

## STAKEHOLDER GROUPS

### FISHERMEN

This group includes lobstermen, clammers, and fishermen, and scallop divers. Both lobstermen and fishermen work from boats, while clammers work directly on the mudflats.

#### *Habitats of concern:*

Open river passages are important to fishermen harvesting predatory fish such as cod. Cod feed on alewives and herring that travel upstream to spawn. When the rivers are blocked, the fish don't use them, and their predators don't come to the areas either. This is one of the reasons, along with overfishing, for the decline in cod in Maine.

Healthy eelgrass beds are beneficial to all groups mentioned, as they provide shelter for young organisms such as lobsters, clams, and some fish. The interference with eelgrass by all groups is, in fact, very minimal. Clammers actually work outside of eelgrass habitat, and do not disturb the beds. Lobstermen's traps cause next to no damage to eelgrass beds. However, due to new regulations, their sinking line might damage beds.

#### *Conflicts:*

Sometimes clammers and wormers need to cross private property to reach the mudflats, which can lead to conflicts with land owners.

Sometimes fishermen disagree with the Department of Marine Resources for managing the fisheries through catch limits, arguing that the fishery would be better managed by protecting spawning grounds, nursery habitat, juvenile, and reproductive organisms.

Scallop divers can no longer catch enough to make a living scalloping.

#### Key interests in Conservation Action Planning:

- Planning may help to increase fish harvests.
- Planning may give us more influence with the state or DMR.
- Having a bay plan might lead to better water quality, which benefits fish.
- It may improve relationships with landowners.

#### Links

- <http://www.pcffa.org/fn-feb99.htm>

Great opinionated information on Marine Protected Areas and how they can be used.

- Meet your Fisherman <http://www.youtube.com/watch?v=0BSVXtqVSH8>
- DMR Lobster Guide: <http://www.maine.gov/dmr/rm/lobster/guide/>
- Lobstering then and Now: : <http://vimeo.com/2803421>
- Swan's Island Fishery: <http://www.youtube.com/watch?v=iEXGEm8MA8A>
- Scallop Divers: <http://vimeo.com/42363378>

## AQUACULTURISTS

Aquaculture is the farming of aquatic organisms such as fish, shellfish and even plants. Aquaculturists grow oysters or mussels primarily, and now some are beginning to grow kelp. Mussel aquaculturists use two methods to grow mussels: bottom aquaculture, and raft aquaculture. Raft aquaculture is set up on medium-sized rafts, about the same size as most town docks. Below the rafts hang lines that the mussels will grow on. The rafts can hold up to three miles of line for the mussels to grow! It takes about two years of mussels growing on these lines to be ready to harvest. The lines are then pulled up, and the mussels are stripped off, and prepared for the market. Raft aquaculture works best in bays, where the weather won't destroy the rafts. This method of aquaculture will not physically disrupt the seafloor, allowing it to coexist with eelgrass and even some types of conservation areas. The Department of Marine Resource is studying the areas under aquaculture sites to see if there are any harmful effects from excessive nutrients.

### *Habitats:*

Aquaculture operations performed in the water column, or in benthic habitats in areas of good water flow. The operators must report any sensitive habitats in the area to the DMR when applying for a lease site.

### *Conflicts:*

Some landowners oppose aquaculture because it affects their views and they claim that it affects the water quality, which is a concern because they like to swim from their docks or beaches. However, according to reports on the DMR website (see links below), aquaculture does not cause water quality problems. It may affect the benthic habitat below the rafts, which is why it is important to choosing sites that are not above sensitive bottom habitat.

### Key interests in Conservation Action Planning

- The planning process may help to resolve conflicts that we encounter with shorefront property owners and others concerned about views.
- Having a bay plan may help us get small business or aquaculture loans or grants.
- The planning process may me find investors or collaborators on new projects.

### Links

- Presentation on mussel aquaculture; video of mussels feeding:  
<http://pemaquidmussels.com/what-every-3rd-grader-should-know>
- Reports on the effects of mussel rafts to the seafloor habitat beneath them:  
<http://www.maine.gov/dmr/aquaculture/reports/musselrafts.pdf>  
and on the effects of aquaculture sites on water quality:  
<http://www.maine.gov/dmr/aquaculture/reports/wqbenthic.pdf> (can just read p6)
- Video about an oyster aquaculture operation on the Bagaduce River  
<https://www.youtube.com/watch?v=cnB11HcnoJs>
- Article about disagreements between aquaculturists and landowners:  
<http://www.workingwaterfront.com/articles/The-fight-for-the-Bagaduce/9600/>
- Department of Marine Resources Aquaculture website  
<http://www.maine.gov/dmr/aquaculture/>

## DRAGGERS

This group entails everyone who drags the seafloor. This includes: commercial mussel draggers, bottom mussel aquaculturists, periwinkle draggers, urchin draggers, and sea cucumber draggers. These groups drag the seafloor by using a device called a dredge. This is a type of giant net weighted down by a metal frame. As the dredge is dragged through the ocean, it digs into the seafloor and stirs up fish, mussels, periwinkles, etc.

Bottom aquaculture involves the seeding of the seafloor with young mussels, then letting them grow for around two years. After the mussels have reached harvestable size, they are dragged up off of the bottom.

Commercial mussel draggers drag for adult mussels where they are naturally occurring. They don't drag in every mussel bed that is marked on the map. The mussels they drag have to be a certain quality so they can sell them, and this is dependent on the environment. They have to have a good appearance: the look of the outside shell; the volume of the contents of the meat; the color of the meat. If a bed of mussels is too dense, the mussels have stunted growth (less meat), and calcium build-ups inside the shells.

The practice of dragging is sustainable for the mussels, because their equipment is designed so that the smaller, young mussels fall through the gaps in the net. If they don't they are washed back out into the water from the boat because the cleaning process now happens on board. But dragging the ocean floor may have broader impacts on the ecosystem. If they do drag in eelgrass beds, the eelgrass doesn't recover for over a decade.

Mussel draggers are concerned about the public's understanding of their industry. They think draggers get a bad rap. They do not want to drag in eelgrass beds, because they know that juvenile mussels depend on eelgrass. Most mussel beds occur outside of eelgrass beds.

### Key interest in Conservation Action Planning:

- The planning process may help to resolve conflicts with other shellfish harvesters.
- Will the planning process lead to more open areas for harvesting, or restrict our harvesting?
- The planning process may help the public understand the industry and improve our reputation.

### Links

- <http://moosabecmussels.com/about-us/> \*\*Frenchman Bay mussel dragger Ralph Smith is a member of Frenchman Bay Partners. This is his site, and it has a video showing pictures of his equipment and the process from dragging to bagging.
- <http://www.youtube.com/watch?NR=1&v=Q2JFnTWJuNs&feature=endscreen> Mussel Dragging video from Wales, United Kingdom.
- <http://harbor.town.harwich.ma.us/news/fish1.html> Info on the destruction of dragging from 1998 (pictures not available).
- [http://www.mcbl.org/what/what\\_pdfs/Trawl\\_Impacts\\_%20on\\_Corals.pdf](http://www.mcbl.org/what/what_pdfs/Trawl_Impacts_%20on_Corals.pdf) More information on the destruction of seafloor dragging.

## **RECREATIONAL BOATERS**

Frenchman Bay is a beautiful area for many kinds of recreational boating including kayaking, sailing, and motor boating. Recreational boaters have the right to access and traverse all coastal beaches and waters. (In Maine the intertidal zone of coastal land owners property is open to fishing, fowling, and navigation.) Many people have private moorings directly off of their property). Many kayak guides and kayak guide companies operate in the bay in the summer months. They benefit from clean water and a diversity of bird and fish life, which adds to boaters experiences. Recreational boating is allowed in the majority of conservation areas, as there is not much damage caused by it. There is some, however. Propeller scars, which happen when a propeller scrapes the bottom, can be a problem in eelgrass beds, as eelgrass takes a long time to recover. Other damage caused by recreational boating comes from anchors and mooring chains dragging on the seafloor. Sometimes recreational boaters are opposed to mussel raft aquaculture because they have to detour around the lease site, or they find the smell unpleasant.

Kayak guides want the water to be clear for their clients. Healthy ecosystems lead to more biodiversity and abundance which can mean more fish and bird sightings for boaters. There used to be numerous recreational fishing guides in Frenchman Bay, but this ended as the fish declined. Improving fish habitat such as eelgrass beds and removing dams from rivers may help bring back the migratory fish as well as predatory fish that depend on them.

### Key interest in Conservation Action Planning:

- A bay plan may help to maintain water quality and clarity, which is important to our experience on the water.
- The planning process may help us resolve conflicts with aquaculturists.
- Will there be any restrictions to where we can travel in boats?

In Florida, one threat to seagrass beds is propeller scarring. Is it a problem here?



Florida Bay Seagrass Scars © John Kipp

## **DEPARTMENT MARINE RESOURCES (DMR)**

“The Department of Marine Resources is established to conserve and develop marine and estuarine resources; to conduct and sponsor scientific research; to promote and develop the Maine Coastal fishing industries; to advise and cooperate with local, state, and federal officials concerning activities in coastal waters; and to implement, administer, and enforce the laws and regulations necessary for these purposes...” -- DMR home page.

The DMR is the deciding organization in a bay planning process. They have the legal power to change regulations. They regulate fisheries by setting catch limits, and making rules about methods. They have just been given the power to enact a statewide seaweed management plan as well. Most states in the Gulf of Maine and New England have laws protecting eelgrass, or their environmental or fisheries departments monitor and protect eelgrass. This is not the case yet in Maine.

The ecology division of the DMR handles the establishment of preservation areas and environmental issues.

The DMR regulates on a species by species basis, and sometimes the regulations can be contradictory. For example if one area is closed to dragging for one species so it can recover, it may not be closed to dragging for another species, which would also impact the first species.

Enforcing the regulations is often a problem, as the marine patrol officers are spread thin.

### Key interest in Conservation Action Planning:

- The planning process may generate more interest in protecting the ocean, leading to more volunteers to help with water sample collections and phytoplankton monitoring.

### Marine Patrol Officers

- Conservation action planning may help to resolve conflicts and reduce the incidence of illegal activities on the bay.

### Links

- <http://www.maine.gov/dmr> DMR home page.
- <http://www.maine.gov/dmr/rm/ecologydivision.html> DMR ecology division page.
- <http://www.maine.gov/dmr/bmp> Marine Patrol Officers Info page
- Marine Patrol Officer job description: [www.maine.gov/dmr/bmp/mpojob.htm](http://www.maine.gov/dmr/bmp/mpojob.htm)
- DMR laws and regulations: <http://www.maine.gov/dmr/lawsandregs.htm>
- DMR research projects and surveys: <http://www.maine.gov/dmr/researchsurveys.htm>

## LAND OWNERS

Landowners hold much sway over what happens in both the inter-tidal area, and the area just beyond, directly in front of their property. Shorefront property owners get second priority for aquaculture leases just behind the DMR itself. According to Maine law, the permission of shorefront landowners is required to set up an aquaculture lease. Recreational fishing, clamming, etc. by the public is allowed in the intertidal zone.

Landowners would benefit from eelgrass beds which protect the shore from erosion and storm surges.

### *Conflicts*

Some landowners are concerned that practices in the intertidal zone may affect their property values and their views, and some do not allow clambers and wormers to cross their land to access the mudflats. Some want to use or lease their properties for commercial purposes (aquaculture, recreational boating companies, renting to tourists). Others oppose aquaculture because it affects their views and they claim that it affects the water quality, which is a concern because they like to swim from their docks or beaches. Landowners and recreational boaters often complain about the smell from aquaculture sites (mussel and oyster rafts). However, according to reports on the DMR website, some aquaculture (such as raft mussel aquaculture) does not cause water quality problems. It may affect the benthic habitat below the rafts, which is why it is important to choosing sites that are not above sensitive bottom habitat.

Landowners sometimes group together to form conservation organizations. While it is good to have people voicing their concerns about the ecology of coastal waters, a lot of the time they fight any economic activity in the bay. The bay planning process helps them work with other bay users to find ways that both the ecologic and economic health of the bay can be maintained.

### Key interest in Conservation Action Planning:

- Will the planning process help us to get to know our neighbors and other people who use the bay for recreation or for business?
- Will the bay plan affect what I can do in the intertidal zone on my property?

## **TOWN OFFICIALS**

Towns have authority over clam flats in intertidal zones. The designation of a clam flat conservation area is very attainable. Setting aside a clam flat area for conservation might mean that it could be closed to dragging for mussels, if the town adopted a mussel management ordinance.

### Key interest in Conservation Action Planning:

#### Manager/ Planner

- Will the planning process help our town?
- Will our clam flats figure into the bay planning process?
- A bay plan might provide opportunities to get funding for projects, like upgrading culverts or sewer plants.

#### Harbormaster

- Would anything in a citizen-based bay plan need to be enforced?
- Would a bay plan affect boat traffic, mooring area assignments, etc.?

## SCIENTISTS / STUDENTS

Scientists often have data that is important to making planning decisions. This group includes scientists from around the area, as well as local students. Scientists from the Mount Desert Island Biological Laboratory have already been working on conservation efforts, and scientific studies in Frenchmen's Bay. Previous scientific studies and actions by local groups have already resulted in town policy changes that have been beneficial to community health. Local middle and high school students have also been conducting studies, and sending their data to the Dept of Marine Resources, where it is included in official government reports.

### Key interest in Conservation Action Planning:

- A bay plan may open up opportunities for research.
- Would research scientists, citizen scientists, and teachers and students have equal access to study areas?
- Will a conservation plan also have education goals and strategies?

### Links

- [http://www.pwrc.usgs.gov/products/factsheets/neckles\\_maquoit/index.html](http://www.pwrc.usgs.gov/products/factsheets/neckles_maquoit/index.html)  
Info on the effects of dragging on eelgrass beds by eelgrass scientist Dr. Hilary Neckles.
- Reports on the effects of mussel rafts to the seafloor habitat beneath them:  
<http://www.maine.gov/dmr/aquaculture/reports/musselrafts.pdf> (can just read p 6&7)

and on the effects of aquaculture sites on water quality:

<http://www.maine.gov/dmr/aquaculture/reports/wqbenthic.pdf> (can just read p6)

On the effects of moorings on eelgrass and benthic habitat:

<http://www.tidallife.com/how-to-not-do-a-whack-job-on-the-underwater-weeds-the-new-art-and-science-of-mooring-your-boat/>

Lots of good science on seaweed:

<http://www.acadianseaplants.com/marine-plant-seaweed-manufacturers/resource-management/seaweed-resource-science>

Information on the destruction of seafloor dragging practices:

<http://harbor.town.harwich.ma.us/news/fish1.html>- article from 1998 (pictures not available).

[http://www.mcbl.org/what/what\\_pdfs/Trawl\\_Impacts\\_%20on\\_Corals.pdf](http://www.mcbl.org/what/what_pdfs/Trawl_Impacts_%20on_Corals.pdf)

## SEAWEED HARVESTERS

Seaweed, a highly nutritious algae, is harvested along the coast of Maine. It is used in fertilizer for animals and gardens and sold for human consumption. As fisheries have declined, many people are turning to seaweed harvesting to make a living. The harvesting is done with sustainability in mind. Studies have shown that the plants regenerate if they are cut above the holdfast. Rockweed harvesters must cut no less than 16 inches above the holdfast, and leave the lowest lateral branches undisturbed. Each species of seaweed has its own guidelines for how much may be harvested per year.

Some coastal landowners do not allow harvesting on their property (which extends to the low tide line). Some conservation groups are against any harvesting of seaweed because it is habitat to many species of invertebrates. However studies have shown that harvesting by leaving the holdfast intact has no measurable impact on the population of invertebrates that live among the seaweed.

Acadia Seaplants is a Nova Scotia based company which buys seaweed from individual harvesters. They have strict guidelines for how their seaweed must be harvested. Here are the guidelines for rockweed:

“Fisher-harvesters use a small, 4-5 ton boat from which they conduct their hand harvesting activity. The harvest of *Ascophyllum nodosum* (Rockweed) is also managed using the company-approved cutter rake. This tool was specifically designed to minimize damage to the resource and substrate through minimal holdfast removal and controlled cutting height. Because the harvest is conducted from a constantly shifting boat that moves as the tide and currents takes it, ensures that the rockweed plants are harvested in a pruning fashion. This process leaves more than ample canopy for other inter-tidal inhabitants, allowing a rapid regeneration of harvested and suppressed shoots, and minimizing the disturbance of the habitat architecture.”

### Key Interest in Conservation Planning:

- Will the planning process achieve harmony between economics and conservation?
- The planning process may help show that our harvesting methods are sustainable based on good science, and that planning is a better answer than a moratorium on harvesting.

### LINKS

- Maine Seaweed Council <http://maineseaweed.org/>
- Maine Seaweed Council Harvest Guidelines [http://maineseaweed.org/wp-content/uploads/2012/09/MSC\\_Harvest\\_Guidelines\\_rev2009.pdf](http://maineseaweed.org/wp-content/uploads/2012/09/MSC_Harvest_Guidelines_rev2009.pdf)
- Videos: A very poetic look at a day in the life of a seaweed harvester: <http://www.seriousseats.com/2011/10/seaweed-harvesting-northern-maine-the-seaweed-man-video.html>
- Kombu Harvesting on Ironbound Island: <http://www.ironboundisland.com/journal/>
- Studies on regeneration of seaweed after harvesting: <http://www.acadianseaplants.com/marine-plant-seaweed-manufacturers/resource-management/seaweed-resource-science>
- Article on the objections of landowners and conservation groups <http://bangordailynews.com/2009/09/14/business/seaweed-harvest-dispute-swirling/>