Wave of the Future

Orca Pass International Stewardship Area

The Orca Pass International Stewardship Area

is an initiative of the Sound & Straits Coalition, which is made up of many organizations on both sides of the Canada/United States border. The Sound & Straits Coalition is coordinated by the **Georgia Strait Alliance** (British Columbia) and **People for Puget Sound** (Washington).

www.GeorgiaStrait.org

www.PugetSound.org

We gratefully acknowledge the support of the following organizations, which have made this publication and the Orca Pass International Stewardship Area initiative possible:

North American Fund for Environmental Cooperation

as well as the following:

The Bullitt Foundation
The Dudley Foundation
The William and Flora Hewlett Foundation
The Lazar Foundation
The David & Lucile Packard Foundation
Vancouver Foundation

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Orca Pass International Stewardship Area

by Bryan Nichols

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Published by the Georga Strait Alliance:

Front cover art:
© Paul Grignon

Maps:
Phil Bloch (People for Puget Sound)
Centerfold map: Jeff Ardron (Living Oceans Society)

Design and layout:
Alan Wilson (WaveLength Communications)

Printing:
Trademark Printing, Nanaimo, BC

Acknowledgements:
Thanks to all who contributed to the research, editing, design and production of this booklet, including: Jeff Ardron, Howard Breen, Britta Eschete, Fred Felleman, Karl Fellenius, Kathy Fletcher, Natalie Lerch, Laurie MacBride, Ken Millard, Peter Ronald, Mike Sato, Keith Symington, Louis Vallee, Jacques White, Alan Wilson. Special thanks to Phil Bloch.

Printed on 100% post-consumer waste, recycled, processed chlorine-free paper.
Cover made from 50% recycled paper (30% post-consumer waste).
Printed in a union shop.

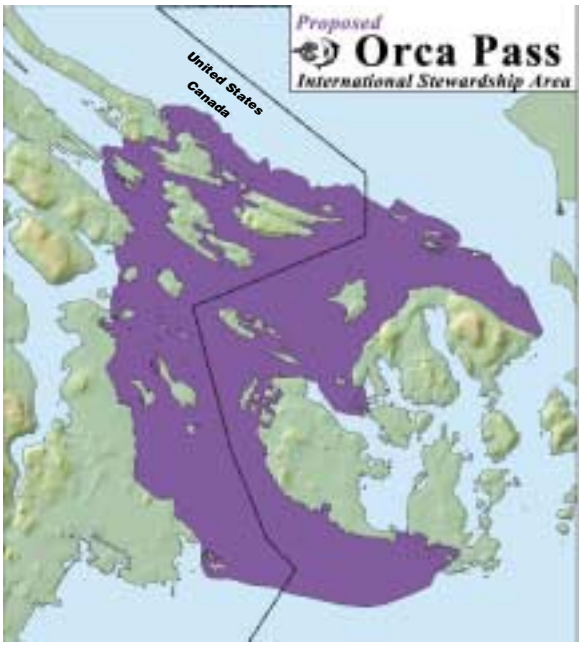
This booklet is also available on the Georgia Strait Alliance website: www.GeorgiaStrait.org

Contents

INTRODUCTION

"A lifetime of living on the coast and years as a mayor of a coastal city and premier of the province, I am determined to find new and better ways of protecting the most beautiful ocean in the world. The shared waters of the Pacific, known as the Salish Sea, between British Columbia and Washington need our help. Designating the waters between us special and sensitive seas worthy of the highest levels of protection requires immediate attention."

Mike Harcourt, former Mayor of the City of Vancouver and Premier of the Province of British Columbia.



Orca Pass is at the heart of the Salish Sea.

The ***Orca Pass International Stewardship Area*** is an ambitious plan for a marine protected area (MPA) connecting the Canadian southern Gulf Islands and the US San Juan Islands—a plan for a practical, intelligent and flexible framework of protection for the marine plants, animals and habitats that make the area so valuable.

Orca Pass lies at the heart of the Salish Sea, the home for millennia of the Coast Salish peoples. You won't find the words "Salish Sea" on most maps, but as a moniker for the region, the name is growing in popularity. The Salish Sea is a transboundary region, bounded roughly by Vancouver Island, the British Columbia and Washington mainland, and the Olympic Peninsula. It includes parts of Puget Sound, the Strait of Georgia, and the Strait of Juan de Fuca, along with the channels connecting these waters. Surrounded by mountains and fed by freshwater from immense rivers as well as salt water from the open ocean, it is a unique and highly productive ecosystem, a critical transportation route and a home for millions of people and countless animals.

Unfortunately, it is also in trouble. A combination of factors including pollution, habitat loss, and over harvesting have led to the decline of a number of different species. The southern resident orcas, which have become symbolic of the area, have suffered an unprecedented population decline in the last five years. Rapid human population growth in the region, along with climate changes resulting from human activities, are undermining the ecological and social health of the area. Unless we change the way we look after the Salish Sea, it will be irrevocably damaged and we will lose the values that make it such a great place to live and visit.

Photo: Georgia Strait Alliance

Our coastline is urbanizing at a furious pace.

Marine protected areas are a way to help safeguard the environments upon which we rely. They are becoming popular and effective tools all over the planet but unfortunately in North America we have been very slow to implement them. The Georgia Strait Alliance and People for Puget Sound, along with a coalition of many other non-governmental organizations, believe the Orca Pass International Stewardship Area proposal is particularly important as it encompasses an area that is well loved and used by both US and Canadian citizens. This proposal is not a government decree—it comes from a coalition of citizen groups working in concert with the local governments of the region. It's a work in progress, and input from anybody who is interested is welcome and encouraged—we've included a response form on page 35 and hope you'll fill this in. This openness will help make the Orca Pass initiative acceptable and ultimately beneficial to everyone in the region.

THE SALISH SEA

So what's so special about the Salish Sea? Like any complex ecosystem, it's the sum of its parts and more.

The Land

While it is connected to the Pacific Ocean, the Salish Sea is in large part an enclosed basin. The mountains of Vancouver Island protect Georgia Strait while the lofty Olympic Peninsula isolates Puget Sound. Not only do these mountains limit the exchange of seawater with the open Pacific, they also force much of the moisture from the air that sweeps in from offshore. This rain shadow effect results in a balmy region and areas that are considerably drier than the rest of the Northwest coast. Islands in Orca Pass have distinctive, dry Garry oak meadows and even cactus.

The Salish Sea is a remarkable inland basin.

The geology of the coast is complex, involving slippery plates that have drifted from points farther south as well as periods of constructive (and assuredly destructive) volcanic activity. The towering peaks of Rainier and Baker still dominate the skyline over Puget Sound as beautiful, if ominous reminders of the intense forces at work just below the surface. More recently though, periods of ice age glaciers profoundly altered almost all the bedrock that makes up the Salish Sea. Not so long ago it was a sea of ice, not water. The weight of the ice deepened and smoothed some areas while piling up sediments in others.

The Water

When the ice melted back after the last ice age 12,000 years ago, the deep valleys filled with seawater. Powered by tidal interchanges twice daily, salt water continues to pour in and out, rushing through constrictions between islands and inlets with the energy of an immense river. Though limited, this connection rejuvenates the area with life and nutrients from the Pacific, allowing access to the inland sea for just about anything that swims, floats or drifts, from microscopic plankton to whales and container ships.

Photo: Bill Wolferstan

The Fraser River carries nutrients far into the Salish Sea.

However, the Salish Sea is more than just an extension of the Pacific. Mountain ranges covered in temperate rainforest are split by tens of thousands of streams that feed about a dozen big rivers. Hundreds of smaller streams and creeks also run directly into the Salish Sea. All this fresh water brings sediments and nutrients to the constricted salt water, making the area a unique and immense estuary system. This is significant for numerous reasons, not least of which is that estuaries (fresh/salt water interchanges) are among the most productive ecosystems on the planet.

The Life

Estuaries

Small estuaries on the islands within Orca Pass and immense ones outside on either side of the Canada/US border have a profound effect on ocean life. They are very productive and serve as biological filtration systems, economically and effectively "cleaning" water before it reaches the sea. But these flat areas near rivers and the seashore tend to be our favorite places to live or build our industries, so healthy coastal estuaries have become scarce. The remaining estuaries are critically endangered habitat and need special consideration and protection.

Photo: Bryan Nichols

Intertidal zones are rich with life.

Intertidal

The area between our highest and lowest tides provides us with a glimpse into the wonders hidden below the waves. Strange creatures, lush seaweeds and tasty shellfish can all be found in this harsh region that straddles two very different worlds. The rising ocean brings plenty of food, which terrestrial animals exploit as it ebbs. We humans often get in on the feeding action by digging clams or plucking mussels and oysters.

Reefs

Scuba divers, fishermen and kayakers all appreciate the many shallow reefs offshore—they provide critical habitat to fish as well as numerous bottom dwelling plants and animals. The Salish Sea is renowned for its marine invertebrates—divers come from all over the world to see remarkable creatures like the world's biggest octopus, chiton, and scallop. The diversity of sea stars and colorful nudibranchs is astounding. Numerous fish rely on the reefs, as do seabirds and marine mammals like seals.

Kelp beds grow seasonally on many rocky reefs, and have been compared to underwater forests. Though boaters see only the bobbing floats on the surface (helpfully marking rocks), below is a wonderland of life, essential habitat to numerous fish and invertebrates.

Photo: Bryan Nichols

Kelp beds are a haven for fish.

Open Water

No part of the Salish Sea is open in an oceanic sense, but there are plenty of stretches that seem open enough if you're in a small boat and the wind is blowing hard. Nutrients from rivers and deep-water upwellings keep these areas biologically rich, stimulating blooms of plankton that feed massive schools of fish. These herring, sandlance and others are then consumed by the bigger wildlife like salmon, seabirds, seals, whales and dolphins.

Way Down Deep

The waters in the Orca Pass area reach depths of over 350 meters (1150 feet), often dropping into darkness near steep shorelines. Recreational divers can safely descend to only about 40 meters (130 feet), but a host of poorly understood creatures make the dim waters below that level their home. Though few of us will ever encounter creatures like ratfish and sixgill sharks, they are an important part of coastal ecosystems and we should respect their habitat.

Photo: Bryan Nichols

Ratfish and other species inhabit the lower depths.

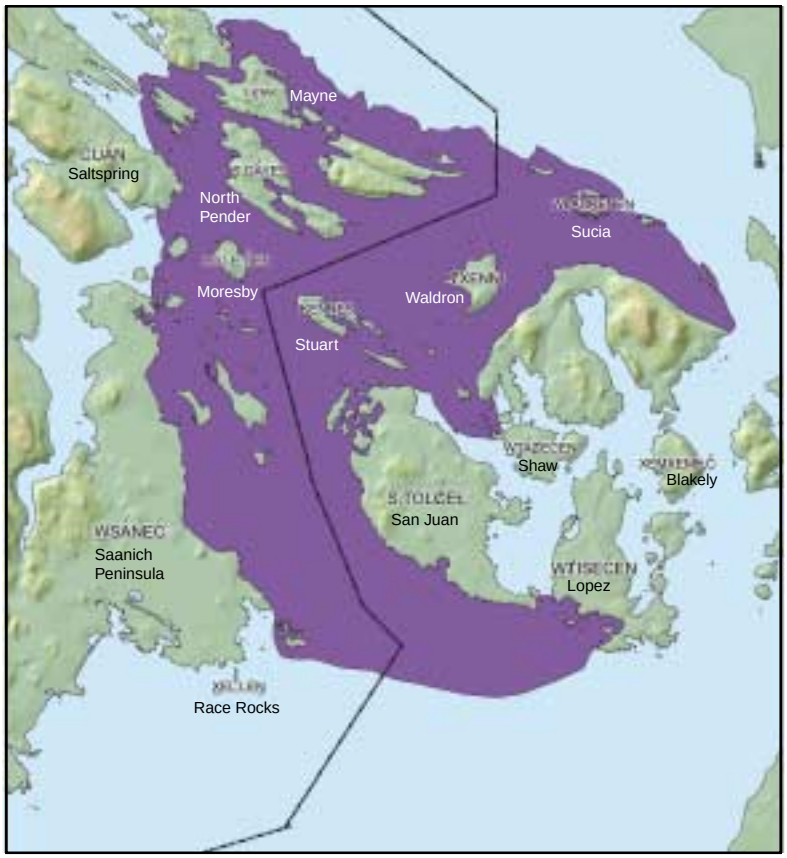
Social History

First Nations

The Orca Pass area has been inhabited for thousands of years. Coast Salish tribes picked a great spot to settle—a balmy climate and abundant seafood sure beats the harsh Southwest deserts or high Arctic. They typically lived in several locations, moving to take advantage of seasonally abundant fish, plants and birds. However, European colonization and unfamiliar diseases like smallpox devastated populations and cultural diversity.

Colonial Period

With the exception of a few scattered settlers, Europeans weren't much interested in the Orca Pass area until the gold rushes in the mid-1800s. In their haste to get to the interior and the North, thousands of people passed through while some stayed or returned later. The area was never densely populated but most islands now have well-knit and outspoken communities interested in preserving their unique lifestyle.



Some of the Coast Salish names that were used in Orca Pass.

Photo: Laurie MacBride

Pacific Northwest urban areas are growing rapidly.

Modern Times

More than six million people live at the edges of the Salish Sea in cities like Vancouver, Seattle, Victoria and Bellingham. Telecommuters, retiring baby boomers and families looking to escape big city perils often consider moving to the islands in the Orca Pass region. Thousands more visit seasonally, enjoying the great weather and intimacy with the ocean that the islands promise. Development pressure on these dry and fragile islands is a serious matter.

The Economy

Tourism

By the end of the 20th century, tourism had established itself as the world's largest industry. In BC alone, it's the single biggest employer. Marine eco-tourism, in particular, has been booming for a decade. From massive cruise ships to boatloads of whale watchers or flotillas of kayaks, tourists flock to the Salish Sea, drawn by the environment of "supernatural" BC and "extraordinary" Washington.

Fisheries

The productive waters where fresh and salt water mix have in the past supported abundant and diverse populations of fish and marine mammals. The resident orca evolved specifically to take advantage of the rich salmon runs, which were also vital to most of the First Nations in the region. Until recently, commercial fishing fleets provided a way of life and a good source of income for small communities all along the coast. Herring and other schooling fish were rich resources and groundfish such as lingcod, halibut and rockfish were abundant and easy to catch. Entire ecosystems relied on healthy fish populations and worldwide, fisheries provided a healthy and increasingly important source of protein for humans as well.

Recreation

Boating, camping, kayaking, fishing, sailing, diving, wildlife watching—Orca Pass is the recreational jewel in the center of the Salish Sea. There are obvious economic benefits to all this outdoor fun, but the satisfaction and renewal we get by spending time on, under or alongside the ocean is priceless.

Photo: Bryan Nichols

Kayaking the waters of Orca Pass is a popular form of recreation.

Shipping

It's no coincidence that huge schools of salmon, roaming pods of killer whales and numerous transport ships all follow the same route into the Salish Sea. Orca Pass is indeed a pass, an important shipping route as well as a wildlife corridor.

Photo © Fred Felleman <felleman@teleport.com>

An orca spyhops a passing freighter near the San Juans.

SO WHAT'S THE PROBLEM?

"We have lost over half of our coastal wetlands to development. Scientists estimate that more than 25 percent of the world's coral reefs have been lost, and that number may grow to 60 percent in the next 25 years unless we do a better job controlling pollution, development and destructive fishing practices. The message is clear: Our activities are altering the health of the marine environment we love. The good news is that it is not too late to restore the health of our oceans. To that end, I endorse the grassroots efforts to designate the shared waters of northern Puget Sound and southern Georgia Strait as special and sensitive seas."

Jean-Michel Cousteau, Ocean explorer; President and Founder, Oceans Futures Society; Patron, Oceans Blue International Council.

The safety net, the glue that holds the Salish Sea together, is a healthy environment. Healthy ecosystems provide us with food, an enviable tourism income, great recreation, clean air and effective waste recycling. It is easy to forget this, especially when we are crowded into cities, but a healthy environment is more important than the latest value of the dollar or the fluctuations of our tech portfolio. Clean air and water keep us alive and happy in subtle as well as obvious ways.

Photo: Georgia Strait Alliance

Is this the future we want?

How is our local ecology doing? Is it healthy? We're all coming to realize there are direct and indirect effects of our society on the environment—many of them negative. We read the latest doomsday news and blame various industries, the corporate villain of the week or the latest purveyor of pollution. We can blame them, and we often should, but the reality is that most of us contribute to the problems in subtle ways directly related to our day-to-day lifestyles.

Because much of the marine world is below the surface and not easily monitored, it is especially susceptible to incremental impacts. The cumulative impacts of so many people can add up to serious problems long before they become obvious.

Habitat Degradation

The loss of habitat can be both obvious and subtle. When Megadevelopment Inc. paves the proverbial paradise just down the street, we all notice. But most of us are already living on formerly productive habitat—coastal wetlands in particular have been hit hard. Who is old enough to remember that the Vancouver area used to have over a hundred healthy salmon spawning streams? Only two remain: the rest have either been filled in, or run under our feet in culverts, drains and pipes—polluted, sterile, out of sight and mind. We need to rethink coastal development and how it affects habitats—there are many ways to minimize our damage—and beyond that, we need to start restoring degraded habitat where feasible.

Photo: Georgia Strait Alliance

Large industrial operations dot the coast.

Pollution

Pulp mills belching nasty smelling smoke or a scenic cruise along urbanized waterfronts reveal obvious problems. Clams, mussels and oysters are all filter feeders and are therefore highly susceptible to pollution. The excessive amount of waste that finds its way into the ocean has resulted in far too many beaches being closed to shellfish harvest—and sometimes even swimming.

What is becoming more troublesome is the stew of invisible but persistent chemicals that we can't see, such as organochlorines. They settle on the bottom, move with the currents and build up in the food chains upon which we and other animals rely. Our killer whales are filled with them and their population is dwindling—coincidence?

Fisheries Mismanagement

Some problems aren't so subtle. A number of fish stocks have collapsed on either side of North America, highlighting the fact that even oceans are not indestructible. Our governments spend considerable amounts of effort and money "managing" commercial and recreational fishing, yet our dismal record of exhausting one stock after another speaks for itself. Worse yet, we are beginning to realize that our fishing practices have profound effects on entire coastal ecosystems, not just the species we target. Obviously we need to do things differently.

Photo: Bryan Nichols

Many rockfish are becoming scarce in the Salish Sea.

Food fish aren't the only concerns—commercial species of invertebrates such as crabs, oysters, and clams have fed us and provided good jobs for generations. Even some purely "recreational" species are suffering as more and more pressure is put on fewer and fewer uncontaminated sites. Mismanagement of valuable marine resources is not a new problem—sea otters were almost completely exterminated from British Columbia by natives working for Russian fur traders. A similar lack of foresight and management at the turn of the century resulted in the slaughter of all the humpback whales in the Strait of Georgia.

While orcas and eagles may be the symbols of the Northwest at the surface and in the air, rockfish are becoming ambassadors of the world below. Originally considered a common and undesirable bottom fish, we now know they are beautiful, long-lived and curious, often completely unafraid of divers. They're also known as scorpionfish because their spines carry a venom that can cause pain and swelling; some species are incorrectly called rock cod or red snapper. These fascinating creatures are extremely vulnerable—fishing pressure has caused their populations to crash in much of the Salish Sea and they are now scarce for recreational fishermen to catch and divers to see. Perhaps more than any other species, the rockfish are telling us we need a fundamental change in fisheries management.

Population Declines

Population declines can be obvious problems, as anyone used to catching rockfish or lingcod knows. But population declines also affect the integrity of entire ecosystems in ways we are only beginning to understand. The health of species we consider less desirable or unimportant can have complicated and long lasting effects on other species we care about. Why is a certain species declining? Is it a symptom of something ominous or just a natural cycle? The better we understand these questions, the more effectively we can minimize our harm to the oceans upon which we depend.

In certain areas, some populations have been completely wiped out—what scientists call 'extirpated' (made locally extinct). We easily would have had the world's most exciting, accessible and profitable whale watching if our harpoon-happy predecessors hadn't killed off the humpback and gray whale

populations that lived in the Strait. There are also other species that are declining in the Salish Sea—some we love, some you may not know, but all of them deserve our respect.

Killer whales

Photo: Bryan Nichols

A lone orca in the San Juans.

Most people have now heard the alarming news about the decline of the southern resident population of *Orcinus orca*—in 1995 there were 99 but by the summer of 2001 they were down to 78. Canada has now officially designated them "endangered" and the US is considering giving them Endangered Species status. We don't capture these big dolphins for amusement parks anymore (not in North America, anyway), so what's the problem?

No one's sure, but toxins and the decline of their favorite fish stocks are likely culprits; engine noise from increasing numbers of boats could be a factor as well. Resident, fish-eating orcas are the stars of a hugely successful commercial whale watching industry and have come to symbolize the beauty and wild spirit of the Northwest for many. The small population of southern resident orcas has been responsible for pouring millions into economies in and around Orca Pass. Public adoration makes them unwitting ambassadors for protecting their habitat.

Harbor porpoise

Small and shy, these little mammals attract neither journalists nor whale watching dollars. But something is harming them—their numbers in much of the Salish Sea are dropping, particularly in areas with heavy boat traffic. It is believed they are sensitive to all the underwater noise we make.

Salmon

Photo: Bruce Obee

Spawned-out salmon feed the forest.

Wild salmon are the soul of the Northwest—their spectacular migrations upstream, their firm, rich flesh, the thrill of catching them on hook and line—all these things and more make them especially valuable. Even forests hundreds of miles into the interior benefit from them—exciting new research has revealed that the numerous salmon carcasses left by seasonal spawning runs are a vital nutrient source for trees far upstream.

For thousands of years people have benefited from abundant salmon stocks but now many are threatened or gone. In 1996 the American Fisheries Society reported that 140 stocks of salmon had become extinct in BC and hundreds more were at high risk. In 1999, all Puget Sound chinook salmon runs were listed as "threatened" under the US Endangered Species Act. Some runs are extinct and nearly every wild salmon stock in Washington state is severely depressed.

Fish farms and hatcheries are not the answer—farmed Atlantic salmon in particular cannot replace the essential roles that wild, Pacific salmon species play in coastal ecosystems. Wild salmon are a supremely renewable resource. We need to restore their habitat and encourage them back—for our own sake as well as theirs. Who doesn't benefit from clean, productive creeks and rivers?

Groundfish

Long lived, territorial groundfish such as lingcod and rockfish have been hardest hit by over-harvesting. Populations in Puget Sound and the Strait of Georgia have dwindled to tiny fractions of their former abundance. As well, accidental by-catch is an ongoing problem, because even when they aren't targeted specifically, bringing most species to the surface ruptures their swim bladders so they will not survive long if released.

Because some species don't begin breeding until they are well into their teens (and the older they get, the more fecund they become), they cannot sustain intensive fishing pressure. Catching a big rockfish means killing an animal that is probably older (and perhaps also wiser?) than many of us. We have decimated their elders and their numbers. Our management of groundfish looks all too much like our management of forests, where we've logged many to the point that there are only small trees left.

Seabirds

Most of us love seabirds and many species are protected by law, yet populations are still declining. Why?

- *marbled murrelets nest high in old growth trees which are now few and far between in most of the Salish Sea*
- *diving birds like tufted puffins and common murres can drown in some types of gill nets*
- *declines of food species like herring and squid affect cormorants, grebes, loons and others*
- *surface pollution like oil spills, even small ones, can kill any bird that floats or dives*
- *persistent pollutants like PCBs and other chemicals that disrupt the endocrine system affect reproductive success and overall health of many birds*
- *nesting disturbances by eagles and humans can cause abandonment of nests or allow predators like crows and seagulls to grab juveniles*

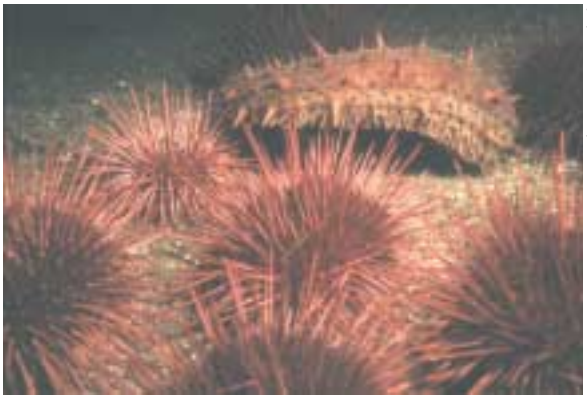


Photo: Bryan Nichols

Spikey red urchins and a sea cucumber.

Shellfish

Long-lived shellfish such as abalone and rock scallops have suffered from over-harvest. Although abalone have been off limits for years, they have been very slow to recover, in part because of ongoing poaching. Other intertidal shellfish have suffered local declines when beach closures due to pollution have concentrated harvesting pressure on the beaches remaining open.

Other invertebrates

Photo: Bryan Nichols

A cushion star looks more comfortable.

There are about 4500 invertebrate species in the Northwest, bizarre and beautiful creatures that dazzle scuba divers and tidepoolers. We have world record-sized clams, octopus, scallops, sea stars, chitons and others. It's a completely different world just below the waves, one filled with headless predators and shy, tentacled creatures. But it's a world we don't understand very well. Besides habitat loss and pollution, there is increasing harvest pressure on many invertebrates like sea urchins and sea cucumbers. More populations will be put at risk as traditional favorites become scarce and people target new species.

Noise Pollution

Noise pollution is a relatively new problem which primarily affects marine mammals, since many of them rely on sound-based echo-location as a primary sense. Boat engines, acoustic "deterrents" (used to repel seals and sea lions at fish farms), seismic exploration and even military tests all have serious potential impacts on the underwater world. In Orca Pass, engine noise is the biggest concern—50 or more boats can be following the killer whales on busy days.

MPAs—A WAY TO HELP

"The continued destruction of the global marine environment is having a profound impact on almost all aspects of life on earth, extending far beyond the oceans themselves. The Orca Pass Stewardship Area, proposed for the threatened inland sea between Washington and British Columbia, is a wonderful opportunity to protect a critical section of the world's largest ecosystem."

Dr. Joseph MacInnis, Medical doctor, author and internationally acclaimed expert in deep sea diving; Patron, Oceans Blue International Council; Chair, TD Bank Group Friends of the Environment Foundation.

What is an MPA?

MPA stands for marine protected area—but the degree of protection applied is open to some wide interpretations. At one end is some version of a "no-take" zone, where all extractive or destructive activities are prohibited. No dredging, hooking, dragging, netting, blasting, drilling, spearing, dumping and so on. Also called "marine reserves" or "harvest refugia", these are areas in which we minimize our effects. Most of us are familiar with such areas on land, such as wilderness zones in National Parks or Wildlife Refuges. Remarkably, Canada and the US, both of which have extensive and renowned park systems, have been reluctant to create "no-take" zones in our oceans.

Photo: Edward J. Pastula, NMFS

Fishermen can benefit from MPAs.

An MPA isn't *all* a marine reserve though—successful systems in other countries combine no-take zones with buffers and outlying areas of varying types and levels of protection. This seems to work best when zones are flexible, well thought out and tailored specifically to the region and its different ecosystems. Dad and the kids might be able to spin-cast for lunkers near the boundary of the no-take zone, while farther out in the Strait a purse seiner could fill its net. Permits for the Massive Oil Platform and Dynamite Fishing Co. would be refused.

While our governments claim they have already established numerous MPAs, they are using the term in a limited sense. In BC, for example, the government claims over 100 MPAs, but very few of these were designed with ecology in mind and few if any meet minimum accepted standards. Most conservation groups agree that MPAs need to include no-take marine reserves if they are to be useful ecologically—the research data backs this up. When no-take zones aren't included, MPAs are usually ineffective. Remarkably, the best protection is also the easiest to apply—inside a marine reserve nobody takes, so enforcement is easier than other approaches and different stakeholders do not feel cheated or suspicious of each other.

Most conservation groups in British Columbia agree on the following MPA definition:

- *Marine protected areas should consist of one or more marine reserves ("no-take" areas) along with surrounding buffer zones.*
- *In no-take areas, all fishing, harvesting, non-renewable resource exploitation, open cage aquaculture, dumping and dredging should be prohibited.*
- *In buffer zones, some forms of extractive activities (such as fishing) would be permitted but the above restrictions would apply, and bottom trawling would be prohibited.*

In rare cases, an MPA might not include a no-take component, but it should have some other form of special protection that is appropriate to the specific ecological needs in that area (for example, a bird refuge, a "quiet" zone for whales, or a fixed-mooring-only zone to protect sensitive eelgrass beds from anchor damage).

Why Orca Pass?

Orca Pass is being proposed because it lies at the heart of the Salish Sea. It includes chains of islands on both sides of the border that have exceptionally high value for human quality of life, wildlife, recreation and tourism. Three pods of resident orcas (fish-eating killer whales) frequent the area every summer, regularly crisscrossing the border like much of the region's wildlife. We cannot help them by addressing problems from just one side of an invisible line that they cross daily. Orca Pass is a great opportunity for two countries to reach across the border in a spirit of international cooperation and stewardship and show the world that we can protect marine life. And it would be the first transboundary MPA in North America.

What are the Benefits?

Scientists have been hard at work the past few years, studying MPAs and effectiveness. The verdicts are pouring in—from Belize to Australia, MPAs work when they include marine reserves. Recently a group of 161 leading marine scientists released a joint consensus statement, hoping to prod governments into action *(see sidebar)*. They concluded there is already enough evidence to support the creation of marine reserves immediately. The potential benefits of an MPA with marine reserves in the Orca Pass region are many.

More Fish, Bigger Fish

The quickest and most obvious benefits usually relate to stocks of long-lived, territorial critters like rockfish, lingcod, urchins and rock scallops. Studies (including several in the Northwest) show that populations in no-take zones recover—often quickly. Even better, there can be a spillover effect because the older, larger individuals protected in the refuge are often much more prolific breeders.

A study of over 100 no-take zones worldwide found that inside the reserves:

- *average population densities were 91% higher than reference sites*
- *average organism sizes were 31% higher*
- *species diversity was 23% higher*
- *biomass was 192% higher*

Furthermore (and great news for fishermen), just outside the reserve:

- *commercially valuable species grew in size and numbers*
- *catch per unit effort went up (satellite photos revealed fishing boats favored the edges of reserves as fishermen learned to take advantage of this spillover effect)*

So the fisheries benefits of no-take zones can be swift (within a couple years) and substantial.

This is much better than similar efforts on land: protect a clearcut and it takes decades simply to become forest again, and even once that happens, commercially valuable trees do not migrate outward. With such quick and obvious benefits you'd expect our governments would have created numerous marine reserves by now—but they haven't.

Habitat Protection

On land, managers try to preserve representative examples of the continent's ecosystems, from the grandeur of the mountains to highly endangered prairie grasslands or eastern hardwood old growth. We have altered so much of our world—it doesn't seem like too much to ask to *save some portions* of each habitat for future generations to benefit from and enjoy.

MPA Benefits

After studying marine reserves (no-take zones) throughout the world, some of which started over twenty years ago, 161 marine scientists signed and released a consensus statement in 2001. They concluded that:

- *marine reserves conserve BOTH fisheries and biodiversity*
- *marine reserves are the BEST way to protect resident species and provide heritage protection to important habitats*
- *marine reserves provide a critical benchmark for the evaluation of threats to ocean communities*
- *existing scientific information justifies the immediate application of fully protected marine reserves as a central management tool*

Unfortunately, the ocean has not received the same protection. Since everything below the surface is mostly out of sight and mind, we tend to treat it all as one big unit, barely noticing as unique and productive ecosystems are degraded and eventually lost.

A network of MPAs would change that, identifying and protecting key examples of each of the Northwest's diverse underwater environments. One of the more interesting findings of recent scientific studies is that a surprisingly large number of marine creatures that have drifting larval stages (including fish and invertebrates) seem to somehow end up "back home". This is great news for MPAs because it means that protecting a certain area will provide juveniles to restock that area itself, something we take for granted on land but not in the ocean. Spillover and recruitment enhancement (more juveniles) would therefore benefit the specific fishermen that give up a portion of their traditional fishing grounds, providing a more dependable, sustainable harvest.

As technology advances, our children will likely thank us for saving places so close to home, including underwater places they will be able to visit more easily than we can. Believe it or not, submersibles for tourists are already operating in most of the world's oceans. How long will it be before adventurous cruise ship passengers, wide-eyed school groups and local museum field-trippers are popping down to the bottoms of our underwater cliffs and exploring deep inlets and subtidal canyons? Imagine the beauty that awaits them below the waters of Orca Pass.

Special Features Protection

One of the most obvious reasons for protected areas is to protect something special—this is why the first parks on land were created. A few sensitive wildlife spots have limited protection already—usually bird nesting sites on barren rocks. But all sorts of features are worthy of protection, like scenery, history, geology, rare species, recreational values and much more. MPAs are an excellent tool used worldwide to save such spots. For instance, geoducks still support a commercial industry, but it would be a smart investment to protect a few populations of the world's biggest intertidal clam. Unmolested geoducks can live for more than a century, making them one of the world's longest living animals.

Insurance for the Future

MPAs can help protect ecosystems from more subtle problems like habitat destruction, localized pollution and overuse. Properly administered, they make good use of the precautionary principle (see sidebar). In contrast to many years of economics that "grab the cash and try to ignore the mess afterward", applying the precautionary principle would help regions maintain healthy environments and viable economies far into the future. Fully exploiting the remarkable resources in Orca Pass could help pay for that new car you want—however, if we look after these resources properly they will not only support us now, but also put dollars into the pockets of our grandchildren.

If they are big enough, marine reserves can also help protect stocks and ecosystems from catastrophes. We are now realizing that events like superstorms, El Niño, massive die-offs and devastating oil spills aren't a matter of "if". We have to plan for the inevitable "when" and marine reserves with high biodiversity and resilience are excellent insurance policies.

Precautionary Principle

1. People have a duty to take anticipatory action to prevent harm. ("If you have a reasonable suspicion that something bad might be going to happen, you have an obligation to try to stop it.")

2. The burden of proof of harmlessness of a new technology, process, activity, or chemical lies with the proponents, not with the general public.

3. Before using a new technology, process, or chemical, or starting a new activity, people have an obligation to examine a full range of alternatives, including the alternative of doing nothing.

4. Decisions applying the precautionary principle must be "open, informed, and democratic" and "must include affected parties."

From the Environmental Research Foundation, P.O. Box 5036, Annapolis, MD 21403.

The precautionary principle is not really new. The essence of the principle is captured in common-sense aphorisms such as "An ounce of prevention is worth a pound of cure," "Better safe than sorry," and "Look before you leap." However, environmental policy in the US, Canada and Europe for the past 70 years has been guided by entirely different principles perhaps best reflected in the aphorisms, "Nothing ventured, nothing gained" and, "Let the devil take the hindmost."

Research & Education

Photo: Bryan Nichols

Intertidal 'quadrat' studies yield valuable data.

Managers and scientists appreciate marine reserves because they provide opportunities to gather critical baseline information. It is much easier to study and understand different food webs and habitats when there is a "control" with which to compare. Something that seemed alarming might not be, while less obvious factors can cause the real trouble. A better understanding of the underwater world means we can put effort and money into solutions that really make a difference.

The research benefits go beyond fisheries management techniques (though experience shows we need plenty of help there). Life within the Pacific Ocean is much older and more refined that the glacier-battered plants and animals on shore. This means potential wealth from the beneficial chemicals, compounds and techniques that sea creatures have evolved. Barnacles, for example, stick to rock by means of what must be the world's most effective glue—why can't we buy such a compound yet? Surely superglues, medicines and countless other discoveries await us.

Tied in with research is education—MPAs will provide spots for young, old and in-between to learn more about our coast and its critters. Field trips, summer camps, club outings, learning vacations—who wants to study in a stuffy classroom when we can visit such beautiful and effective learning environments?

If We Build It, They Will Come

Love it or hate it, tourism is the world's largest industry. As natural areas disappear, spots that are efficiently protected will inevitably become ever more popular—and valuable. The United States' greatest legacy to the world may be its pioneering National Parks System and the splendor it preserves. But both the US and Canada fall *far* behind many of the world's smaller, coastal nations when it comes to extending parks systems to the ocean. The tourism benefits of effective MPAs will be immediate, but will also grow generation by generation as the world's pristine spots become increasingly rare.

Mind, Body and Spirit

Photo: Alan Wilson

The islands of Orca Pass provide sustenance for the soul.

Finally, a system of MPAs can help protect all those values that don't translate well to dollars, yen or pounds. The escape, the invigoration, the adventure, the peace of mind, the challenge, the spirituality—being in the outdoors gives us something we cannot easily quantify or even explain. Besides boosting tourism, MPAs will encourage visits by people that often don't get a chance—locals. MPAs should allow local residents to enjoy nature in whatever (non-destructive) ways we like, from thrilling surf outings and gonzo deep dives, to sunrise yoga love-ins and character-building family camping outings.

Examples

We are not taking a jump into the unknown by proposing the establishment of marine reserves within Orca Pass. Other regions and countries have already designated marine reserves and multi-zoned MPAs with remarkable success. We have fallen behind the rest of the world, and considering the importance and beauty of our own coast, we need to catch up.

New Zealand—*16 marine reserves and more on the way, with documented improvements in fisheries recovery, research and education.*

Florida—*a small marine reserve created to provide a security zone for the Kennedy Space Center in 1962 was studied in the 80s. Most interesting to sport fishermen, increases in the size and number of fish within the reserve resulted in spillover and a concentration of world record gamefish being caught in areas alongside the reserve.*

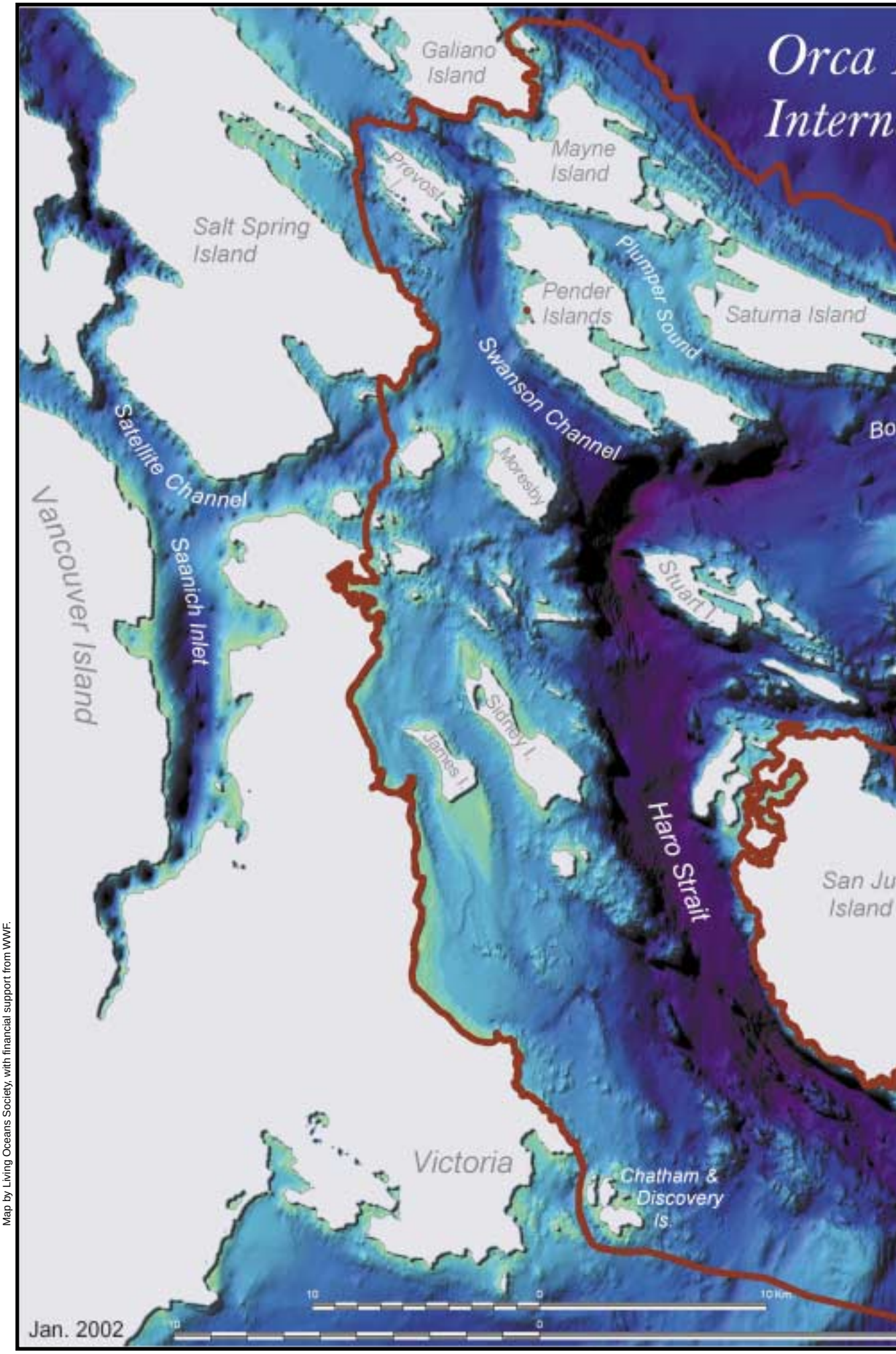
Belize—*a small, experimental no-take zone became so popular it was nearly loved to death by enthusiastic tourists; the country continues to experiment with marine reserves to protect its valuable lobster and conch exports.*

Australia—*the multi-zoned and immense Great Barrier Reef MPA helps protect not just the high profile coral reef but many of the less "sexy" ecosystems that support it, like seagrass beds.*

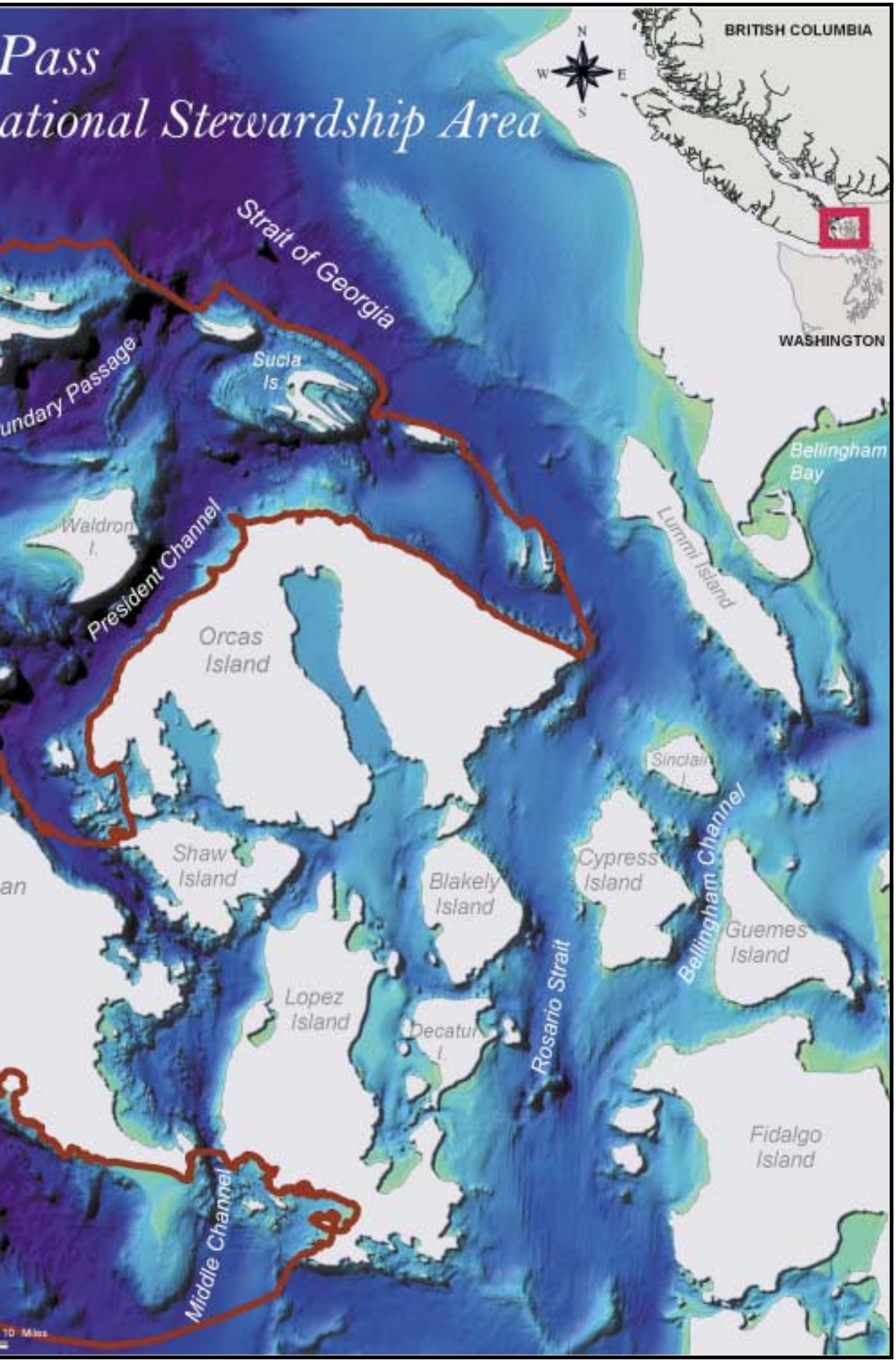
Saba, Bonaire, Cayman Islands—*smaller island countries understand the benefits of the ocean that surrounds them and are often quicker to legislate protection. Effective MPAs have helped sustain healthy coral reefs, protecting fragile coastlines from storms and making each of these countries a paradise for tourists and scuba divers.*

Photo: Bryan Nichols

Orcas of J pod rising together to breathe in synchrony.



Map by Living Oceans Society, with financial support from WWF.



CHALLENGES & RESPONSES

"Treasured coastal environments are the premier destination for travellers the world over. The troubled health of our world's oceans affects all of us. The Orca Pass International Stewardship Area Initiative is a constructive process, bringing about cooperation and consultation among residents and visitors alike. We each have a responsibility."

Rick Antonson, CEO Tourism Vancouver & Co-Founder of the Oceans Blue Foundation

So what's the problem? Why the wait? A poll in the United States showed the public "vastly overestimates" the proportion of coastal waters that are fully protected and a majority were actually angered when they found out it was less than one percent. In BC, a poll conducted in October 2001 found over 75% of respondents support the creation of MPAs and that the public is willing to make tradeoffs to restore depleted fish stocks. Why isn't our coast already blessed with a well organized, effective system of zoned MPAs? Why are we lagging behind so many other countries?

Out of Sight, Out of Mind

Perhaps the most obvious challenge is that the sea is not easy for us to experience. There are beautiful landscapes, diverse ecosystems and remarkable creatures below the surface—most of which we never see. We have been slow to protect this wilderness below the waves because tidepools, ferry rides and days on the beach barely hint at what's there.

Jurisdiction

The biggest challenge to North American MPAs seems to be multiple jurisdiction and the resulting bureaucracy. Put simply, there are too many levels of government involved to enable quick and effective legislation.

Here's a quick look at some of the layers relevant for Orca Pass in the **US**:

- ***State government****: has jurisdiction over "aquatic lands" and resources*
- ***Federal government****: has much less influence over "inshore" areas like Puget Sound or the Strait of Georgia than offshore waters*
- ***Treaty tribes****: have rights to harvest and cooperatively manage fish, shellfish*
- ***Local governments****: own and manage numerous parks*
- ***Private ownership****: the beach, including the intertidal zone, is often privately owned*

In **Canada** it is a different but equally complex system:

- ***Federal government****: controls the water column, fisheries, birds, many harbors and offshore areas*
- ***Provincial government****: controls most shorelines and the seabed in "inland" waters such as the Strait of Georgia*
- ***First Nations****: have numerous outstanding, overlapping treaty claims and constitutional rights (upheld by courts) to harvest for food and ceremony*
- ***Local governments****: own and manage numerous parks; within the Gulf Islands, foreshore zoning comes under the mandate of the Islands Trust, the elected body that covers 13 major and over 400 smaller islands*
- ***Private ownership****: extends only to high tide line—below that, beaches are "Crown Lands".*

The **National Marine Conservation Area (NMCA) Coalition** is a collection of south coast conservancy groups and stake-holders working to support and strengthen Parks Canada's efforts to protect the marine environment through the establishment of a National Marine Conservation Area in the Southern Strait of Georgia.

Coordinated by the Canadian Parks and Wilderness Society (CPAWS) and with active participation from Georgia Strait Alliance and other Orca Pass advocates, the NMCA Coalition has been working to identify candidate areas for marine reserves within what hopefully will become the Southern Strait NMCA, some of which may overlap with Orca Pass.

For more information about the NMCA Coalition, see the CPAWS website at www.cpawsbc.org.

In both countries you can add a mix of government departments with different mandates and priorities. Currents and marine critters are reluctant to stay within a particular jurisdiction—in addition to crossing geographic lines, many have life cycles that move from the water column to the seabed and back.

The upshot of all these levels is that the "top down" method of government creating marine reserves seems to move as slowly as the glaciers, despite the fact MPAs have proven effective in numerous other countries. There have been other efforts to establish MPAs in the Salish Sea, including a proposal for a Northwest Straits National Marine Sanctuary in the US and the current initiative by Parks Canada to establish a National Marine Conservation Area in the southern Strait of Georgia *(see sidebar page 20)*. Unfortunately both processes are lengthy and beset by jurisdictional challenges, and neither guarantees no-take zones. This pace is not likely quick enough for the creatures and habitats at risk, or the people who depend upon them.

One of the things that sets Orca Pass apart is that the whole concept is "bottom up". It has been conceived, organized and advocated by local citizen groups working together in the Sound and Straits Coalition, on both sides of the border. These groups (listed in Appendix A) are collaborating to inform successive levels of government and win public support for Orca Pass. The local governments on both sides of the border—San Juan County and the Islands Trust—have come on board with the Coalition and are now part of this effort, working to establish transboundary marine protected areas.

Sound and Strait Coalition groups agree that there is no one "right" legislative mechanism to establish the Orca Pass International Stewardship Area. They recognize that a variety of approaches may need to be taken because of the transboundary nature of the area, and because good MPAs provide zones and a flexible framework that can be updated and improved as new information and conditions warrant.

First Nations and Tribes

Aboriginal rights, concerns and jurisdiction are important on both sides of the border. In Washington, treaty tribes are co-managers of resources and therefore need to be intimately involved with the process of creating MPAs as well as participating in continuing administration.

Photo: Bruce Obee

The ancient canoe culture is reviving.

In British Columbia it's a bit more complicated, as many First Nations are currently involved, with the provincial and federal governments, in a process to settle land claims and other outstanding matters. As a result they may be understandably nervous about entering into any arrangements that might prejudice how treaties are eventually written. Yet at the same time, First Nations need some mechanisms in place now, to ensure that at the end of the lengthy treaty process, they can count on healthy fisheries and a clean environment. While it could take years to negotiate treaties, interim measures agreements can be developed to enable First Nations to work with other governments in the region to develop a common approach to protecting and managing special places like Orca Pass.

More study needs to be done on conservation and marine reserves within a tribal context. Were there areas that were traditionally left alone? Why? How can we apply that knowledge to our present situation in order to develop an effective and workable system of marine reserves or other special protection areas?

Stakeholders

Another challenge in creating any MPA is the number of stakeholders involved, and the potential for conflicting concerns. One of the problems with top-down creation of protected areas (on both land and water) is that many groups perceive it as an arbitrary, insensitive process in which they have little or no say. Orca Pass is different—not only does it have grassroots support—it is being designed and pushed from the bottom up and input is welcome and encouraged from all

stakeholders. Other regions with experience creating MPAs report that "public acceptance and support has tended to increase with direct experience".

At the back of this booklet you'll find a page for comments and suggestions for the Orca Pass project. We hope you'll take the time to fill this out and send it to us. Your input can help shape the Orca Pass proposal that eventually goes forward to government.

Residents

People view parks in different ways. Are they great places to visit and connect with nature, or are they restrictive areas that keep us out or hinder our enjoyment? Local residents should be proud of their MPAs—not only as a showcase to the world but also as a place to escape for an afternoon, a weekend or more. People that live or work near (or even within) an MPA will have very specific concerns which can be identified and addressed by ongoing community consultations.

Recreational Fishermen

People who fish regularly in Georgia Strait and Puget Sound are all too familiar with the decline of numerous stocks and the increasingly complicated restrictions that mar the simple enjoyment of catching one's dinner on the water. It is becoming clear that good fishing is a privilege, not a right—do we want limitless access to fewer and fewer small fish? More people are seeing the wisdom of giving up some fishing spots to help restore stocks, safeguard biodiversity and, ultimately, to improve fishing. Without waiting for the slow government process, San Juan County has already instigated a system of voluntary bottom fish recovery areas (including some in Orca Pass), targeting prime fishing spots that have been fished out.

Commercial Fishermen

Commercial fishermen have suffered considerably in the last decade. Complex and occasionally dangerous restrictions, enforced downsizing, ever-growing area closures and the decline of numerous stocks have all hit hard. The collapse of once abundant cod stocks on the East coast should be a lesson for us here. If fish are to continue to support a valuable industry and provide us with a nutritious source of protein we must get better at managing the industry.

Photo: William B. Folsom, NMFS

MPAs can be a safety net for fishermen.

Painful experience has proven we can no longer rely on the species-by-species approach that government managers have used for decades. Marine reserves are ecosystem-based tools, and they are finding increased favor with fisheries managers throughout the world. Because of the potential dollars involved, considerable scientific study is underway on this topic, much of it showing that no-take zones can protect very effective breeding stocks that spill over into nearby fishing areas. They also provide a safety net against management mistakes that occur as a result of poor understanding or unforeseen events—something we badly need in this age of climate change, ocean warming, oil and chemical spills and other catastrophic problems.

Embattled fishermen have a right to be wary of a technique that restricts the areas in which they can harvest. But their participation is vital, at the industry level as well as locally. The process of creating and enforcing marine reserves must include industry representatives and must be fair and transparent. In New Zealand, initial resistance to marine reserves by fishermen has been replaced by acceptance and even enthusiasm as the benefits have become clear—many fishermen are now ardent MPA boosters.

Shipping

Orca Pass is aptly named—the maze of islands contains essential routes for wildlife moving through the Salish Sea, from schools of salmon and herring to the pods of killer whales that follow them. Boundary Pass and Haro Strait make up much of Orca Pass—these are also important channels for our own movements and are regularly used by commercial shipping companies. Over 10,000 freighters traverse the Strait of Juan de Fuca each year en route to Seattle or Vancouver. Standard-sized tankers (some carrying up to three times the amount of oil spilled by the *Exxon Valdez*) navigate tricky turns through islands and passes en route to refineries in Burrard Inlet or Puget Sound.

Photo: Aaron Tinker

10,000 freighters a year visit Vancouver and Seattle.

Anyone that lives on the coast has legitimate concerns about shipwrecks and spills—the *Exxon Valdez* was only one of many west coast fuel spills. There is also potential harm from foreign species carried in bilge water that is dumped indiscriminately. The European green crab is adept at preying on valuable shellfish and may have been introduced to the Northwest this way.

Recreational boaters

The Salish Sea is a mecca for boaters in everything from small sailboats to luxury yachts, and both countries have excellent systems of marine parks to increase our enjoyment of the waters. But most of the parks were created primarily to protect anchorages, not ecosystems. A flexible system of MPA zones will recognize the importance of boaters and enhance the values that make the area so popular while minimizing the negative effects of overcrowding. For example, in some places it will make sense to provide fixed moorings for boaters and discourage anchoring, in order to prevent damage to eelgrass beds or other sensitive bottom habitats.

Photo: Georgia Strait Alliance

There are hundreds of thousands of private boaters.

In BC plans are underway to increase the number of sites where no discharge of sewage is allowed, and in Washington holding tanks are already required. For the most part, boaters understand the need to keep the marine environment clean and are moving towards a low-impact ethic. For tips, Georgia Strait Alliance's "Guide to Green Boating" is a great way to start *(see www.GeorgiaStrait.org or page 31)*.

Kayakers

The Northwest is the heart of the sea kayaking boom—commercial tours have become an important industry on both sides of the border. Kayak and related gear manufacturing industries in the region employ a growing number of people and export their goods to markets throughout the world. A sea kayak is probably the best way to enjoy our coastal waters—the intimate, quiet perspective you get from sea level is accessible to almost anyone. Low impact kayak trips, both commercial and private, will be encouraged in Orca Pass.

Photo: Bryan Nichols

A sea kayak provides an intimate, quiet perspective.

Scuba Divers

No one appreciates what lies beneath the surface better than divers. Being face to face with a curious, elderly rockfish or marveling at wolf eels and giant octopi leaves most divers with a desire to better protect this vulnerable and fascinating world. Technological advances will continue to make cold water diving more accessible. The more people that get to visit the world below, the better. The Orca Pass

International Stewardship Area will encourage responsible, non-consumptive recreational diving and help protect its natural features, attracting divers from all over the world.

Photo: Bryan Nichols

Divers know what wonders lie below.

Wildlife watching

Who would have suspected what an economic boon this would be? In 1996, $622 million was spent on wildlife recreation in BC by the province's residents alone—add the spending of tourists and the amount is even higher. In North America we often take our wildlife for granted, but anyone who has traveled the world knows that big, impressive critters (particularly predators) are rare most other places. Orca Pass is an ideal spot for safari-style wildlife viewing on the water and dozens of companies from both sides of the border are already cashing in.

Managed as a renewable resource, wildlife viewing will bring in ever increasing revenues. As other areas of the world are denuded and tamed, the remaining wildlife experiences will become increasingly rare and valuable.

From killer whales and sea lions to bird colonies and bow-riding porpoises, the wildlife of Orca Pass is not just an indicator of a healthy environment—it is something that the rest of the world will pay more and more to see. Safeguarding these remarkable populations is in everyone's best interest. Responsible wildlife watching will be encouraged with the interests of individuals, companies and wild species balanced and managed on a continuous basis.

Photo: Bryan Nichols

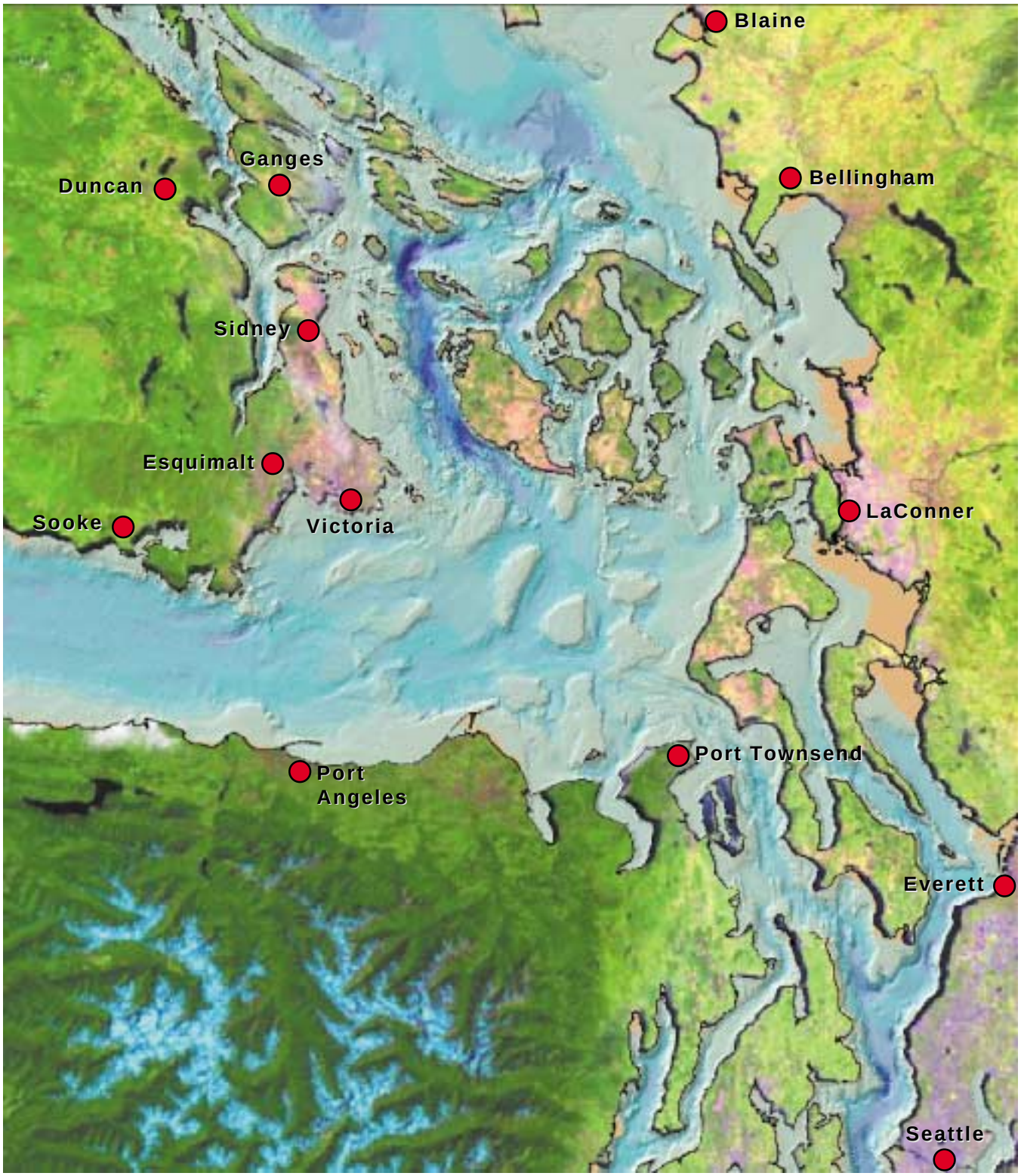
Whale watching is popular in Orca Pass.

Photo: Bryan Nichols

At Boat Pass on Saturna Island, you can watch the dynamism of a tidal pass at full flood.

Everyone wins

US and Canadians citizens, international visitors—everyone will benefit from the Orca Pass International Stewardship Area. Establishing it will help sustain the environment we rely on, keeping us healthy as well as providing a connection to nature that we can never get from television or the internet.



THE PROCESS

"The Orca Pass initiative is a great example of bringing people together for a common cause. Local communities, recreational groups, commercial interests, plus every level of government are all pulling together to make marine ecological stewardship a reality. Sure, we face some fresh challenges and have to reach some new agreements, but together we can make this happen. This area is so important—let's just do it!"

David Essig, Chair, Islands Trust Council

Mapping

The process of identifying areas in Orca Pass that need special protection is underway now, but this is difficult work. Balancing good science with pragmatism and the concerns of stakeholders is a delicate matter—social and environmental matters need to be addressed on a case-by-case basis. Some of the best candidates for marine reserves are representative areas from different ecosystems with high biodiversity. GIS computer mapping work is being coupled with local knowledge and anecdotal evidence gathered through public consultation to identify areas needing special consideration.

Zoning

While the proposed Orca Pass International Stewardship Area is relatively large, it's worth remembering that the Sound & Straits Coalition is *not* trying to make the whole area a marine reserve (no-take zone). What we are proposing is that some smaller, specific areas within Orca Pass receive special protection, including some marine reserves.

Marine reserves are the most important part of an MPA, but they are usually fairly small. Surrounding buffer zones allow activities with limited impact, including fishing (though not bottom trawling). One of the strengths of large MPAs with variable zoning is that they allow local managers to address very specific concerns. This concept has been so successful that there are efforts to apply it to terrestrial parks, which often have abrupt "all or nothing" borders.

Besides the essential marine reserves, there are a number of other possibilities. One zone might be a "quiet" spot for the much-beleaguered orcas, a sanctuary where boats are kept at a healthy distance and engine noise is minimized. Other zones might prohibit activities we know to be harmful to marine life (for example, jet-skis); or provide specific protection to places where species are vulnerable, such as shallow bays and wetlands used seasonally by migrating birds; or protect sensitive eelgrass beds by establishing fixed moorings for boats instead of allowing anchoring. Applying ecosystem management concepts and the precautionary principle will go a long way towards keeping life healthy and abundant in all the zones.

Certain spots in Orca Pass already have some level of protection—Mandarte Island, a barren rock popular only with nesting birds and stalwart researchers with permits, is one example. But current protection is a hodgepodge of different departments and jurisdictions that is poorly understood by the public. An MPA would help integrate areas that already receive some protection under an ecosystem approach, making them more valuable to both people and wildlife.

North of the border, Georgia Strait Alliance, the Canadian Parks and Wilderness Society, Living Oceans Society and other Sound and Straits Coalition partners have been gathering anecdotal and scientific evidence to identify areas of special importance. In Washington, People for Puget Sound has a GIS program underway to compile the data from both sides of the border, in order to identify spots with high biological richness. Some of these areas are shown on the map on the next page.

Active Pass: internationally recognized Important Bird Area (one of only a few on Canada's west coast); key stopover for migrating birds in part due to highly productive deep water upwellings.

Belle Chain Islets & Cabbage Island: kelp-encrusted reefs, high biodiversity.

Eastern Saturna Island: unique and highly productive Tumbo Channel, Java Islets.

Sucia & Patos Islands: biologically productive rocky reefs, high currents, nesting area for many pelagic birds, seal haul-outs. Shallow marine shelves near islands support kelp and eelgrass beds that are essential part of this productive system.

Portland Island: marine park with productive reefs, intertidal areas.

South Pender Island: numerous orca and porpoise sightings.

Waldron: Shallow marine shelf supports kelp and eelgrass beds where juvenile fish and marine birds feed. Farther offshore rockfish and porpoises are common.

Gooch Island & Cod Reefs: productive and diverse reefs.

Stuart, Johns & Speiden Islands: current-swept cliffs and numerous orca and porpoise sightings. High relief underwater cliffs are good habitat for rockfish and other fish.

Sheltered waters off northwestern San Juan Island & Henry Island: high biodiversity supporting rare and important populations of seabirds, marine mammals, invertebrates and vegetation.

Deer Harbor (Orcas Island), Crane Island & Neck Point (Shaw Island): protected waters near Middle Channel; transient populations of many rare species; high abundance of rockfish.

D'Arcy Islands & Zero Rocks: productive and diverse reefs.

Western shore of San Juan Island between Lime Kiln Point & False Bay: Steep offshore slopes cause deeper water to rise quickly close to shore bringing nutrients and plankton to the surface and creating important feeding areas for rockfish, salmon and orcas.

Southern entrance to San Juan/Middle Channel including Mackaye Harbor (Lopez Island) to Cattle Point (San Juan Island): highly productive area; high tidal currents and feeding habitat for many rare or endangered species; diving seabirds including pigeon guillemots and murrelets and fish including rockfish are common in area.

On page 37 of this document you will find a form asking for your opinion on what areas within Orca Pass merit special protection. If you know of a spot that you believe would benefit from a certain type of protection, please fill out this form and send it in.

Designation

Orca Pass could be established as a multi-zoned MPA through a number of governmental processes on both sides of the border, and it's likely that designation will come through a combination of these and perhaps in several stages over the next few years. In Canada, the legislative avenues include:

- ***Fisheries & Oceans Canada****—Marine Protected Areas (under the Oceans Act)*
- ***Parks Canada****—National Marine Conservation Area (under the proposed Marine Conservation Areas Act, expected to pass in Parliament early in 2002)*
- ***Environment Canada****—National Wildlife Areas (Canada Wildlife Act) and Bird Sanctuaries (Migratory Birds Convention Act)*
- ***BC Ministry of Water, Land and Air Protection****—Ecological Reserves, Provincial Parks, Wildlife Management Areas and "Protected Areas" (under a variety of acts)*
- ***Islands Trust and other local governments****—local zoning in foreshore areas*

Each of these agencies has part of the overall mandate to protect habitat and/or species. As aboriginal treaties are established over the coming years, First Nations may have legislative tools for protecting some areas as well.

On the US side, in the wake of the failure of the *Northwest Straits National Marine Sanctuary* proposal, there appears to be no viable federal designation available for Orca Pass. Even if that proposal had succeeded in designation, marine reserves are rare to non-existent in federal National Marine Sanctuaries. There is considerable pressure to beef up the level of protection in certain areas—California and the Florida Keys are leading the way. However, it will require the coordinated efforts of federal and state governments and treaty tribes to provide an effective regulatory framework for Orca Pass. In the meantime, San Juan County is using public education and voluntary "bottom fish recovery zones" to build support and implement effective interim protection.

Management

A system needs to be developed that will minimize the bureaucracy and maximize the benefits, for the environment, the residents and the visitors. No-take zones are relatively easy to monitor and enforce but the details of buffer zones and guidelines for different industries that benefit from the MPA can be devised and revised as new evidence and changes in conditions warrant. The MPA system will provide a workable framework for governments, First Nations, Tribes and stakeholders.

Another important role of the Orca Pass International Stewardship Area is that it can and will raise awareness—putting it on the map will inspire citizens to help out and stakeholders to take proper care of the area. The value of this should not be underestimated. The public pressure that can come from increased citizen awareness can inspire individuals, local governments, shipping companies, fishermen and tour operators to be more responsible. Citizen monitoring efforts can help with enforcement. In many cases, peer pressure can be a very effective and inexpensive management technique.

Get Involved!

All of the groups involved in the Orca Pass project are trying to reach out to their constituencies and beyond, to ensure a wide consultation and plenty of public feedback. Outreach to the many stakeholders is critical, and representatives from industry need to air their concerns and provide constructive input. This is a crucial stage for developing goals and objectives—experience in other countries has shown MPAs suffer if there hasn't been thorough public consultation before designation. Watch for public meetings in your community on Orca Pass and get involved, and fill out the form at the back of this booklet and send it in. We want to hear from you.

Some Questions

Is this simply more unnecessary bureaucracy?

Well, something sure needs to be done—the status quo is eating away at the natural wonder and economic value of our coast. MPAs have proven to be effective tools in other parts of the world so why aren't we making the most of them? Our current patchwork of laws and conflicting jurisdictions is a mess. If interested citizens and stakeholders get involved in developing a management plan, we can design a system that keeps bureaucracy to a minimum.

Will it just result in more taxes, more restrictions and no benefits?

Unlike many terrestrial parks, the economic benefits of MPAs can be remarkably quick and include more than just tourism related income. There will be restrictions on some activities in certain areas, but the evidence from around the world is showing that the benefits far outweigh the costs.

Will my favorite fishing spot become off limits?

Possibly—but nearby you might find yourself catching bigger fish more often. And so will your great grandchildren.

Will my kayak/dive/whale watching business be kicked out?

Not if you run it responsibly. Real eco-tourism benefits everybody, especially locals, and strives to minimize its impact on the environment. Citizens who get involved in developing the management plan (how about you?) will consult each industry to develop guidelines that work for everyone. People who get a chance to enjoy Orca Pass will be more inclined to help protect it, so eco-tourism will be encouraged.

My family and I don't live near the water and can't afford a yacht. What do we care?

The health of the Pacific Ocean affects the quality of all our lives, whether we visit it regularly or not. The sea provides food, economic wealth and even clean air—scientists have estimated that if we had to pay for the essential services that the ocean provides to humanity, it would cost trillions of dollars per year. An effective marine protected area that encompasses the most beautiful and popular part of the Salish Sea will benefit everyone in the Northwest, for generations to come.

THE HEART OF THE MATTER

For all of us, no matter which side of a political boundary we live, the fate of the ocean is intimately connected with our own health and well being. The threats facing our world's oceans are many and grave, and they require immediate action. I hope all citizens will join me in striving to protect the shared waters of British Columbia and Washington. The Orca Pass International Stewardship Area will be a positive and important step in protecting and restoring the region's marine life, and it will serve as an important reminder that we can take tangible actions to save the endangered orcas, fishes and the full range of biological diversity in our beautiful region, for which Canada and the United States are stewards.

Elliott A. Norse, Ph.D., President of Marine Conservation Biology Institute and Pew Fellow in Marine Conservation

Scientific studies continue to show that no-take marine reserves are essential to make MPAs work. Implementing them quickly and effectively is the most important step we can take—buffers and special protection areas can be designed and refined over time.

Beyond the immediate benefits of these relatively small refuges lies the bigger picture. Buffer zones will certainly help and we can examine what works in other countries that have successful systems in place. The exact nature of buffer zones and areas of special protection can be tailored specifically for each spot with plenty of input from local stakeholders. But MPAs alone will not solve all the problems threatening the Salish Sea. We all need to *fundamentally rethink how we view the oceans*—they are no longer bottomless refuse pits or limitless food sources. This is where the "Stewardship" part of the Orca Pass International Stewardship Area becomes important.

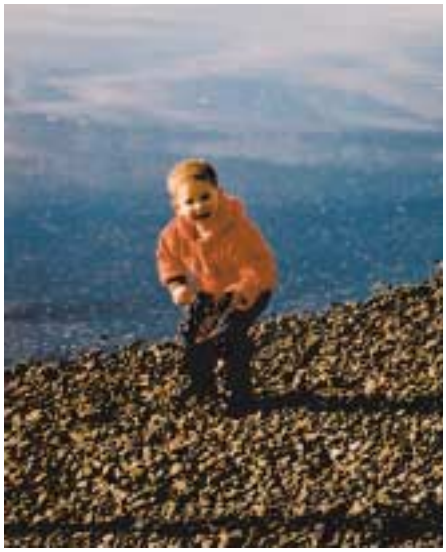


Photo: Laurie MacBride

Learning to connect with nature.

Stewardship is about undertaking initiatives and making changes in our approaches to everyday decisions and activities that will help in the overall effort to reduce pollution, protect habitat, and conserve biological diversity. And stewardship means that there's a role for everyone to play in making sure that the Orca Pass International Stewardship Area is effective now and for the long-term.

Fisheries managers need to become less focused on individual species—what good is slashing salmon quotas if there are no herring for the salmon to eat anyway? Governments need to crack down on scofflaws—anti-pollution legislation already on the books, such as Canada's Fisheries Act, is often ignored or regularly abused. The shipping industry needs to safeguard against oil and chemical spills. And we all need to work at reducing our own impacts—there are numerous changes we can make that will help, even in our own homes. Something as simple as minimizing the amount of toxic household chemicals we use will prevent these substances from finding their way from our drains to the tissues of killer whales, diving ducks or eagles. We may not see immediate impacts from all of these changes, but future generations of animals, plants and people will benefit.

Government and citizen groups need to get together, plow through the necessary bureaucracy and get this done. Much of the work and study has been started or even completed—it just needs to be assembled into a system that will work. From the upper levels of government down to individual citizens, sharing ideas, information and resources will make it happen.

WHAT YOU CAN DO

First, check out the excellent materials available online and in print from the organizations involved in the Orca Pass initiative *(see page 34)*. Updates, references and specifics can all be found there.

Second, fill out the form on page 37 and send it to us. Let us know which areas are the most significant to you and how you'd like to see these managed and protected. By contributing your local knowledge, you can help shape the Orca Pass International Stewardship Area.

Third, try initiating some local action:

- *host a presentation about Orca Pass for your community or group (we'll provide a speaker)*
- *contribute local knowledge to help define significant areas: where these are and how you would like them to be managed or protected (see the form at the end of this booklet).*
- *gather signatures for the Orca Pass petition; you can find it at www.georgiastrait.org or www.pugetsound.org, or contact Georgia Strait Alliance or People for Puget Sound for copies*
- *tell your friends and co-workers about Orca Pass*
- *write to your elected representatives and to local newspapers and let them know you support the Orca Pass International Stewardship Area initiative*

Ultimately, in and beyond Orca Pass, we will have the most positive effects on our oceans through individual efforts. Here are some related programs that you may want to get involved in *(see page 34 for contact information)*:

Georgia Strait Alliance:

- ***Green Boating****—practical tips and advice (including the 16-page 'Guide to Green Boating') for how to operate and maintain your boat so as to lessen your impact on the marine environment through intertidal quadrat studies and other activities*
- ***ToxicSmart****—practical ways to reduce the use and impact of household toxins*
- ***Straitkeepers****—a volunteer-based program to monitor the diversity of local seashores*

People For Puget Sound:

- ***Rapid Shoreline Inventory****—volunteers collect detailed shoreline habitat information to help direct the conservation and restoration of critical habitat.*

These programs encourage all of us to get involved at our own comfort level. Each little step will help keep our oceans healthier—in and outside the boundaries of MPAs.

Photo:Bryan Nichols

The frosted nudibranch

APPENDIX A

Organizations Involved in Orca Pass

For more information and to get involved, contact the coordinating groups of the **Sound and Straits Coalition**:

Georgia Strait Alliance

www.georgiastrait.org
195 Commercial St., Nanaimo, BC V9R 5G5
250-753-3459, gsa@georgiastrait.org
Victoria: 250-381-8321, peter@georgiastrait.org

People for Puget Sound

www.pugetsound.org
407 Main Street #201, Mt. Vernon, WA 98273
360-336-1931, northsound@pugetsound.org
Seattle: 206-382-7007, people@pugetsound.org

Or contact any of the following partner organizations or agencies:

In British Columbia:

Canadian Parks & Wilderness Society
www.cpawsbc.org
Vancouver, BC
604-685-7445, marine@cpawsbc.org

Galiano Conservancy Association
Galiano Island, BC
250-539-2424, galiano_conservancy@gulfislands.com

Islands Trust
www.islandstrust.bc.ca
250-405-5161

Living Oceans Society
www.livingoceans.org
Sointula, BC
250-973-6580, oceans@livingoceans.org

Mayne Island Naturalists
250-539-5317, valleel@island.net

Oceans Blue Foundation
www.oceansblue.org
Vancouver, BC
604-684-2523, seastar@oceansblue.org

Pender Island Conservancy
Pender Island, BC
pica@gulfislands.com

Society Promoting Environmental Conservation
604-736-7732, enviro@spec.bc.ca

Underwater Council of BC
www.ucbc.bc.ca
Vancouver, BC
606-464-9140, karlf@sfu.ca

In Washington State:

Evergreen Islands
Anacortes, WA
evergreenislands@waters.org

Friends of the San Juans
www.sanjuans.org
Friday Harbor, WA
360-378-2319, friends@sanjuans.org

Orca Conservancy
Seattle, WA
206-467-ORCA, michael@outpostmedia.org

Orca Network
www.orcanetwork.org
Greenbank, WA
360-678-3451, info@orcanetwork.org

Orca Recovery Campaign (Earth Island Institute)
www.saveorcawhales.org
Seattle, WA
206-715-6414, saveorcawhales@home.com

San Juan County
www.col.san-juan.wa.us
360-378-2393

SoundWatch
360-378-4710, sndwatch@whalemuseum.com

Surfrider Foundation (Pacific Northwest Region)
www.surfrider.org
Friday Harbor, WA
360-378-1091, kranker@surfrider.org

Washington Scuba Alliance
Vashon, WA
karlista@mindspring.com

APPENDIX B

References and Further Reading

"More Fish, Bigger Fish" statistics from Halpern, Benjamin: "The impact of marine reserves; do reserves work and does reserve size matter?", *Ecological Applications*, in press, 4/1/00. Also available from National Center for Ecological Analysis and Synthesis, www.nceas.ucsb.edu

Benefits Sidebar information from "Scientific Consensus Statement on Marine Reserves and Marine Protected Areas", National Center for Ecological Analysis and Synthesis, 2001. Online: www.nceas.ucsb.edu/Consensus

For information on the spillover effect of marine reserves, see: "Effects of Marine Reserves on Adjacent Fisheries", by Roberts, Callum M., Bohnsack, Gell, Hawkins and Goodridge. *Science*, Vol 294, Number 5548, Issue of 30 November 2001, pp. 1920-1923. (Also available online: www.sciencemag.org)

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Further Reading

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Photo:Bryan Nichols

The cabezon is a sight to behold.

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Dobrzynski, Tanya and Nicholson, Elizabeth. 2001. An evaluation of the short-term social and economic impacts of marine reserves on user groups in Key West. 168 pages. http://www.environmentaldefense.org/programs/oceans/keywestdukeabst.html.

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Fujita, Rodney M., Willingham, Virginia, & Freitas, Julene. 1998. A review of the performance of some US west coast marine reserves. Environmental Defense Fund: www.environmentaldefense.org

Kenchington, R. 1993. Tourism in coastal and marine environments—a recreational perspective. *Ocean and Coastal Management* 19: 1-16.

Photo:Bryan Nichols

A seal pup waits for mom's return.

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Murgatroyd, L. V. 1999. *Managing Tourism and Recreational Activities in Canada's Marine Protected Areas: The Pilot Project at Race Rocks, British Columbia*. Unpublished Master's Thesis. Marine Affairs Program, Faculty of Graduate Studies, Dalhousie U., Halifax, NS. 192 pages. www.pearson-college.uwc.ca/ pearson/ racerock/rreo/tourism/louise.htm#_Toc461866061

Photo:Bryan Nichols

A juvenile wolf eel.

Murray, S. N., R.F. Ambrose, J. A. Bohnsack, and 16 other authors). 1999. No-take reserve networks: sustaining fishery populations and marine ecosystems. Fisheries 24 (1): 11-25.

Navarro, N. G. 2000. *Public Waterfront Access: A Comparison of Integrated Coastal Management in Canada and the United States*. Unpublished Master's Thesis, no. 264. School of Resource and Environmental Management, Simon Fraser University, Burnaby, BC. 92 pages.

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Sorenson, J., and N. West. 1992. *A Guide to Impact Assessment in Coastal Environments*. Rhode Island: Coastal Resources Center. 100 pages.

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www.ecology.uq.edu.au/marxan.htm - website on marine reserve design, created by Ian Ball and Hugh Possingham, University of Queensland, Australia.

www.oceansconservation.com/mpa/related/ mpabiblio.htm - bibliography on MPAs

Zacharias, M. A., D. E. Howes, J. R. Harper, and P. Wainwright. 1998. "The British Columbia marine ecosystem classification: rationale, development, and verification." *Coastal Management 26: 105-124.*

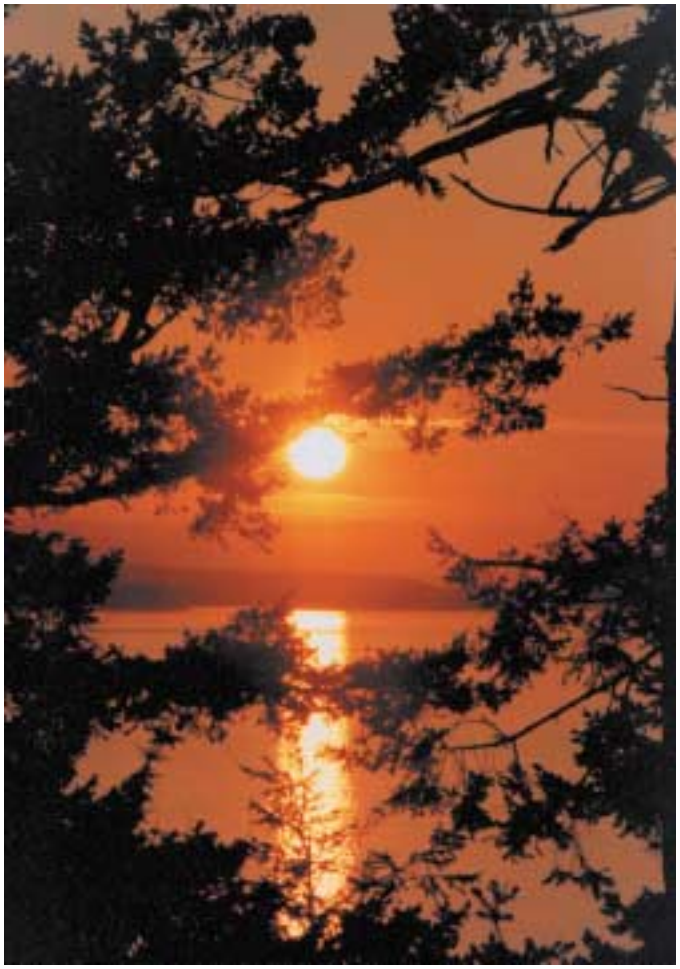


Photo:Bryan Nichols

Let's all work together to make Orca Pass a success!

Response Form

Feedback, Input, Insights

Members of the Sound and Straits Coalition are actively seeking input on Orca Pass, from stakeholders, community leaders and the general public. Please take a moment to fill out this form, and use additional paper if necessary—there is no reason to keep it brief.

Do you support the concept of Orca Pass International Stewardship Area?
Yes____ No____
Why/why not?

_____

Are there areas within Orca Pass that you think deserve special protection? Where, what sort of protection, and why?

_____

_____

_____

Would you like to help develop and advance this proposal?
Yes____ No____
If yes, please provide:

Name: _____ Phone: _____

Address: _____

_____ Email: _____

Please indicate how you'd like to help:

___ identifying areas needing special protection
___ researching or compiling information on these areas
___ organizing a meeting on Orca Pass in your community (we'll provide a speaker)
___ public speaking
___ helping collect signatures on petition
___ providing photos or information about Orca Pass that might be useful
___ providing boat transport for special events in Orca Pass
___ making a financial contribution or giving a gift of goods or services
___ other (specify)_____

May we publish your name and responses to this form?
Yes____ No____

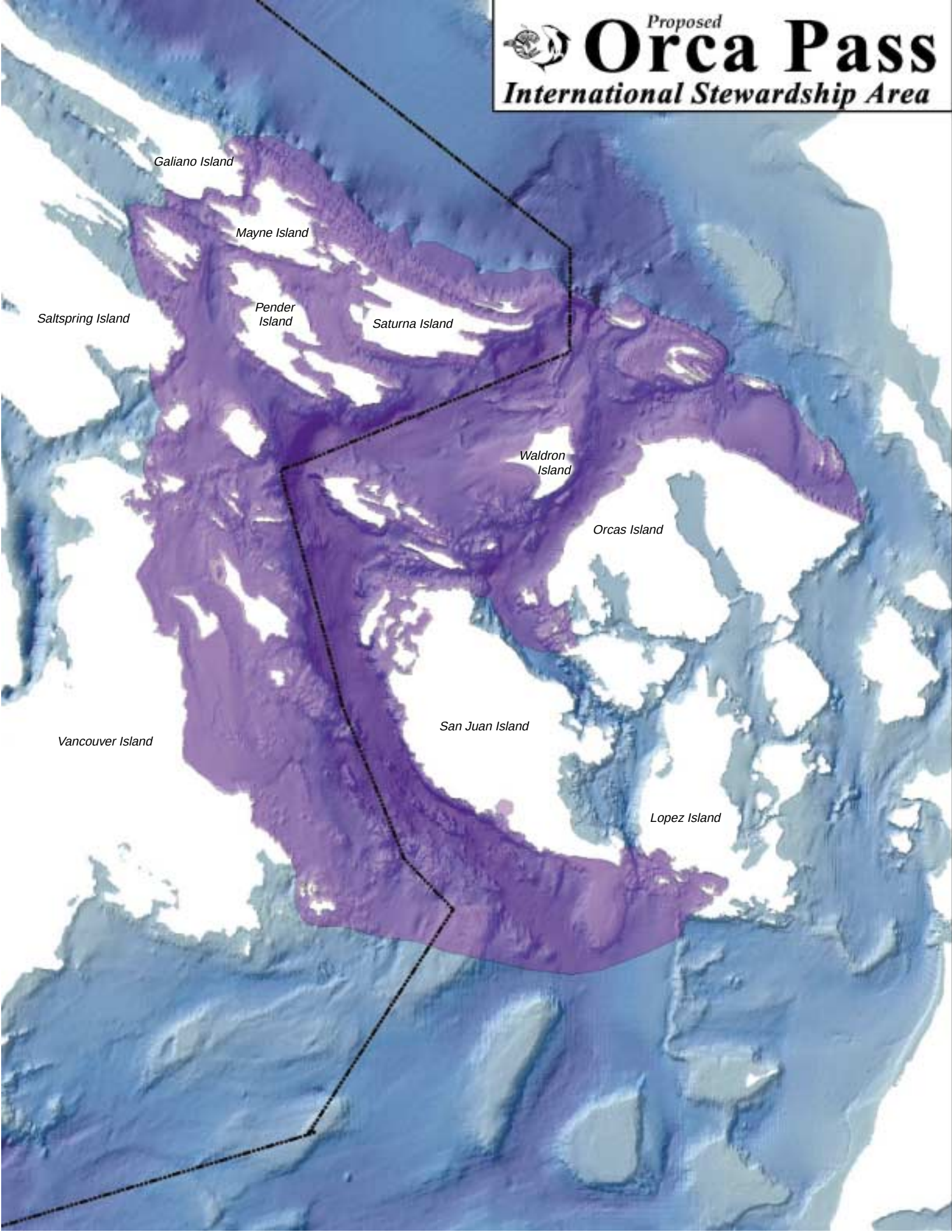
Photocopy (or cut out) and return—thanks.

Return in BC to:
Georgia Strait Alliance
195 Commercial St.,
Nanaimo, BC V9R 5G5
Fax: 250-753-2567
gsa@georgiastrait.org

Return in WA to:
People For Puget Sound
911 Western Ave., Suite 580
Seattle, WA 98104
Fax: 206-382-7006
people@pugetsound.org

Photo:Bryan Nichols

To the Future!


Proposed
Orca Pass
International Stewardship Area
Galiano Island
Mayne Island
Saltspring Island
Pender Island
Saturna Island
Waldron Island
Orcas Island
San Juan Island
Vancouver Island
Lopez Island