas



2

Economic/Environmental Valuation

Sectors

- commercial fishing, sport fishing, aquaculture, recreation and tourism, ports, etc.

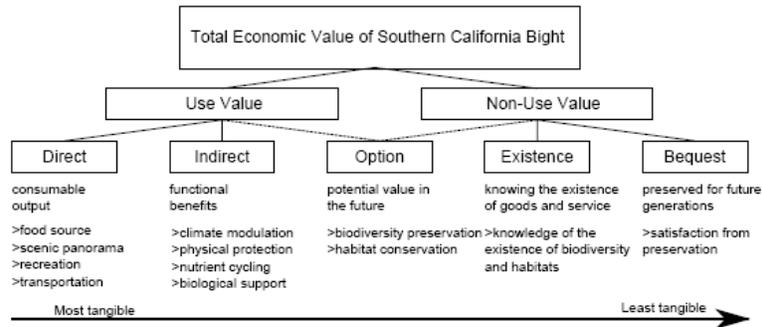
Types

- use value, non-use value

It is almost infeasible to assign a monetary value to the entire ecosystem of SCB; we focus on the goods, service, and benefits that can be reliably quantified

3

Total Economic Value: Concept



4

Commercial Fishing

Average annual commercial landings (2000-2009)

- 5 counties, 32 ports, 293 harvested species
- total: 244,255,980 pounds, \$59,668,376

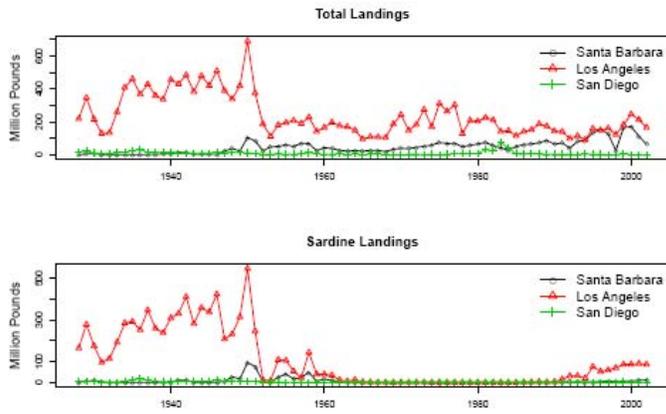
Commercial landings are highly concentrated in terms of ports and species

- port with largest landings: San Pedro 88,454,495 pounds, \$12,648,514
- top landed species: Market Squid 127,449,968 pounds, \$25,139,401

Environmental variability and fishing pressure cause substantial variations

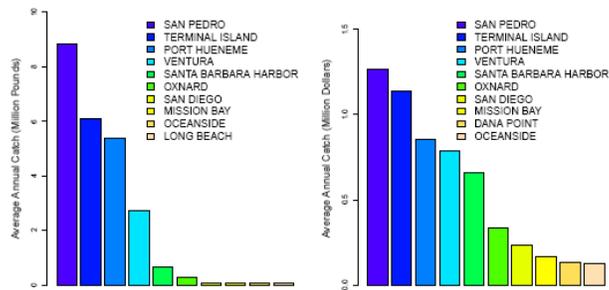
5

Landings by Areas 1928-2002



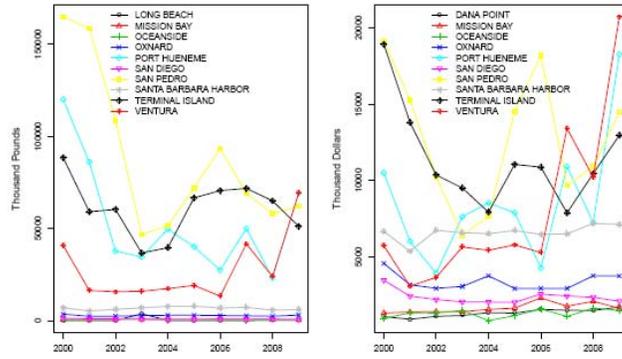
6

Top 10 Ports by Annual Landings



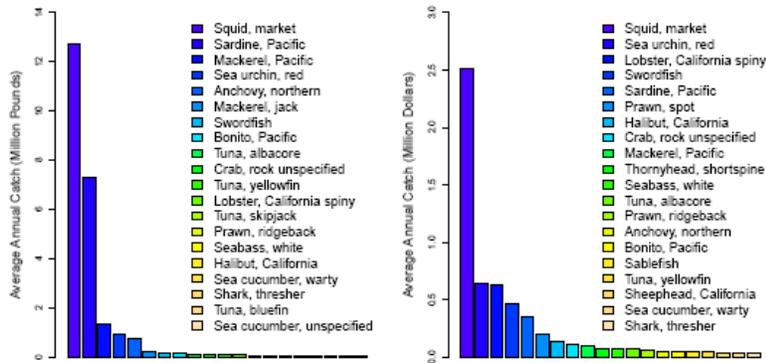
7

Landings by Ports 2000-2009



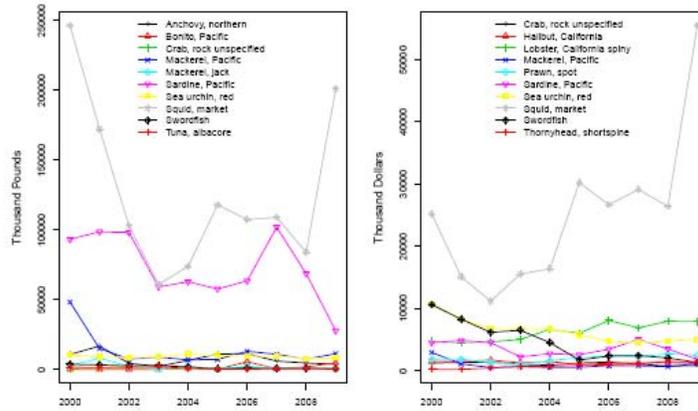
8

Top 20 Species by Annual Landings



9

Landings by Species 2000-2009



10

Economic Impact of Commercial Fishing

Final-demand multipliers (CA LWDA, 2002)

- fishing services: output 2.1726, earnings 0.5984, employment 27.3
- fishing products: output 2.0806, earnings 0.4845, employment 14.4

Economic impact of SCB commercial fishing (2009)

- output \$190,253,813, earnings \$52,401,676, employment 2,391
- only computing the harvest effect - lower bound
- need to include effects of expenditures on trips, durables and equipment

11

Recreational Fisheries

The utility of recreational fishing is from both catch and recreation; the economic impact can be measured by expenditures per angler

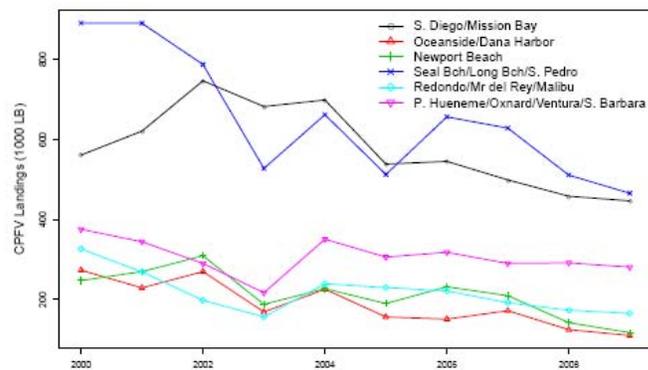
- charter boat, private boat, beach, bank and pier fishing

Commercial Passenger Fishing Vessels (CPFVs) average annual activities (2000-2009)

- total landings: 2,159,818 pounds
- number of anglers: 462,779
- reporting CPFVs: 232

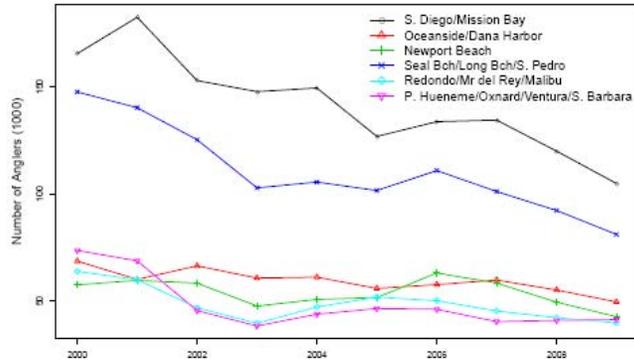
12

CPFV Total Landings 2000-2009



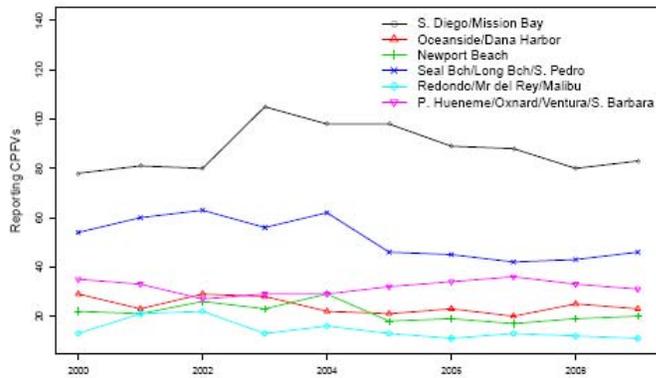
13

Number of Anglers 2000-2009



14

Reporting CPFVs 2000-2009



15

Economic Impact of Recreational Fishing (NOAA,2004)

Mode and resident status	Total trip expenditures (\$1,000)	Impacts		
		Sales (\$1,000)	Income (\$1,000)	Employment (jobs)
Party boat				
Resident	69,887	109,553	43,055	2,107
Non-resident	57,294	92,900	39,135	1,326
Total	126,681	202,453	82,190	3,433
Private boat				
Resident	62,627	76,908	25,235	749
Non-resident	15,241	22,557	8,371	248
Total	77,868	99,465	33,606	997
Shore				
Resident	19,446	24,942	8,881	290
Non-resident	5,203	7,603	2,720	83
Total	24,649	32,545	11,601	373
All modes				
Resident	151,460	211,408	77,171	3,146
Non-resident	77,738	123,060	50,226	1,657
Total	229,198	334,468	127,397	4,803

16

Other Direct Use Values

Kelp and sea vegetable harvesting

- 150,000 wet tons during 1970-1980; 40,000 tons during 1999-2001

Marine aquaculture

- more than 20 species of fish, shellfish & aquatic plants (PACAQUA,2004)

Recreation and tourism

- beach visiting (12.6M), swimming(8.4M), sightseeing (4.2M), saltwater fishing (2.7M), saltwater bird watching (2.6M) (SCCWRP, 2003).

17

Ocean minerals and fossil fuels

- marine minerals
- offshore oil and natural gas production (2001): oil \$1.4 billion; natural gas \$277 million (CA DOC,2001)

Marine transportation

- Port of Los Angeles: revenue \$351.5 million USD (FY 2004)

Marine construction

- ports, marine infrastructure and beach nourishment

18

Ecosystem Service (Constanza et al., 1997)

Open ocean (\$252 per ha per year)

- gas regulation, nutrient cycling, biological control, food production, raw materials, cultural

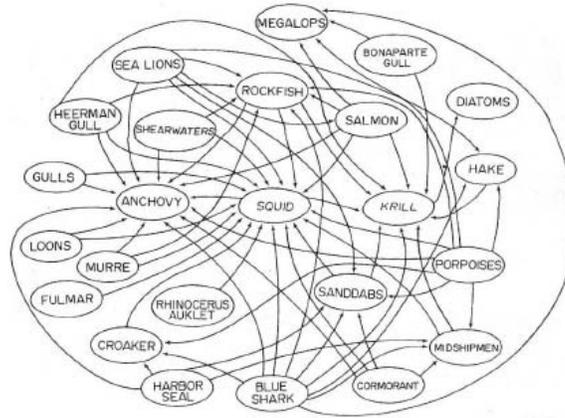
Coastal (\$4,052 per ha per year)

- disturbance regulation, nutrient cycling, biological control, habitat/refugia, food production, recreation, cultural

Other Biome: estuaries (\$22,832), seagrass/algae beds (\$19,004), coral reefs (\$6,075), shelf (\$1,610)

19

Food Web for Market Squid (Morejohn et al. 1978)



20

Conclusion

Direct use value can be reliably quantified by market valuation (commercial fishing and recreational fishing)

Indirect use value can be recovered by environmental valuation methods

Value transfer is not reliable

Caveats and problems

- role of discounting
- uncertainty and irreversibility

21

Conservation and human development in the Gulf of California



Roberto R Enriquez Andrade
Faculty of Marine Sciences
Autonomous University of Baja California

International Workshop
The Roles of Public Support in Protecting
Special Places in the Gulf of California and
the Southern California Bight

September 23-24, 2010

1

What is development?

- In economics and other social sciences “development” refers to the process by which societies increase the standards of living (quality of life).
- Not to confuse with “economic growth” (increases in GDP)

Is development linked to conservation?

- Economic activities and human well-being depend on a healthy functioning ecosystem
- The benefits we receive from ecosystems are multiple include all our food, water, materials, energy and protection, as well as opportunities for recreation, cultural inspiration and spiritual fulfillment
- By focusing on the various benefits humans receive from ecosystems we can see more clearly the direct and indirect ways that human well being depends on conservation of the natural environment

3

Ecosystem services

- Ecosystem services are components of nature, directly enjoyed, consumed, or used to yield human well-being.
- This definition conveys the important idea that ecosystems are socially valuable and in ways that may not be immediately intuited.

Ecosystem features and functions

Ecosystem Services

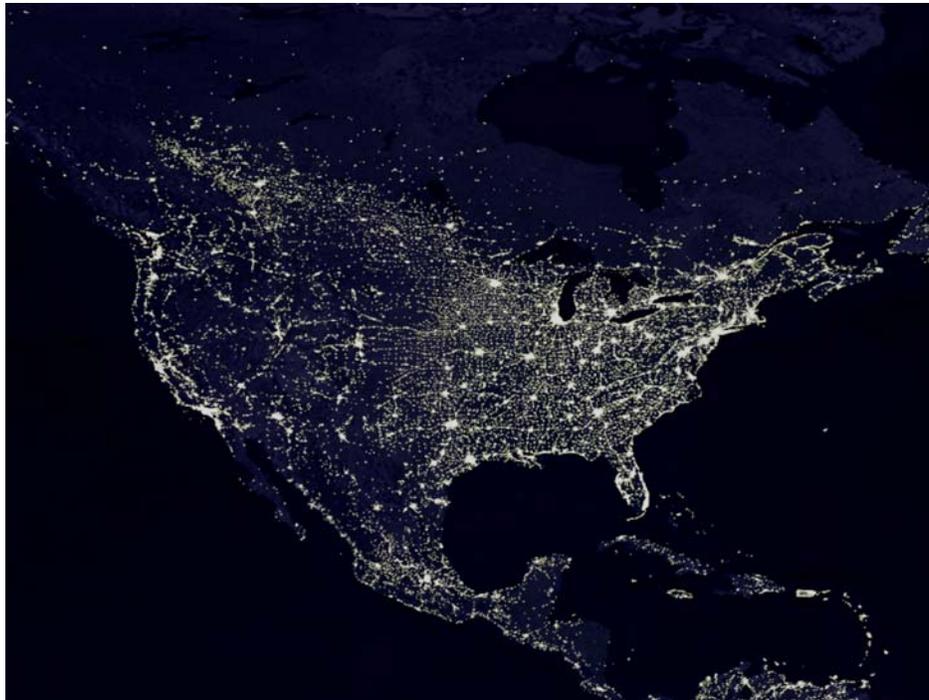
Human needs and wants

4

Natural Capital

- Due to the capacity of ecosystems of providing humans with a flow of goods and services, natural resource economists consider them a form of capital —the natural or ecological capital
- The decisions we make today, regarding transformation and conservation of this capital, have important consequences on human welfare both in the present and for the future
- From this perspective conservation is a form of investment

5





Conservation and development in the Gulf of California

- Good news
 - Gulf of California extremely valuable from the ecological and economic perspectives
 - Relatively untransformed
 - Under jurisdiction of one nation
 - Increasing awareness of its importance (NGO involvement)
- Bad news
 - These values have not translated into high standards of living for coastal communities
 - Many resources are not being used in a sustainable way, therefore future expectations of increasing living standards are not encouraging
 - Current institutional setting (BAU scenario) may lead to rapid degradation of the G.C. ecologic and economic values

8

Existing Institutional Setting

- In paper, (Article 27 of Constitution) cooperation through public planning , direct regulation and public participation should guide decisions regarding proper use (and conservation) of the nations´ coasts and oceans
 - Ordenamiento ecológico
 - Natural protected areas
 - Direct regulation
 - Environmental impact
- In reality unfettered markets are the overriding forces guiding user decisions (including international markets)

9



Why free markets fail to recognize the economic importance of conservation?

- Ecosystem services are not exclusive, not rival or both
- i.e. they are public rather than private goods

11

Sources of market failure

- Implicit subsidies: privatization of benefits and socialization of costs
- Misleading prices: public benefits private costs
- Irreversibility
- Market power
- High discount rates
- Rent leakage
- Uncertainty
- Social conflicts

12

Making conservation and development compatible through greening of markets

Is it possible?

13

- Shift regional economic policies from growth oriented to development oriented

14

Eliminate implicit subsidies by Making resource users accountable for all the costs

- Cap and trade
- Mitigation banking
- Transferable development rights (TDRs)
- Other offsetting schemes
- Also eliminate harmful formal subsidies

15

Setting the prices right User pays principle

- Payments for ecosystem services
- Allow local communities to profit from conservation
 - Concessions and tenure arrangements

16

Eliminate market power

- Empower and inform local communities
- Fiscal and other economic incentives for not selling their lands

17

Reduce uncertainty

- Information
- Precautionary principle

18

D. Some Suggested Resources

Collaboration

The Nature Conservancy, Conservation International, and Conservation and Community Investment Forum. 2008. *Workshop Proceedings for a Private Sector Approach – Conservation Agreements in support of Marine Protection*. Seattle, WA.

http://www.mcatoolkit.org/pdf/PMCA_Workshop/1_MCAWorkshop_FullProceedings.pdf

Marine Ecosystems

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http://www.eoearth.org/article/Gulf_of_California_large_marine_ecosystem

National Centers for Coastal Ocean Science. 2007. *National Centers for Coastal Ocean Science Human Dimensions Strategic Plan*. Silver Spring, MD: National Oceanic and Atmospheric Administration, National Ocean Service, National Centers for Coastal Ocean Science. 46 pp.

<http://coastalscience.noaa.gov/human/strategy/NCCOSHDPlan.pdf>

Seeliger, U., and b. Kjerfve, B. 01. *Coastal marine ecosystems of Latin America*. Springer, 350pp.

WWF. 2007. *Gulf of California: protecting the world aquarium*.

<http://www.worldwildlife.org/what/wherewework/gulfofca/WWFBinaryitem8820.pdf>

Marine Protected Areas

California Dept. Fish and Game. 2010. *Marine Life Protection Act Initiative*. Sacramento: CDNR.

<http://www.dfg.ca.gov/mlpa>

MPA News: International news and analysis on marine protected areas, MPA News serves the global MPA community with news, views, analysis, and tips gathered from experts around the world. MPA News serves the global MPA community with news, views, analysis, and tips gathered from experts around the world. MPA News and this website are published by Marine Affairs Research and Education (MARE), a 501(c)(3) not-for-profit corporation, in association with the University of Washington School of Marine Affairs, Seattle, Washington, USA. Current and archived issues of MPAs can be downloaded from the website in English and Spanish. .

<http://depts.washington.edu/mpanews/>

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<http://www.greenpeace.org/raw/content/sweden/rapporter-och-dokument/a-marine-reserve-network-for-t.pdf>.

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Toolkit for Public Engagement and Capacity Building

Open OceanMap

Open OceanMap allows users to build local participation into the marine spatial planning process. Enabling the compilation of expert knowledge about the economic importance of fishing grounds or other marine resources, Open OceanMap helps scientists, managers and communities understand the ecosystem in a social context. Information about OceanMAP is available at <http://www.ecotrust.org/ocean/OpenOceanMap.html>

Marine Map

MarineMap is a real-time, web-based decision support tool that allows users to create, compare, analyze and discuss alternative spatial planning proposals. The MarineMap Consortium includes the University of California Santa Barbara, The Nature Conservancy and Ecotrust. More information about MagicMap is available at <http://marinemap.org>

Marine Spatial Planning

Costello, C., A. Rassweiler, D. Siegel, G. De Leo, F. Micheli, A. Rosenberg. (2010). *The value of spatial information in mpa network design*. PNAS Early Edition: 1-6.

Primer

Public Agenda Center for Advances in Public Engagement (CAPE) primer
The center researches, develops and disseminates new insights and practices that contribute to the field of public engagement elements of our evolving approach to this work. The primer summary is organized around these themes.

- I. Public Engagement: Creating Civic Capacity for Public Problem Solving
- II. Ten Core Principles of Public Engagement
- III. Examples of Key Practices and Strategies
- IV. The Power of "Citizen Choicework"

http://www.publicagenda.org/files/pdf/public_engagement_primer_0.pdf

Scenarios

Velarde, S. et al. 2007. *Preparing for a changing environment: using scenarios for environmental education*. Presented at 4th World Environmental Education Congress, 2-6 July 2007, Durban, South Africa,
<http://www.asb.cgiar.org/pdfwebdocs/Velarde-et-al-2007-Preparing-for-a-changing-environment.pdf>

The subject of this paper is how scenarios and visioning are useful tools for environmental education, in particularly for changing environments (social and biophysical). The scenarios

methodology is outlined and lessons learned from use of scenarios as an environmental tool presented. The emphasis is on children and young adults but the information is readily adaptable to older age groups. An analysis of the benefits and challenges of using scenarios for environmental education to accomplish environmental awareness objectives is discussed.

Social Media

Bertot, J. C., et al. 2010. Engaging the public: social media technology and policy for government transparency.

http://www.tmsp.umd.edu/TMSPreports_files/6.IEEE-Computer-TMSP-Government-Bertot-100817pdf.

Scientific Literature

Prepared by staff of the California Department of Fish and Game's MLPAI, this website contains links to lists of some of the scientific literature regarding marine protected areas. This list, though comprehensive, is not exhaustive. For each article, a link to its abstract is provided. The literature is arranged into several broad subject areas and alphabetically by author within those areas. At the time of inclusion in this report (November 2010), the list was last updated in June 2010. **URL:** <http://www.dfg.ca.gov/mlpa/science1.asp>.

- MPA Design
- MPA Effectiveness - Inside and Adjacent to MPAs
- MPA Effectiveness and Fisheries Management
- Social and Economic Analysis
- Larval Production and Transport
- MPA Modeling
- Human Impacts on the Marine Environment

Social Science and Socio-economics

Websites

Ecosystems Valuation: a website designed for non-economists who need answers to questions about how the benefits of ecosystem conservation, preservation, and restoration. A non-technical explanation of ecosystem valuation, concepts, methods, and evaluation is provided. conservationhow people. <http://www.ecosystemvaluation.org/>

NOAA Ocean Science Center: *Social Science Methods for Marine Protected Areas: An Overview for MPA Managers and Staff.* This website is designed to help marine protected area (MPA)* managers use social science to accomplish their goals. Specifically, this site provides basic information about social science concepts and methods, and guides managers in determining the appropriate tools, such as surveys and cost-benefit analyses, to address their specific issues. Managers will learn, too, how to be informed users of social science research. <http://www.csc.noaa.gov/mpass/>

Alton, M.T. 2004. An approach for integrating economic impact analysis into the evaluation of potential marine protected area sites. *Journal of Environmental Management* 70(3): 333-349.

Klein, C. J., A. Chan, L. Kircher, A. J. Cundiff, N. Gardner, Y. Hrovat, A. Scholz, B. E. Kendall and S. Airame. 2008. Striking a balance between biodiversity conservation and socioeconomic viability in the design of marine protected areas. *Conservation Biology* 22:691-700.

Richardson, E. A., M. J. Kaiser, G. Edwards-Jones and H. P. Possingham. 2006. Sensitivity of marine-reserve design to the spatial resolution of socioeconomic data. *Conservation Biology*. 20:1191-1202.

Scholz, A., K. Bonzon, R. Fujita, N. Benjamin, N. Woodling, P. black, and C. Streinback. 2004. *Participatory socioeconomic analysis: drawing on fishermen's knowledge for marine protected area planning in California*. *Marine Policy*. 28(4): 335-349.

Scultz, A., et al. 2008. *Commercial and recreational fishing grounds and their relative importance off the North Central Coast of California: report to the Marine Life Initiative*. Portland, OR: EcoTrust. In gathering some of the data for this report 174 commercial and 101 recreational fishermen. Many of the fishermen were Native Americans. The researchers collected new information on the spatial extent of fishing activities and the fishermen who are actively engaged in these fisheries. In the absence of comprehensive observer coverage, vessel monitoring systems or other fishery-independent data collection devices, by far the best source of information about the fishing grounds is the fleet itself. The goal was to develop maps of the fishing grounds and characterize their relative importance for various fisheries.

Methods included: a local knowledge interview instrument, using an interactive, custom computer interface, to collect geo referenced information about the extent and relative importance of North Central Coast Study Region (NCCSR) commercial and recreational fisheries. We compiled these data in a geographic information system (GIS) that we delivered to the MLP AI for integration into a central geodatabase. We also analyzed the fishery data in combination with additional data provided to us by the California Department of Fish and Game (CDFG) to estimate first order maximum potential impacts of proposed marine protected area networks developed in the Marine Life Protection Act (MLPA) process.

Smith, M. D., J. Lynham, J. N. Sanchirico, and J. A. Wilson. 2006. *Political economy of marine reserves: Understanding the role of opportunity costs*. PNAS Early Edition: 1-6.

Smith, M. D. and J.E. Wilen. 2003. Economic impacts of marine reserves: the importance of spatial behavior. *Journal of Environmental Economics and Management* 46: 183-206.

Public Engagement/Capacity Building

Fox, S., & Livingston, G. 2007. Latinos online: Hispanics with lower levels of education and English proficiency remain largely disconnected from the Internet. Washington, DC: Pew Internet and American Life Project. <http://www.pewinternet.org>

Bertot, J. C., Jaeger, P. T., & Grimes, J. M. 2010. Using ICTs to create a culture of Transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly*, 27, 264-271.

Grorud-Colvert, k., et al. 2010. *Communicating marine reserve science to diverse audiences* in Proceedings of the National Academy of Sciences (28 April 2010). <http://www.citeulike.org/user/mrvaidya/article/7218108>.

Helvey, M. 2004. Seeking consensus on designing marine protected areas: Keeping the fishing community engaged. *Coastal Management*. 32: 173-190.

McNamara, Carter. *General Guides for conducting interviews*. Free Management Library:
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Weible, C. M. 2007. An advocacy coalition framework approach to stakeholder analysis: understanding the political context of California marine protected area policy. *Journal of Public Administration Research and Theory*. 17:95-117.

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Cárdenas-Torres, N., R.Enríquez-Andrade, and N. Rodríguez-Dowdell. 2007. Community-based management through ecotourism in Bahia de los Angeles, Mexico. *Fisheries Research* 84:114-118

Dailey, M. D., Reish, D. J., Anderson, J. W. (editors), 1993. *Ecology of the Southern California Bight: A Synthesis and Interpretation*. University of California Press, Berkeley / Los Angeles / London, 926

Diaz-Amador, M. 2005, Cross-scale institutional arrangements for whale shark *Rhincodon typus* management and conservation opportunities for sustainable livelihoods. MS diss., Lincoln University.

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