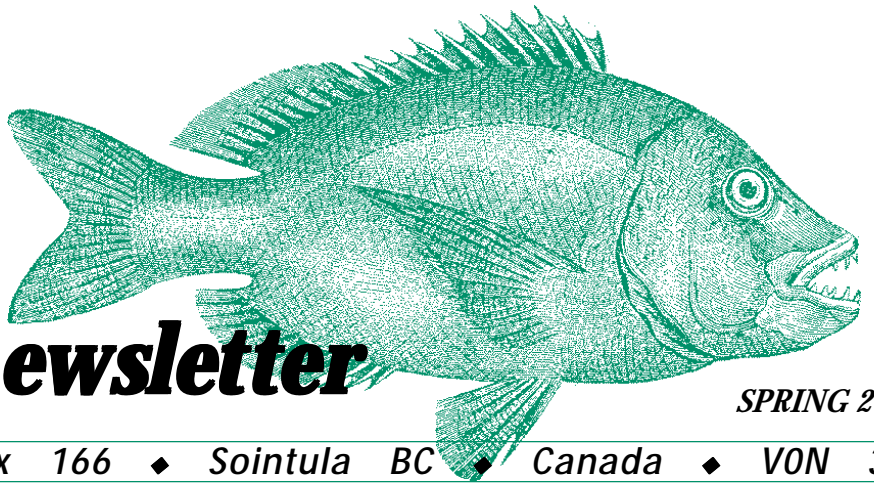


LIVING OCEANS

newsletter



SPRING 2000

Living Oceans Society ♦ Box 166 ♦ Sointula BC ♦ Canada ♦ VON 3E0

WHAT IS A MARINE PROTECTED AREA?

The ocean along Canada's west coast is in peril. Fisheries mismanagement, the threat of offshore oil and gas exploration, fish farming, and global warming threaten one of the most spectacular and unique marine environments in the world. Our ocean is a biologically rich environment with at least several hundreds of species of fish, over 3000 species of invertebrates and numerous marine mammals and seabird species. While we cannot even begin to understand the complex relationships of all these species, we do know that maintaining the diversity of marine species, ecosystems and genetic variation is critical to ocean health. We also know that the survival of our coastal communities is dependent on a healthy ocean and therefore something must be done.

Living Oceans Society (LOS) contends that marine protected areas (MPAs) are a critical and underutilized tool in conserving marine biological diversity and building sustainable fisheries. Examples around the world have shown how commercial and recreational fishermen have benefited from the establishment of marine protected areas (see No-Take MPAs: A Fisherman's Friend on page 4). However despite the efforts of Living Oceans Society and other organizations to increase awareness of the need for marine protected areas, many people remain unsure of what marine protected areas are and how they help our ocean. The reason for this is simple: **the definition of marine protected areas is vague, leaving First Nations, fishermen, recreationists and others unsure how a marine protected area will affect them.**

Existing definitions of marine protected areas (MPA).

The World Conservation Union, has defined a marine protected area as "...any area of intertidal or sub tidal terrain, together with its over-

lying waters and associated flora and fauna, and historical and cultural features, which has been reserved by legislation to manage and protect part or all of the enclosed environment". Under this definition, an area that prohibited the harvest of kelp but allowed extensive commercial and recreational fishing, drilling for oil, or the establishment of a fish farm would be considered an MPA.

In Canada there are six pieces of legislation that can be used to establish marine protected areas (see page 4 for details of the legislation). All of these legal tools are based on definitions similar to the vague World Conservation Union definition. This has resulted in a very confusing situation. According to the federal and provincial governments, there are 104 marine protected areas in BC. However most of these MPAs, known more commonly as marine parks, marine ecological reserves, wildlife management areas, migratory bird sanctuaries, or national marine conservation areas, permit activities such as commercial and recreational harvesting, fish farms, and other activities that could have a negative impact on the ocean. In fact there are currently only two MPAs in BC that actually protect marine life and habitat and they cover a mere forty-nine hectares.

According to Dr. Jon Lien of Memorial University, attempts by Parks Canada to establish a National Marine Conservation Area in Newfoundland failed because there was no clear definition. Although extensive efforts were made to include local fishermen in the design of this MPA, most felt that the project would not increase the conservation of the ocean but would just add another layer of bureaucracy.

In contrast, efforts in New Zealand to establish clearly defined no-take marine protected areas,

where all commercial and recreational harvesting is prohibited, have been quite successful. Government agencies, scientists, and conservationists established sixteen no-take MPAs with the support of commercial and recreational fishermen, the Maori communities and the general public. The clear definition and goals of these no-take areas made it easier for everyone to understand and in turn, support. The 16 no-take areas have all shown positive benefits for the commercial and recreational communities.

...continued on page 6



Living Oceans Society's Strategy for Effective MPA Design

Establish a core network of **no-take marine protected areas**



Core no-take areas should have **buffer zones** that prohibit exploration and extraction of non-renewable resources, bottom trawling, dumping and dredging, and open net cage fish farms



The network of MPAs must include representation of **all habitat types**



The network of MPAs must include replication of **each habitat type in each region** of our waters



From the Executive Director

Conserving the ocean is a complex undertaking. At Living Oceans Society, we believe that while marine protected areas will not solve all the dangers facing the ocean today, they are nonetheless a critical factor in ocean conservation. Experience worldwide has taught us that only MPAs that are supported by fishermen and other stakeholders are successful in meeting their goals. Therefore we have chosen to devote most of our energies towards research and education about the benefits of MPAs.

In this issue of our newsletter we wade through the thorny issue of defining MPAs and show why we think no-take MPAs play an integral role in an effective MPA Strategy. We also address the issue of the effect of no-take areas on fisheries. See our article No-Take MPA's: Fishermen's Friend for a discussion of the evidence surrounding

no-take areas benefiting fisheries.

While it is fine to discuss the benefits of MPAs, we can't establish them without understanding the role of provincial and federal government in ocean management. In fact, it is because so many levels of government and so many agencies are involved that many people become confused. In this issue we outline the current jurisdictions for the respective levels of government and the legislation they use to establish MPAs.

In our regular column Wave Reviews, Living Oceans Society gives our Siskel and Ebert analysis of some MPA videos now available through LOS.

And finally, we give you an update of the goings on at Living Oceans Society. It has been a very busy year for us and we are growing quickly. We have new staff, a new office, and some outstanding programs for you to catch up on. We hope you enjoy this issue of the Living Oceans Newsletter and we always welcome your input, assistance, and feedback.

Jennifer Lash

Living Oceans Society is a non-profit organization committed to the preservation of marine biological diversity and creation of sustainable fisheries through the establishment of a network of marine protected areas and ecosystem management of our ocean.

The vision of the Living Oceans Society is to ensure all stakeholders are part of marine conservation efforts. By working with stakeholders, participating in multi-stakeholder processes, organizing workshops and sharing information about our projects, Living Oceans Society is part of the movement to build new approaches to conserving the health of our ocean.

Advisors and Board of Directors

Dr. Elliott Norse, President
Marine Conservation Biology Institute
Founding Member and Advisor



Dr. Michael Soule, Research Professor
University of California – Santa Cruz
Founding Member and Advisor



Natasha Hopkins
Funding Liaison, David Suzuki Foundation
Chairperson



Dr. Jody Holmes
Sierra Club of BC
Director



Catherine Stewart
Forest Campaigner, Greenpeace Canada
Director



Karen Wristen
Executive Director, Sierra Legal Defence Fund
Director



Box 166
Sointula, BC
VON 3E0 CANADA

Phone 250-973-6580
Fax 250-973-6581
oceans@livingoceans.org
www.livingoceans.org

Come visit us at our new home!
179 Second St. Sointula, BC, Canada

All Living Oceans Society Projects Advance:

The science of conservation
biology



Ecological and economic
sustainability



Co-management with
stakeholders and First Nations



People as part of the
environment



The resolution of land claims



Living Oceans Society in Action



New Developments

Oil and Gas Research

As a result of articles that appeared in coastal newspapers heralding the great wealth that will be reaped from opening our coast to oil and gas development, Living Oceans Society hired researcher Oonagh O'Connor to document the other side of this story.

At Living Oceans Society, we believe the public needs access to all the information. For example, what the articles failed to mention was that no oil and gas has been located in this region, that exploration techniques can threaten fish stocks and the disastrous impact that a spill would have.

Oonagh's responsibility will be to gather information from around the world, then write a series of articles about the economic, social and ecological ramifications of offshore oil and gas development. These articles will then be distributed to newspapers along the coast to raise awareness of the dangers involved with this industry.

MPA Campaigner Hired

In February 2000, the Living Oceans Society hired Aaron Tinker to help with the establishment of marine protected areas. Aaron will be organizing the West Coast MPA Conference for the spring of 2001. This conference will provide an opportunity for organizations working on MPAs on the Pacific Coast of North America to meet and exchange ideas and experiences and to strengthen the grassroots movement to establish MPAs. In addition, Aaron will be working on transboundary MPA work in the Georgia Strait/Puget Sound Area in an effort to get the Washington and BC governments to coordinate their conservation initiatives.

Aaron is studying at the University of Washington, completing his masters degree with a focus on marine non-government organizations and their role in conserving marine biological diversity. He has worked for the past few years with Dr. Elliott Norse of the Marine Conservation Biology Institute.

MPAs for Fishermen

Living Oceans Society recognizes that fishermen must be involved in the establishment and enforcement of MPAs, if they are to succeed. In October 1999, LOS hired fisherman Bruce Burrows as our MPA Outreach Coordinator. Over the next 7 months, Bruce will prepare information about MPAs, travel to coastal communities and discuss the value of MPAs with fishermen. He will also collect fishermen's concerns about how MPAs are being addressed in BC. This will ensure LOS respects the concerns of fishermen while encouraging change and action through the establishment of MPAs.

Bruce Burrows has lived in Sointula for 20 years and has fished for salmon and herring with both gillnet and seine gear. He served on the executive of Local 26 of the United Fishermen and Allied Workers Union for 10 years and in that capacity worked on many environmental issues including the Kemano Completion project, the Salmon Aquaculture Review, and battling the Mifflin Plan. If you would like to learn more about the MPA Outreach project or would like to meet with Bruce when he comes to your community, contact him at bburrows@livingoceans.org.



Fish for Thought Update

We are pleased to announce that Arsenal Pulp Press will be publishing our eco-cookbook *Fish for Thought*. Scheduled for release in September 2000, this book educates consumers on how to purchase sustainably caught seafood. Thanks to Karen Sommer for all her hard work in making this project a reality. Karen was on a short leave of absence to spend more time with her children. She returned to LOS on a part-time basis in January.

Office Manager

In November 1999, Living Oceans Society hired Randy Stark as our Office Manager. Randy is a long time resident of Sointula and committed conservationist. Randy is responsible for managing our membership database, responding to general inquiries, developing our resource department and trying to bring order to the chaos of our office. As well, Randy's skills as a handyman were much appreciated when it was time to set up our new office.



Home Base

Until recently, the Living Oceans Society office was located in Executive Director Jennifer Lash's house. Our rapid growth in the past year, however, made it necessary to find a new location. Thanks to Randy's perseverance, we got a great house located in downtown Sointula. This office will enable us to establish facilities for the general public and interested people are encouraged to drop by. You can browse our collection of books and papers about marine conservation, learn more about our programs, and meet the staff. Our new location is 179 Second Street (although our mailing address remains the same) so please come see us.

Ongoing Business

Living REEF Project

1999 was an extremely successful year for the Living REEF Project thanks to the commitment and hard work of Training Coordinator Susan Francis and Science Coordinator Dana Haggarty. Despite challenges in fundraising, we managed to train one hundred and eighty five divers to collect data on a minimum of 46 fish species. We also designed a similar program for divers to study the over three thousand invertebrates that inhabit our ocean. The invertebrate program will be tested in the spring and will be available for recreational divers throughout BC this summer. For information about how you can participate in the fish and/or invertebrate program contact Susan Francis at lrp@livingoceans.org.

NO-TAKE MPAS: FISHERMEN'S FRIEND

Fishermen need no-take MPAs. Twenty years after Dr. Bill Ballantine established the first MPA in New Zealand, Living Oceans Society reviewed research from twenty-eight no-take areas worldwide and found that all areas reported multi-species increases with most areas experiencing a dramatic increase in as few as two years.

In a no-take zone, no commercial or recreational harvesting is permitted. But what is of particular relevance to those in the fishing industry, is what occurs in the areas adjacent to the no-take MPAs. Even with limited research on this issue, it was found that five times higher catches were experienced in the surrounding areas of five different no-take zones after only two years.

Dramatic results were seen in the Philippines when Sumilon Island established and then abandoned a no-take zone. Eight years after it was

established, fish populations inside the protected area had doubled and catches in the surrounding area had increased by 54%. Ten years later, the no-take area was abolished and catches in the adjacent areas soon fell by half. A similar scenario occurred in a Florida lobster reserve.

Closer to home, east coast cod enjoyed the

“catches in the surrounding area had increased by 54%”

equivalent of a huge no-take zone for centuries because boats couldn't venture too far off-shore. Once technology enabled the development of a large-scale offshore fishery, the fishery collapsed. Attempts by the Department of Fisheries and Oceans (DFO) to manage the offshore stocks could

not prevent its demise. In BC only two no-take areas exist, Whytecliff Park and Porteau Cove Marine Park, in Howe Sound. Both these sites have shown increased levels of lingcod spawners.

No one is more affected by fish stock levels than fishermen. For some, that has translated into action. In Britain the trawl fishery has asked the government to set up no-take zones. The only no-take area on Canada's east coast is a result of the local lobster fishermen.

In light of the evidence of the effect no-take marine protected areas have on fish stocks, it is critical that fishermen become involved in working towards the establishment of no-take MPAs. Their perspective is needed, their knowledge is an invaluable resource and it may be the only way to rescue what's left of their livelihoods.

MPAS AND GOVERNMENT: WHO YOU GONNA CALL?

There are a number of ways in which an MPA can be established in BC. Below we identify which ministries in both provincial and federal governments have the jurisdiction to do so and we outline their respective powers, responsibilities and aims.

GOVERNMENT OF BRITISH COLUMBIA

Within the provincial government, the **BC Ministry of Fisheries** administers aquaculture, kelp and oyster leases. Because these activities may be affected by MPAs, they have a vested interest in their size, location and management objectives. This ministry also plays an increasing role in BC's fisheries management. **BC Land Use Co-ordination Office (LUCO)** co-ordinates government ministries and agencies to ensure that allocation of resources adheres to the strategic land and resources management objectives of the BC government. They are also responsible for ensuring that the appropriate coordination occurs between agencies. Neither they nor the **BC Ministry of Fisheries**, however, have been legislated to establish MPAs.

The sole responsibility for that, at a provincial level, is **BC Parks** under the auspices of the **Ministry of Environment Lands and Parks (MELP)**. Restrictions to harvesting of most marine resources within a provincial marine park or ecological reserve must, however, be authorized by the **Federal Department of Fisheries and Oceans**.

BC PARKS

PROVINCIAL MARINE PARKS

- ◆ Administered by BC Parks under the Parks Act
- ◆ Wharves, Marinas, log booms, aquaculture not permitted
- ◆ Commercial Recreation Activities require permit and must not impact adversely on ecology

PROVINCIAL ECOLOGICAL RESERVES

- ◆ Administered under Ecological Reserves Act
- ◆ Designed to protect ecologically significant wildlife habitat, ecosystems and special features for purpose of conservation, scientific study and research

PROVINCIAL RECREATION AREAS

- ◆ Offers similar levels of protection to Class A Parks
- ◆ Open for a minimum of 10 years for the evaluation of non-renewable resource potential
- ◆ In current land use planning processes, being considered for upgrade to park status
- ◆ Any restrictions to the harvesting of marine resources require DFO authorization

THE FEDERAL GOVERNMENT OF CANADA

The federal government is responsible for the management of the seabed in all open waters and for the management of all living resources in marine waters with the exception of steelhead, oysters, and marine plants. The federal government also has a parks system which is separate from the provincial parks system.



The **Department of Fisheries and Oceans (DFO)** is legislated through the **Federal Fisheries Act** to manage the water column and all the living resources. Historically DFO has managed the marine resources on a species specific basis, however, the recently developed **Oceans Act** enables DFO to establish marine protected areas although it does not provide a definition for MPAs. All sport and commercial fishing restrictions in provincial marine parks, ecological reserves and federal marine conservation areas must be authorized by DFO.

DFO

FISHERIES CLOSURES

- ◆ Can be issued by amending regulations to prohibit consumptive use of living marine resources
- ◆ Can be implemented for a specific length of time or geographical location
- ◆ Must be renewed annually
- ◆ Protect individual species or species complexes

MARINE PROTECTED AREAS

- ◆ Canada Oceans Act allows Canada to declare an Exclusive Economic Zone out to 200 nautical miles
- ◆ Can establish a range of marine protected areas

Parks Canada, part of the **Department of Canadian Heritage**, is responsible for the establishment and management of National Marine Conservation Areas (NMCA). Parks Canada is mandated to establish one NMCA in each of the 29 marine ecoregions throughout the country. There are five marine ecoregions in British Columbia.

PARKS CANADA

NATIONAL MARINE CONSERVATION AREAS

- ◆ Marine areas managed for sustainable use and containing smaller zones of higher protection
- ◆ Include the seabed, its subsoil and overlying water column and may encompass wetlands, river estuaries, islands, and other coastal lands
- ◆ Prohibit activities such as undersea mining, oil and gas exploration and extraction.
- ◆ Allows for the continuation of most traditional fishing activities managed on a sustainable basis
- ◆ Any restrictions to the harvesting of marine resources require DFO authorization

The **Canadian Wildlife Service** of the **Department of the Environment** can establish Marine Protected Areas called Marine Wildlife Areas, under the Canada Wildlife Act. They are currently used primarily to establish buffer zones around migratory bird habitat, however, with DFO approval they can be applied to other species.

CANADIAN WILDLIFE

WILDLIFE MANAGEMENT AREAS

- ◆ Protect wildlife habitat for research, conservation, and public education
- ◆ Prohibit most human activities, although permits may be issued for activities compatible with wildlife conservation
- ◆ Any restrictions to the harvesting of marine resources require DFO authorization

MIGRATORY BIRD SANCTUARIES

- ◆ Established under the Migratory Bird Convention Act
- ◆ Protect coastal and marine habitat heavily used by birds for breeding, feeding, migration, and over-wintering
- ◆ Prohibit human activity that harms birds, nests or eggs
- ◆ Any restrictions to the harvesting of marine resources require DFO authorization

Note: This list was adapted from Deepen Your Understanding by Jennifer Lash, published by Marine Life Sanctuaries Society in 1996.

What is an MPA?...cont.

How Living Oceans Society Defines Marine Protected Areas

At Living Oceans Society we believe that the definition of marine protected areas must provide clear levels of protection which ensure that marine biological diversity and features such as nursery grounds, spawning areas, and rearing areas are protected. **Therefore Living Oceans Society defines a marine protected area as a legally defined area that has a core no-take area, a buffer zone, and the prohibition of additional activities determined on a site-by-site basis. This means the following levels of protection would be in place:**

1. Core no-take areas

that prohibit commercial and recreational fishing, exploration and extraction of oil, gas, and minerals, open net cage aquaculture, bottom trawling, dumping and dredging.

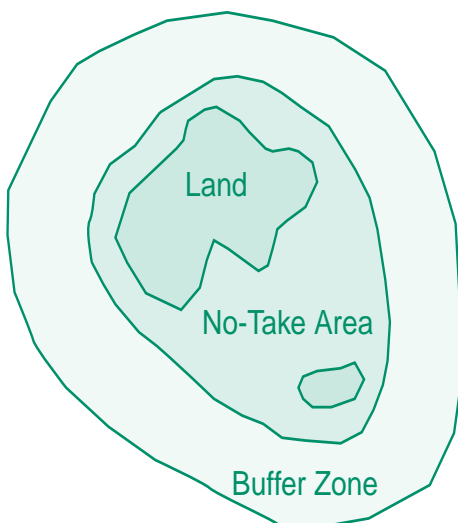
2. Buffer zones

that permit some commercial and recreational fishing but prohibit activities that disrupt the seabed habitat such as exploration and extraction of oil, gas, and minerals, open net cage aquaculture, bottom trawling, dumping and dredging.

3. Additional activities

such as sewage outfalls, log booming and dumping, recreational artificial reefs, could be prohibited on a case-by-case basis.

Therefore according to Living Oceans Society a marine protected area will look like:



Designing a Network of MPAs

Because of the vast size of our ocean and its dynamic nature, it is not enough to establish just one or two marine protected areas. MPAs in the Strait of Georgia will have local benefits but may not contribute to the conservation of biological diversity in the Prince Rupert area. It is essential, therefore, that we have a network of no-take areas throughout our waters that include all habitat types such as rocky reefs, mudflats, and estuaries. Furthermore the habitat types in each region of the Pacific Coast must be replicated. This means that rocky reefs in the Strait of Georgia, Central Coast, and North Coast regions are protected, thereby providing similar benefits to each region.

How big should Marine Protected Areas be?

The size of marine protected areas will vary site by site but if we look at examples around the world we can see that they can be relatively small and still provide many advantages. In New Zealand there are 16 no-take areas that range from 5 –20 square kilometres. This is quite a contrast from the extremely large protected areas we are used to seeing on land (for example Tweedsmuir Provincial park is 9,800 square kilometres).

MPAs as part of an Ocean Conservation Strategy

Living Oceans Society contends that marine protected areas are a critical tool in the conservation of marine biological diversity and the development of sustainable fisheries. However there are many threats to the ocean that MPAs cannot address such as pollution, introduced species, and fisheries mismanagement. While MPAs would prohibit some activities that jeopardize the health of the ocean, additional protection is required for our entire coast. Therefore in addition to our MPA work, Living Oceans Society works to maintain the offshore oil and gas moratorium, ensure that farmed Atlantic salmon do not jeopardize wild salmon stocks and educate consumers to purchase sustainably caught seafood. Although we do not have a campaign to address water pollution, we are thankful that there are other organizations that cover these issues and we support them. The establishment of marine protected areas cannot be used to replace other marine conservation strategies. Instead, MPAs must be part of a comprehensive strategy to conserve our ocean and our coastal communities.

BENEFITS OF NO-TAKE AREAS

Preservation of Marine Biological Diversity

No-take Marine Protected Areas contribute to the conservation of species, genetic and ecosystem biodiversity. They help preserve spawning grounds, maintain food web stability and eliminate general disturbances of delicate marine ecosystems.

Educational Opportunities

No-take MPAs offer natural study areas and opportunities for marine orientation for

schools and community groups, which encourages future generations to conserve the marine environment.

Scientific Research and Monitoring

No-take areas are ideal for scientific research. The data gathered in protected areas can be compared with the information collected in areas where fishing continues. This can then be used to determine ways to reduce the impact of harvest and to facilitate better managed fisheries.

Promote Sustainable Fisheries

By protecting spawning stock, no-take MPAs contribute to increased numbers of fish. Marine species that spawn within the protected areas produce larvae that strengthen the population. Due to tides and currents these spread outside the area thereby replenishing other sites. When the population grows, the fish will spill out beyond the protected areas. This is particularly true for species such as rockfish, lingcod, and abalone.

WAVE REVIEWS

No-Take Zones: The Way Forward

On a dark drizzly evening in Sointula when the need for entertainment rears its frivolous head we merrily plug in a video and settle back for the night. Recently we had the good fortune to view “No-Take Zones: The Way Forward.” A welcome edition to our video collection.

The storyline has an all too familiar plot. People meet fish, people pursue fish, fish go away, people feel sad. Set in the south of England the story opens as a group of fishermen face reduced quotas and job loss. They battle the evil bureaucrats who threaten to impose a doctrine of increasingly stringent regulations, none of which address the problem of dwindling stocks.

Swooping down from his secret stronghold, Dr. Callum Roberts of the University of York, as a sort of scientific Mary Poppins, convinces a band of piscatorial desperadoes that they just gotta believe. In what? Why, no-take areas of course. He shows that salvation lies not in a continuation of management techniques that have failed the world over but in the establishment of no-take areas that will protect breeding areas and produce fish for adjacent fishing areas.

The most interesting part of this feature film is that it was made by fishermen for fishermen. There are no government people expounding the virtues of yet another management strategy de-

veloped in an ivory tower. Dr. Roberts emphasizes the science that justifies the new management tool, but it is the fishermen, whose livelihood and lifestyle depend on a healthy ocean, who advocate the establishment of no-take MPAs.

This film is a must see for anyone still not convinced that no-take zones help conserve biological diversity and develop sustainable fisheries. The acting is outstanding with cameos by fishermen. Living Oceans Society gives this two thumbs up!

After waiting a week for our pulse rates to go down we invited friends over, popped a batch of popcorn, and fired up the VCR to watch “Towing The Line”, the story of The Eastport Lobster Fishermen’s Protection Committee.

It’s 1994, an Eastport lobster fisherman enters, stage right. “Lord Tunderin’ Jaysus byes, the arse’s gone out’ve ‘er.” (Good heavens gentlemen, I believe the fishery is declining) One dark and gloomy night the fishermen take matters into their own hands and decide on a three-pronged action plan. One bright and sunny day they implement it. The fishermen promote strict adherence to existing management measures, they return egg-bearing females to the water, and they establish two no-take areas.

Scientists from Memorial University, DFO and Parks Canada help with the monitoring and on-

going evaluation. Fishermen religiously log their own catch data and the information is stored in databases maintained by local high schools.

The committee expected results in eight years but after only four years fishermen had their best year ever. The degree to which this could be attributed to the no-take areas was questioned by some but not by the local fishermen. Tests showed increased stocks within the no-take areas and only someone who had been in school for a very long time wouldn’t link that to the improved fishing.

This video illustrates a practical application of the principles that Dr. Callum Roberts discussed. It also illustrates the value of local knowledge. When the scientists tested a juvenile lobster trap the locals said “By gum they’ll never work”, and by gum they didn’t. But most importantly this story illustrates the speed with which change can be implemented when fishermen initiate it.

These videos are an invaluable tool in promoting dialogue among environmental NGO’s, academics and fishermen. Sponsored by, among others, The Southwest Fish Producers Organisation, The Cornish Fish Producers Organisation, and The Eastport Lobster Fishermen’s Protection Committee, the videos are available in combined form from Living Oceans Society for \$5.

As well, no-take MPAs protect the biomass and preserve natural population structures. Each age group in a population has a critical role to play within the food web and each is an integral part of the ecosystem. Often, the most economically beneficial individuals in a fishing resource are the most productive breeders. Depletion of this segment of the population can be devastating to a fishery.

Coordinated Management

Through the establishment of MPAs, municipal, First Nations, provincial, and federal governments, together with community groups and stakeholders can develop conservation objectives and management plans. This will provide a coordinated and effective conservation policy for the protected areas.

Recreational Opportunities

No-take marine protected areas provide natural opportunities for a wide range of non-consumptive activities such as kayaking, sport diving, beach walking, snorkeling, and other beach activities.

Note: This list was adapted from Deepen Your Understanding by Jennifer Lash, published by Marine Life Sanctuaries Society in 1996.

LIVING OCEANS SOCIETY

Executive Director: Jennifer Lash
Office Manager: Randy Stark
GIS Technician: Jeff Ardron
MPA Campaigner: Aaron Tinker

Living REEF Project
Training Coordinator: Susan Francis
Science Coordinator: Dana Haggarty

Food For Thought Project
Researcher/Writer: Karen Sommer

MPA Outreach Project
Coordinator: Bruce Burrows

Oil and Gas Research Project
Researcher: Oonagh O'Connor

Newsletter
Edit, Design and Layout: Sound Dog
Writer: Jennifer Lash

LIVING OCEANS SOCIETY THANKS:

Sean and Lee-Ann Watson, Dr. Bill Ballantine, David Carruthers, Glen Dennison, Larry Green, Karen Howe, Shelley Jepps, Dr. Jon Lien, Brent and Paula Mayall, Steve McNeil, Alex Morton, Dr. Elliott Norse, Terri Odeneal, Karen Olive, Sean and Lee-Ann Percy, Billy Proctor, Clint Surry, Roberta Veenstra, Eddie Knapp for quietly filling our woodshed with fire wood to keep our office warm, Gilbert Popovich for sending in all his Canadian Tire Money, all the divers in the Living REEF Project, and all those that may have been left off this list but have helped and supported us in our efforts to protect the ocean.

Send us your Canadian Tire Money!!!

Living Oceans Society is always in need of general supplies that we can purchase at Canadian Tire. If you donate your stash to us we will put it to good use!



Become a friend of the Living Oceans Society

Your generous support will help the Living Oceans Society continue to develop and implement programs designed to protect our ocean. Return form to: **LOS, Box 166, Sointula, BC, V0N 3E0, CANADA**

Name: _____ Address: _____

City/Town: _____ Province: _____ Postal Code: _____

Phone Number: _____ Fax Number: _____ Email: _____

Choose Your Species

- | | | | |
|-----------------------------------|----------------|------------------------------------|------------------|
| <input type="checkbox"/> \$10.00 | Wolf Eel | <input type="checkbox"/> \$200.00 | Steller Sea Lion |
| <input type="checkbox"/> \$30.00 | Red Irish Lord | <input type="checkbox"/> \$500.00 | King Crab |
| <input type="checkbox"/> \$50.00 | Killer Whale | <input type="checkbox"/> \$1000.00 | Giant Octopus |
| <input type="checkbox"/> \$100.00 | Tiger Rockfish | <input type="checkbox"/> _____ | Other |

