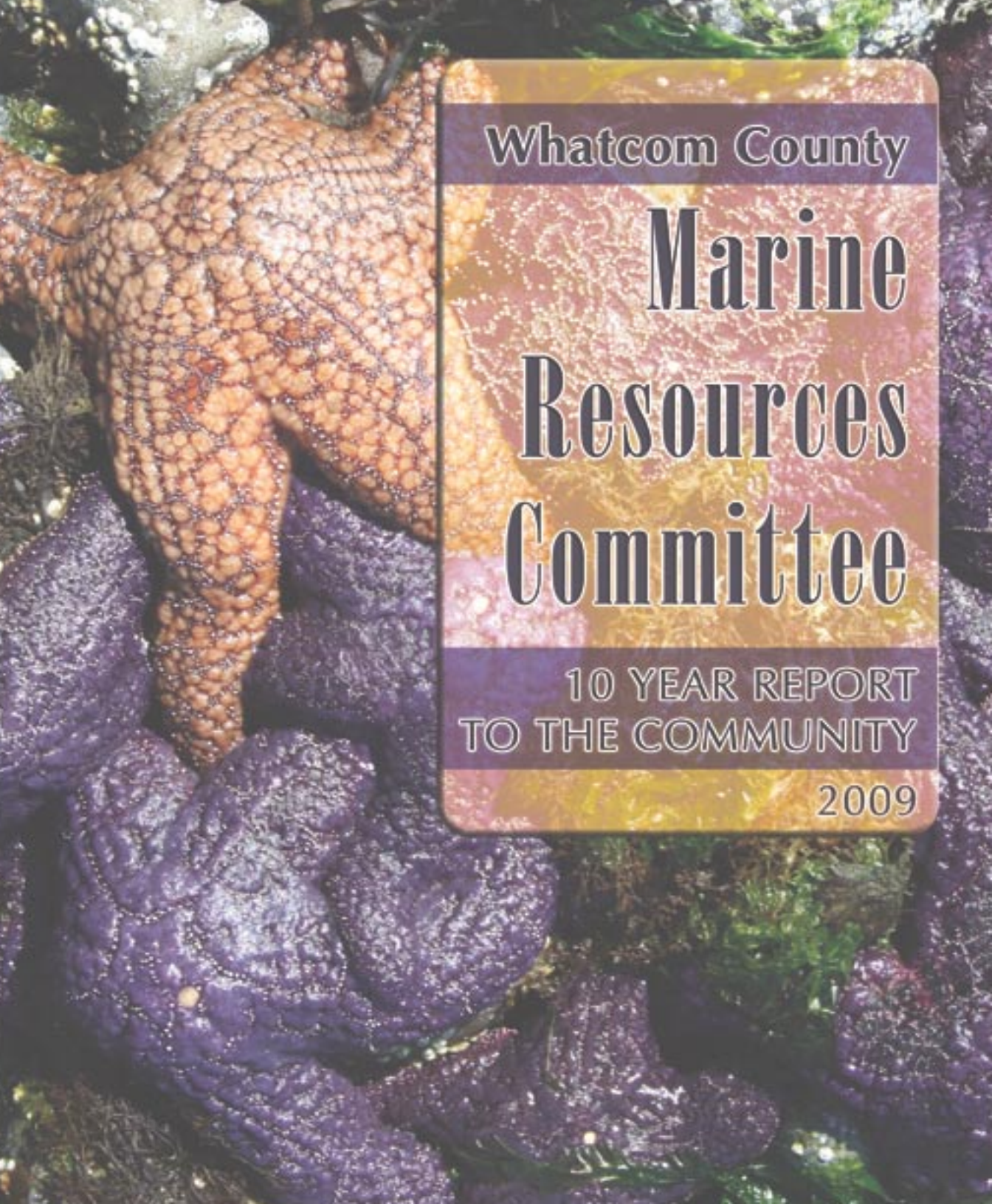

Whatcom County

Marine Resources Committee

10 YEAR REPORT
TO THE COMMUNITY

2009

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Whatcom County Marine Resources Committee
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We inhabitants of Whatcom County have enjoyed a unique and exceptional marine environment for millennia. We are fortunate to be endowed with such an ample variety of accessible marine resources for work, play, and subsistence. This good fortune comes from living in an area where nutrient-rich freshwater draining from highly-vegetated uplands can join with the sea along such an opportune mix of beaches and bluffs.

However, the county's recent increase in population and urbanization over the past several decades has caused a severe decline in the health of our marine ecosystem. We are experiencing dwindling populations of

Doug Stark

Beach Naturalists explore the intertidal zone and its creatures.

salmon, bottomfish, and forage fish; closures of recreational and commercial shellfish beds because of poor water quality; degradation and losses of eelgrass beds, kelp forests, and other marine habitats; and dwindling populations of seabirds and marine mammals.

So we need to ask ourselves: will we be able to work and play in our county's marine environment in the future . . . a future only one year from now, in twenty years, or in our grandchildren's lifetime?

This Report to the Community describes how the members of the Whatcom County Marine Resources Committee (MRC) have been answering that question over the past ten years.

The MRC invites you to learn more about us and to work with us to protect our marine waters. In addition to this report, please visit the MRC web site:
http://whatcom-mrc.whatcomcounty.org

History and Structure of the MRC & Northwest Straits Commission

The Northwest Straits Initiative, authorized by the U.S. Congress in 1999, through the leadership of Senator Patty Murray and Representative Jack Metcalf, created Marine Resources Committees in the seven northernmost marine counties of Washington and a coordinating body, the Northwest Straits Commission (NWSC). The core principle of the Initiative is to provide funding for citizens to design and implement marine conservation projects at the grassroots level. These projects are to be driven by local priorities, informed by science, and guided by the Initiative's guiding goals and benchmarks.

The MRCs function by identifying local priorities and designing marine restoration and protection projects, providing stewardship

information to local residents and organizations, and through coordination with city and county elected officials. Collaborative partnerships and a consensus decision-making have become MRC hallmarks.

In addition to supporting the MRCs, the NWSC manages regional conservation projects and implements projects in partnership with tribal governments and the MRCs. Examples of regional projects include: derelict fishing gear evaluation and removal (including a transboundary conference with Canada), Tribal Canoe Journey water quality monitoring, creosote debris removal, and crab pot escape cord education and outreach.

In 2001, the Northwest Straits Foundation was created to help raise additional funds. The Foundation is recognized by the IRS as a 501(c)(3) organization.

Goal and Performance Benchmarks of the Initiative

The goal of the Northwest Straits Initiative, the NWSC and the seven MRCs, is to protect and restore the marine waters, habitats and species of the Northwest Straits region to achieve ecosystem health and sustainable resource use.

The five performance benchmarks of the Initiative are:

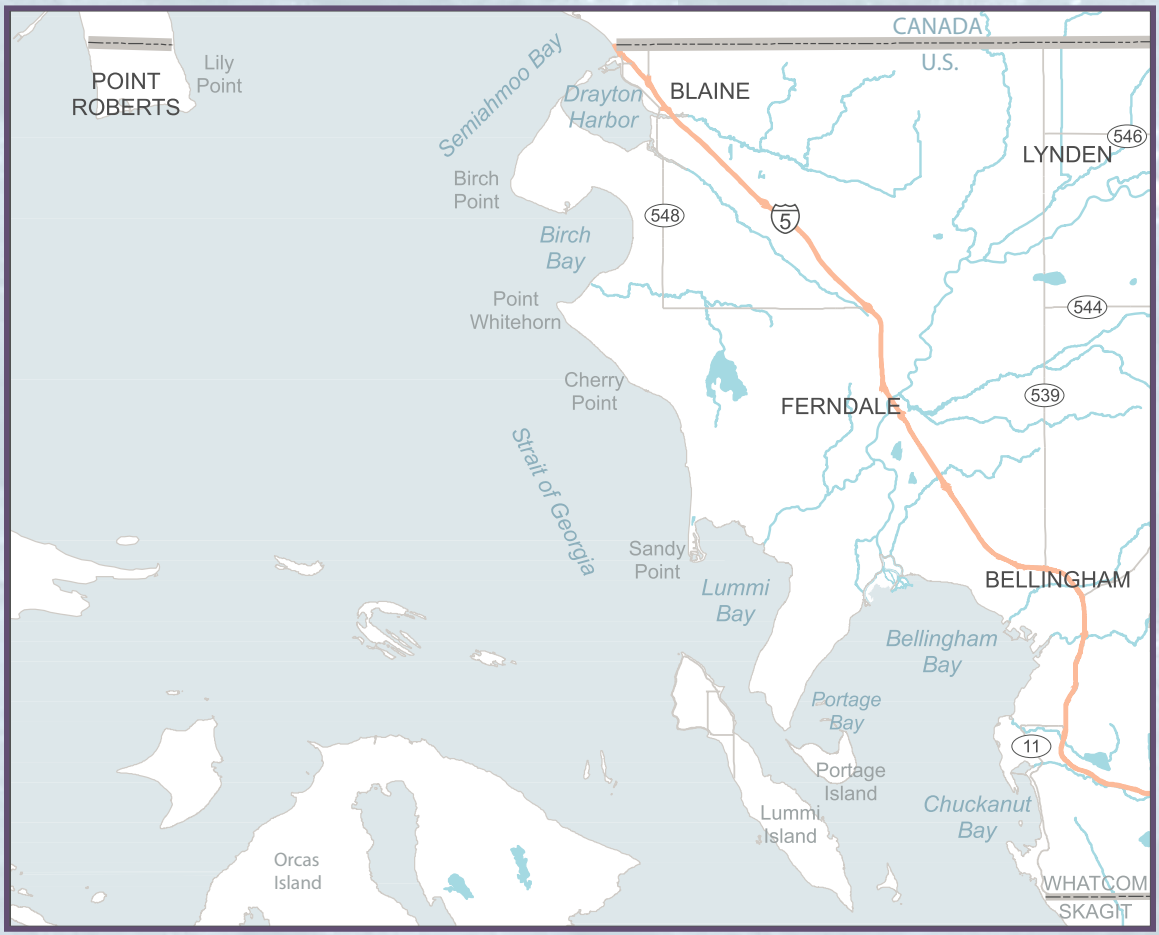
- **Marine Habitats**—Protect and restore marine, coastal, and nearshore habitats, prevent loss and achieve a net gain of healthy habitat areas;
- **Marine Life**—Protect and restore marine populations to healthy, sustainable levels;
- **Marine Water Quality**—Protect marine water quality of the Northwest Straits region, and restore the health of marine waters;
- **Sound Science**—Collect high quality data and promote its use and dissemination; and,
- **Education and Outreach**—Promote stewardship and understanding of the Northwest Straits marine resources through education and outreach.

The Whatcom County MRC

The eighteen members of the MRC are drawn from citizens who wish to represent one of five particular interests: conservation and environmental, economic, recreational, and relevant scientific expertise. In addition, members include several citizens-at-large and elected councilmembers from Whatcom County and cities such as Bellingham. The Lummi Nation and the Nooksack Tribe are also represented on the MRC. Potential new members submit an application to the county executive for an appointment to the MRC, which is confirmed by the county council.

Based on their interest and expertise, members of the MRC work within subcommittees and report to the entire MRC about issues

The Whatcom County Marine Ecosystem, Including Point Roberts



Michael Maudlin

and proposed projects. These subcommittees include Rockfish (formerly Bottomfish), Nearshore, Shellfish, and Education & Outreach Subcommittees. A Strategic Planning Subcommittee has also been recently formed, and other ad hoc subcommittees can be formed on occasion.

In addition to the volunteer members, Whatcom County Public Works provides staff to facilitate the MRC, hosts the website, and provides access to administrative support. Much of the funding for the MRC comes primarily from the federal government, with support provided by the County.

http://whatcom-mrc.whatcomcounty.org

Initial Studies & Reports

The Whatcom County MRC began its existence by taking a comprehensive overview of our marine resources. For this overview, projects were undertaken in association with the Northwest Straits Commission (NWSC) to compile data and comprehensively describe our marine resources. These efforts helped the MRC understand the status of various marine attributes including marine organisms, beach substrate and drift cells, man-made structures and adjacent land uses.

Doug Stark

A young naturalist discovers an intertidal creature.

Report: "Marine Resources of Whatcom County"

The MRC funded the creation of the report "Marine Resources of Whatcom County," which was published in April 2001. It was compiled and written by a local environmental consulting firm to collect and make available historical and current data about the marine resources of Whatcom County. The entire county shoreline was considered.

The report includes descriptions and a compilation of biological data from the shoreline and marine waters to describe our natural area preserves, bathymetry, vegetation, substrate, shellfish, fish, marine mammals, and seabirds. It remains an important resource

and is used to support planning and decision-making.

The report is primarily graphical in nature, consisting of Geographical Information System (GIS) maps and written summaries.

The "Marine Resources of Whatcom County" report is available online at the MRC website.

Survey: Rapid Shoreline Inventory

Another early effort by the Whatcom County MRC was a Rapid Shoreline Inventory conducted in 2000. The MRC worked with the environmental nonprofit groups RE Sources and People for Puget Sound to recruit, train, and coordinate volunteers to collect data along the shoreline of selected areas.

The shoreline surveys were accomplished by over 40 trained volunteers, and the data were compiled into GIS data layers. Several maps were made from these datasets which show,

Melissa Roberts

Volunteers dig sample holes to count and identify clam resources.

for example, the extent of existing eelgrass beds, the nature of the shoreline substrate, and the extent of Himalayan blackberry in upland areas.

The Rapid Shoreline Inventories were conducted on approximately four miles of shoreline in Drayton Harbor and one mile of shoreline at Birch Bay State Park. The data collected along the shoreline included eelgrass coverage, algae coverage, adjacent land use, upper intertidal substrate, lower intertidal substrate, invasive species, overhanging vegetation, and trails and access points. In addition, a limited survey of the shoreline along Chuckanut Bay, Point Whitehorn, and Birch Point was conducted by boat using a GPS unit. The location of outfalls and bulkheads were recorded with GPS coordinates and overhanging vegetation was noted.

http://whatcom-mrc.whatcomcounty.org

Rapid Shoreline Inventories are a citizen-based approach to the collection of data, and are recognized as a valid means of identifying and prioritizing marine shoreline conservation and restoration projects.

The final report is available online at the MRC website.

Report: "Feeder Bluff Mapping And Drift Cell Ranking Analysis"

This analysis, published in 1996, characterized conditions along 29 linear miles of shoreline in Whatcom County. The MRC

Stephanie Williams

A volunteer collects a water quality sample to identify fecal coliform bacteria sources.

funded this study by a local consulting firm to study the patterns of circulation along the nearshore. The study also considered how sediment is lifted from or deposited onto the seabed. The study additionally looked at the importance of gravel and other materials contributed from bluffs along the shore. The study furthermore looked at 120 miles of shoreline in a study of pre-development sources of sediment, and how those sources of sediment so critical for the maintenance of beaches through time had changed after development.

This information is important to assess and prioritize potential nearshore conservation and restoration sites. This has helped us protect or preserve Pacific salmon and other nearshore species. Such data has been used in other areas to evaluate and prioritize bluff conservation and restoration sites to protect or preserve nearshore habitats such as forage fish spawning beaches or spits forming pocket estuaries, and to assess the sustainability of specific restoration actions.

The final report is titled "Final Technical Memorandum: Whatcom County Feeder Bluff Mapping and Drift Cell Ranking Analysis" and is available at the MRC website.

What Can You Do?

Maintain your septic system

Take care of your on-site sewage system, and it will take care of your waste. But a system that isn't properly maintained might fail, costing tens of thousands of dollars to fix, creating a risk to human health, and polluting nearby streams and wetlands. New state and county health regulations require septic systems to be evaluated every 1-3 years. Info: 360-676-6724.

Plan for your small farm

Is your small farm near a stream or wetland? The Whatcom Conservation District can help you learn about county regulations related to livestock and crop operations near streams and wetlands. Assistance with writing small farm plans may also be available. Info: 360-354-2035.

Pick up after your pets

Studies show that dogs and other animals are a major source of fecal coliform bacteria and other microbes. Pick up after your pet and dispose of it properly: flush it or put it in the garbage.

Garden for your watershed

Got a pest problem? Try bribing some of nature's own top secret agents into your yard to fight the pests for you. Fertilize only if and when your plants need it. Or try out some carefree plants that won't make you mow, weed, or water them all the time. Info: **http://lakewhatcom.whatcomcounty.org/gardenkit** or 360-676-6876.

Don't go home alone

Motor vehicles account for as much as 25% of all water pollutants. Could you carpool with a co-worker? Combine a few errands into one trip? Work from home? If you can't cut down your car trips every day, could you do it one day a week?

Care for your car

The most obvious car pollution comes from leaks of oil or antifreeze, but tiny particles in your exhaust and from wear and tear (like when you use your brakes) can also get into stormwater. Recycle your used motor oil, take your car to commercial car washes where they recycle water, keep your car tuned up so that it burns fuel with the least amount of emissions, and repair leaks when you see them. Your car will thank you for it.

Forage Fish

Forage fish are small, schooling fish that serve as a critical food web link between the smallest organisms such as plankton and the higher parts of the food web including larger fish, birds, and marine mammals. Forage fish spawn along the nearshore and they later also rely on this area for refuge from predators. Because these fish are heavily preyed upon, they produce large numbers of eggs to compensate. As a consequence, seemingly small disturbances to the nearshore can have enormous effects on their abundance.

Forage fish are popular bait for recreational fishing and are often referred to as "baitfish." They are also harvested commercially and comprise part of the Native American traditional diet. Salmon, most notably chinook and chum that are protected by the Endangered Species Act, rely extensively on forage fish as their prey.

Amanda Seebach

Herring spawn covers the rocks of the intertidal zone near Cherry Point.

Three key species of forage fish live in our waters: Pacific herring, surf smelt, and sand lance.

Pacific herring are important because they provide most of the diet of larger fish including chinook salmon and lingcod. In recent years, a consistent decline in the Cherry Point stock of herring, once the most abundant in the state, has been observed and their spawning area has become more concentrated, which makes this stock's survival especially susceptible to environmental fluctuations.

Sand lance also make up a significant portion of larger fishes' diets; studies show that juvenile salmon heavily rely on them for food because of their abundance and their relatively high quantities of high-energy fats. Sand lance use the nearshore to spawn and incubate their eggs, and to hide from predators by burrowing at night. Consequently, they are particularly vulnerable to changes

in the beach environment resulting from human activities.

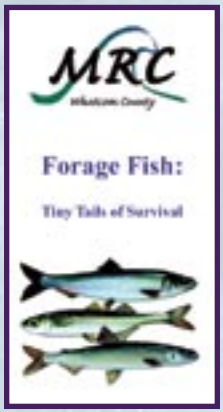
Surf smelt are a relatively minor food source for fish, but are commonly used for human consumption. Like sand lance, surf smelt use the intertidal area to spawn at the highest tides.

Human impacts on the nearshore include bulkheads which can bury spawning habitat and alter erosion and sedimentation patterns along the beach. The removal of shoreline vegetation exposes the fish eggs to excessive sunlight, and they may be ill-equipped to survive this extra heat.

Whatcom MRC Forage Fish Projects

Forage Fish Habitat Inventory

From 2002 through 2004, the MRC participated in a multi-county forage fish habitat inventory coordinated by the Northwest Straits Commission. The MRC recruited, trained, and coordinated volunteers to assist Washington State Department of Fish And Wildlife (WDFW) biologists with surveys of 128 Whatcom County sites, documenting 4,100 feet of surf smelt spawning habitat. Maps are available at nwstraits.org.



The educational video, "Forage Fish: Tiny Tales of Survival", discusses forage fish ecology and habitat requirements. The video is available through the Bellingham Public Library.

Mapping of Forage Fish Habitat

The local habitat data collected above are displayed on maps created by a local environmental consulting firm. They are accessible for viewing on the MRC website.

Forage Fish Video, "Tiny Tails of Survival"

The MRC partnered with the City of Bellingham to produce an educational video created by the local company Black Dog Productions. The video describes forage fish, their role in the local marine food web, and the habitat inventory. The video is available through the Bellingham Public Library.

Nearshore

The nearshore can be considered the most comprehensive of MRC concerns as this area serves as habitat for shellfish, many types of bottomfish, and forage fish. The nearshore is the point where most people can access the marine waters for their enjoyment and work, but it is also the most impacted portion of the marine environment from human activities.

The nearshore is typically defined as the area starting from the uppermost part of the adjacent shoreline—for example, at the top of a bank or bluff—and extending down into the water to the maximum depth of sunlight penetration. In this area, sunlight can generally penetrate about 30 feet deeper than the average lowest tides. The nearshore is also considered to extend up into the heads of estuaries or small streams.

MRC

The nearshore is often a heavily impacted marine environment, and is also the place most easily accessible for our enjoyment.

Many factors determine the characteristics of any particular nearshore area and the ecosystem it supports: the type of seabed, the amount and timing of freshwater from rivers and streams, and sunlight penetration. Past and present land use practices, pollution from stormwater or marine activities, harvesting practices, and introduced animal and plant species can also greatly affect the nearshore.

The nearshore is critically important for many young salmon. Some only briefly pass through the nearshore on their migration from fresh water to the ocean, while other species rear in estuaries and other nearshore environments for weeks to even months. Salmon use the nearshore to let their bodies adjust from fresh water to salt water, for feeding in these productive waters, and to avoid predation from fish too large to live in the shallows. Young salmon also depend on migratory corridors along the nearshore between separate habitats.

Whatcom MRC Nearshore Projects

Nearshore Habitat Restoration Prioritization

Following a regional habitat assessment by the Northwest Straits Commission, the MRC funded a study specific to Whatcom County to develop a prioritization process for Point Roberts, Birch Bay, and Chuckanut Bay. This study evaluated specific sites on the basis of three key biological resources: forage fish spawning, juvenile salmonid rearing/migration, and aquatic vegetation. The evaluation also looked at practicality, feasibility, sustainability (i.e., how long would the benefits of the restoration project last through time), and risk of failure.

Chuckanut Village Marsh Restoration Project

The nearshore habitat prioritization identified a valuable marsh at the north end of Chuckanut Bay, near the Chuckanut Village neighborhood. It is located near the mouth of Chuckanut Creek, a productive stream which is used by salmon, especially chum and coho, and trout.

Of the seven small estuaries located around Bellingham Bay, Chuckanut Village Marsh was ranked with the highest level of ecosystem functions. However, the marsh has been impacted by a dirt road and parking area on the adjacent beach. No stormwater treatment is provided for leakage from cars, and a culvert under the road impedes salt water and fish from entering the marsh.

In partnership with the City of Bellingham, the MRC funded a study to characterize the marsh by delineating it and determining the vegetation types. This study also examined the possibility of removing the culvert. The June 2008 summary, *Wetland Characterization: Chuckanut Village Marsh Report*, is available on the MRC web site. The City of Bellingham is now leading restoration efforts based on this study. More information is at **www.cob.org**

Submerged Aquatic Vegetation (SAV) Survey

Submerged aquatic vegetation (SAV) is commonly used as an indicator of estuary health throughout the world because it responds? to many natural and human changes. Also, changes in the abundance or distribution of SAV affect other species that depend on it.

In Whatcom County, SAV functions as rearing and refuge habitat for juvenile salmon. Pacific herring use eelgrass beds and macroalgae in Whatcom County for spawning. Young herring, as well as other small fish that serve as food for adult salmon, live in the nearshore.

MRC

Overhanging vegetation provides much-needed shade, nutrients, and erosion control along the riparian zone..

Atina Casas

Wetland scientists characterize the Chuckanut Village marsh to examine potential restoration opportunities.

SAV species in Whatcom County include, among many others, eelgrass and attached macroalgae such as kelps (brown algae), red algae such as Turkish towel, and green algae such as sea lettuce. Invasive species also live here including *Spartina* and *Sargassum*.

MRC

Creosote leaks out of old pilings in the intertidal zone, leaching toxins directly into the water and surrounding substrate.

To collect baseline information and prioritize nearshore restoration and conservation projects, the MRC surveyed SAV from the north end of the Lummi Reservation to Point Whitehorn. The data were published in June 2005 as the *Whatcom County Submerged Aquatic Vegetation Survey Final Report*, and is on the MRC web site. (The shoreline within the City of Bellingham jurisdiction has also been mapped and is available from the City).

Marine Creosote Log Remediation Project

In the past, creosote has been used as a preservative for pilings that support buildings and other structures in the marine environment. Creosote is typically obtained from coal tar and has known toxic effects on both plants and animals.

Creosoted timber—as whole logs, remnants, or shaped into forms—are frequently found in the Whatcom County nearshore as pilings, utility poles, and railroad ties. During use, or afterwards if discarded into the nearshore, they are a continuous source of pollution.

The MRC partnered with the City of Bellingham to inventory and remove creosote logs from Whatcom County shorelines. Inventoried areas included Bellingham Bay/Chuckanut Bay, the City of Bellingham, Lummi Bay, Lummi Island, Cherry Point, Birch Bay, Drayton Harbor, and Point Roberts. Over 100 tons of creosoted logs were removed during the course of the project, and tens of thousands of creosote-treated pilings or other pieces were inventoried. Other areas of Washington state have adopted this project and the techniques that were developed for their own areas. More information of the creosote remediation project, including details of the inventory and removal, can be found on the MRC web site.

MRC

Washington Conservation Corps crewmembers haul creosoted and treated lumber off Squalicum Beach in Bellingham Bay.

Wendy Harris

Eelgrass beds provide vital shelter and food for juvenile fish and shellfish, and buffer the shoreline from the full force of waves and currents.

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Bottomfish

The label "bottomfish" includes a wide variety of fish which live on or near the sea floor. Although only a few of them are well-known for their food and recreational value, all bottomfish species play an important role in our local marine ecosystems and many of them are at risk from human impacts.

Species of bottomfish in our county can be divided into one of two groups: rockfish or flatfish. Rockfish receive the most attention from the MRC because they are the most impacted from human activities. It is difficult for them to resist pressures because they are long-lived and so their ability to reproduce is relatively delayed for several years, and they are easily over-fished because they concentrate over known and easily-located rocks. The pressures on rockfish include over-harvest by fishers, loss of habitat, and predation from other fish.

Examples of rockfish living in local waters include the copper and quillback rockfish, which live in shallower waters, redstripe rockfish, and the Puget Sound rockfish. These species can be especially long-lived, with quillback rockfish living up to 95 years. Some species like quillback and copper rockfish seldom migrate as adults and, as a result, are especially easy to locate. Lingcod is a particularly prized species of rockfish, and is found in rocky habitats in Bellingham Bay, Point Roberts, Alden Bank, Lummi Island, and other rocky shorelines. Because of strict fishery regulations, the region's population of lingcod has rebounded from their very poor condition in the mid-1990s and are currently considered to be in above average condition.

Examples of flatfish living in Whatcom County waters include English sole, starry flounder, Dover sole, rock sole, sand

WDFW

Copper rockfish take many years to become sexually mature, making them vulnerable to over-fishing.

Wayne Pallson

Lingcod, a long-lived rockfish, are exceptionally prized by sport fishers.

Erika Stroebel

Starry flounders can be spotted in depressions in the intertidal zone waiting for the tide to come in.

sole, and Pacific halibut. Adults are found in many areas, but juvenile flatfish are found in shallow bays and estuaries where they are preyed upon by herons, gulls, otters, and other fish.

According to state fisheries managers, the abundance and size of bottomfish in Whatcom waters is not well known (the size of the fish are an indicator of population health since larger fish produce more eggs). In the Puget Sound basin, however, many populations are considered depressed because fewer and smaller fish are being found. Dover sole were once plentiful but are critically depressed. Populations of Pacific cod, once an abundant mainstay of commercial and sport fisheries, are depressed in Whatcom County waters and critically depressed throughout the Puget Sound basin.

Melissa Roberts

Western Washington University faculty and students assist in rockfish surveys by driving a remote operated vehicle (ROV) from a research vessel.

Protecting bottomfish populations which are still healthy and restoring those in poor conditions requires knowledge and diligence. Toxic chemicals that enter the marine food chain through stormwater and contaminated sediments can accumulate in bottomfish, impairing their growth, resistance to disease, and reproduction. Human activities in the nearshore can disrupt eelgrass and kelp beds in bays and inlets where young fish find shelter and grow. Harvesting too many fish or young fish depletes fish stocks.

Too little is known about bottomfish in Whatcom County except for some sporadic research projects or anecdotal stories from recreational, commercial, and tribal fishers. A crucial step in protecting these fish has been to gather more information about their populations.

Whatcom MRC Bottomfish Projects

Bottomfish Habitat Inventory

In 2003, in cooperation with People for Puget Sound, the MRC conducted interviews with local fishers and divers, and subsequently hosted community workshops, to gather local knowledge about current and historical locations of bottomfish. The MRC combined these findings with data from the

Washington Department of Fish and Wildlife to create habitat maps which are currently available on the MRC web site.

Community Outreach

The MRC worked with the environmental group People for Puget Sound to develop a general brochure which described the bottomfish species typically found in our county and explained the pressures on them. Three individual fact sheets focusing on sole and flounder, rockfish, and lingcod were also produced. The MRC has provided this literature to local fishing and diving shops to publicize the need for conservation of these fish.

Remote Operated Vehicle (ROV) Rockfish Surveys

To further our knowledge about rockfish species in the county waters, the Rockfish Subcommittee has worked to acquire more biological and stock status information. In 2007 the MRC partnered with Western Washington University to survey rockfish using a remotely operated vehicle (ROV). Students under the direction of Dr. David Shull have used this underwater, remote-controlled video camera to gather information on distribution and abundance of local rockfish and their habitats. A 2008 report, ROV Assessment of Rockfish Abundance, Distribution, and Habitat in Whatcom County Marine Waters, summarizes the study and is available on the MRC web site. A subsequent report published in 2009 further elaborates on the results of this project.

Atina Casas

An ROV is ready to "fly", as it is lowered over the research vessel to begin video-recording.

Melissa Roberts

The ROV used for rockfish surveys is tethered to the research vessel, and is capable of moving vertically and horizontally, all the while video-recording the creatures and habitat in its field of view.

Shellfish

Many species of shellfish live in Whatcom County marine waters. These include, for example, Pacific oysters, Olympic oysters, blue mussels, horse mussels, littleneck clams, Manila clams, butter clams, cockles, horse clams, Eastern softshell clams, macoma clams, Geoduck, and number of different kinds of shrimp. Dungeness and red rock crabs are other examples of shellfish commonly seen in our area.

Shellfish do particularly well here, thriving on the potent combination of wide and shallow tideflats, active ocean currents and highly productive uplands that provide a steady source of food and nutrients, a variety of substrates that suit the habitat needs of different species, and the long summer daylight hours that promote algae growth, which underpins the food web.

Whatcom shellfish are heavily used for commercial, recreational, and tribal purposes, and both residents and visitors enjoy collecting them in county waters. Consequently, shellfish are both a natural and economic resource.

The MRC has a leadership role in protecting shellfish by monitoring water quality along the county's shoreline, helping to alleviate pollution that triggers shellfish harvest closures, monitoring clam populations, and piloting clam enhancement projects.

Threats to Whatcom County Shellfish

Clams, oysters, and other bivalves are filter feeders--they pump seawater through their bodies, filtering out plankton, their main food source. Pollutants produced by human activity on land or water are consumed by filter feeders along with their food, and can often be absorbed into their bodies. Any animals, including humans, that eat the clam or oyster also eat the pollutants.

The primary pollutant of concern in Whatcom County is pathogens coming from animal manure and human sewage, which are monitored through fecal coliform bacteria. These bacteria do not themselves cause illness, but they indicate the possible presence of other serious bacteria and viruses found in animal waste that can cause cholera, typhoid fever, and many other diseases. Since tests to detect all possible disease-causing organisms would be costly, water is only tested for fecal coliform.

The state Department of Health has found unacceptably high fecal coliform counts in historically valuable shellfish harvest areas, including Birch Bay, Drayton Harbor, Portage Bay, and Chuckanut Bay. Most of these areas are either currently closed or are only approved for harvesting at certain times.

Water Quality Monitoring

The MRC developed a monitoring project to collect water quality information at freshwater discharges into Drayton Harbor, Birch Bay, Terrell Creek and Chuckanut Bay, trying to narrow down possible sources of bacteria. This is an ongoing project which began in 2004 and is currently scheduled to continue into 2011. Partners include Whatcom County, BBWARM, EPA, NSEA and the National Oceanic and Atmospheric Administration. The monitoring results have helped to identify priority areas for community outreach on stormwater and other issues, and in the case of Chuckanut Bay, have convinced the state health department to revisit the shellfish harvest closure. Water quality summary reports can be found on the MRC web site.

Drayton Harbor

Drayton Harbor has drawn particular attention because of the bay's community oyster farm and chronic pollution that closed the entire harbor to shellfish harvest in 1999.

In 2003 and 2004, the MRC worked with the Port of Bellingham and the Drayton Harbor Shellfish Protection District to narrow down pollution sources at Blaine marina, where monitoring showed consistently high levels of bacteria. Through bird surveys and water quality monitoring priority locations with high densities of birds were identified where bird deterrents and planters designed to stormwater runoff from rooftops were installed.

Clam Surveys

Each species of clam living along Whatcom County shorelines is susceptible to effects from over-harvesting, natural diseases, competition from introduced species, and other influences. Since 2004, the MRC has conducted surveys to determine current clam populations and to establish a baseline to detect future trends. The types, numbers, and sizes of clam populations, and also information about substrate type (sand, cobble, or mud), have been collected by trained volun-

teers under strict protocols. The information is being analyzed to determine the best location for enhancement projects. Surveys have taken place at Birch Bay, Semiahmoo Spit, Chuckanut Bay, Point Roberts, Birch Point, Point Whitehorn, Lummi Island, Marine Park in Bellingham and Blaine and other representative sites along the 118 miles of county coastline.

Summary reports can be found on the MRC web site.

Clam Enhancement and Restoration

Concerned that the numbers of clams in Birch Bay were on the decline, the MRC conducted a feasibility study for native clam enhancement and restoration in both Birch Bay and Drayton Harbor. Potential sites were examined for marine water quality and suitable substrate, agency and community support, tideland ownership and access, and historic and current presence of hardshell clams. A butter clam enhancement project was selected but no seed was available. Only manila clam seed was available.

A pilot manila clam seeding project was launched in 2007 in Birch Bay. Citizen volunteers are involved in many aspects of the project including the preparation and planting of seed, assessments during grow-out, and community outreach.

A volunteer identifies and counts clams at Chuckanut Bay.

Partnership with WSU Extension Beach Watchers Program

In 2008, the MRC partnered with the Watershed Master/Beach Watchers program of Washington State University Extension – Whatcom County to train volunteers for water quality sampling and clam surveys.

Education & Outreach

The MRC Education and Outreach Subcommittee is responsible for informing and educating both MRC members and the general public about local marine resource issues.

Melissa Roberts

Some Members of the 2009 Whatcom County Marine Resources Committee

Whatcom MRC Education & Outreach Projects

Public Speaker Events

The Subcommittee actively solicits relevant speakers in the marine sciences field and advertises these free events to the general public. Information on upcoming events can be found on the MRC home page.

Approximately 35 speakers have addressed the MRC over the past ten years in a wide variety of pertinent topics. For example, experts have explained our local marine circulation patterns, the origin and consequences of toxic chemicals, the variety and threats to our fish and wildlife populations, and the effects of sea level rise.

Marine Life Fact Sheets

The MRC has created fifteen downloadable Marine Life Fact Sheets about important species found in the marine waters of Whatcom County. They are available for download at the MRC website, and paper copies are typically

Wendy Harris

Plumose anenomes hang as they wait for the tide to come in so they can feed in the refreshed marine water.

made available for distribution at agencies and at appropriate public events.

Summits

Besides the MRC, several other groups work to protect and restore the marine environment along our county shorelines and each brings a unique perspective. In its early years, the MRC convened two summits to collaborate and coordinate among these organizations, drawing participants from throughout western Washington and the lower mainland of British Columbia.

For the past eight years, the Whatcom MRC has coordinated the nearshore session of the Nooksack Recovery Team's popular Salmon Summit event, providing an opportunity for speakers to present the most recent scientific information about the importance of our marine environment for salmonids.

Open Houses and Festivals

Open houses and festivals provide an opportunity for the public to view displays, brochures and fact sheets, talk with groups and individuals that are involved in marine restoration and protection efforts, and to build community appreciation for the marine environment.

For three years, the MRC was one of several sponsors of the Drayton Harbor Shellfish Protection District Open House, which provided community members the opportunity to learn about the local restoration efforts and about the community oyster farm.

The MRC also hosted an Open House in 2001 which provided policy-makers and interested citizens with the results of shoreline surveys.

Volunteer Surveys

The MRC has organized various volunteer trainings and surveys to help raise community awareness of marine issues, as well as to collect scientific data for future restoration projects. For example, the MRC funded a volunteer training and survey related to spartina, an invasive grass that crowds out shellfish beds and other nearshore habitats. More recently, in 2008, the MRC funded trainings for volunteers to survey the extent of invasive tunicates, which are gelatinous animals that grow prolifically on underwater structures and the seabed, smothering native plants and animals.

Doug Stark

A sense of curiosity and care for marine creatures is nurtured on the tideflats.

Resources

Emergency Numbers

Oil spills: National Response Center, 800-424-8802 and Washington Department of Emergency Management, 1-800-OILS-911

Manure spills and other environmental problems: Department of Ecology, http://www.ecy.wa.gov/feedback.html, 425-649-7000

Marine mammal stranding: Whatcom Marine Mammal Stranding Network, http://wmmsn.org, 360-966-8845

Marine Issues

Shellfish Protection District Advisory Committees

There are three shellfish protection districts in Whatcom County: Birch Bay, Drayton Harbor, and Portage Bay. Their advisory committees are diverse groups of individuals and local, state and tribal agencies with one common goal: restoring shellfish beds for harvesting by recommending strategies to improve water quality that impacts the tideflats. Info: Whatcom County Public Works, 360-676-6876.

RE Sources

The RE Sources Beach Naturalist Program trains volunteers as informal naturalists to share seashore wonders with others while teaching beach visitors ways to reduce impacts on our treasured shoreline. Training takes place in May. Info: Doug Stark, 360-733-8307 or http://re-sources.org.

The COASST Beached Bird Survey trains volunteers to adopt a portion of shoreline, surveying once each month for dead birds washed ashore. Info: Wendy Steffensen, 360-733-8307 or http://re-sources.org.

The Marine Plastics Recycling Program is an effort to set up collection and recycling programs for marine plastics in nine Puget Sound counties, including Whatcom. The goal is to help marine businesses recycle 25 tons of plastic over two years. Info: Lisa Friend, 360-733-8307 or http://re-sources.org.

Upland

Whatcom Conservation District

WCD conducts free small farm educational workshops and tours for hobby farms throughout Whatcom County. WCD helps property owners create healthy riparian areas and assist livestock owners with appropriate on-farm practices to protect the environment. Info: Beth Chisholm, 360-354-2035 or whatcomcd.org.

Nooksack Salmon Enhancement Association

NSEA is a community-based nonprofit organization dedicated to restoring sustainable wild salmon runs in Whatcom County. NSEA performs a variety of work, including fish passage barrier removal, water quality monitoring, and restoration work parties. Info: 360-715-0283 or http://n-sea.org.

Other

Whatcom County

Public Works – Natural Resources works to protect the county's water resources. The group provides support to the shellfish advisory committees and the Marine Resources Committee. Info: 360-676-6876.

Planning and Development Services develops and enforces ordinances and long-range plans related to critical areas, shoreline management, growth management, and development. Info: 360-676-6907.

Health ensures safe septic systems, enforces regulations, and governs on-site sewage disposal and solid waste. Info: 360-676-6724.

Other county departments and information about elected officials can be found at http://whatcomcounty.us.

Washington State University Extension

Watershed Masters/Beach Watchers Program and the Shore Stewards Program provide free education on aquatic resources in Whatcom County. Volunteers receive support and make the community connections they need to accomplish projects preserving water quality, fisheries, and other aquatic resources. Training begins each spring; space is limited. Info: Cheryl Lovato Niles, 360-676-6736 or http://whatcom.wsu.edu.

Whatcom Land Trust

The trust preserves and protects wildlife habitat and scenic, agricultural, and open space lands in Whatcom County for future generations by securing interests in land and promoting land stewardship. Info: http://whatcomlandtrust.org or 360-650-9470.

Other Contacts

Lummi Natural Resources, 360-384-1489

Nooksack Indian Tribe, 360-592-5716

Washington Department of Fish & Wildlife, 360-676-2003, wdfw.wa.gov