

# Mudflats

Mudflats are economically and ecologically valuable habitats that support many species, including commercially and recreationally harvested clams, mussels, and worms. Mudflats serve as important feeding grounds for birds as well as fish. In addition to their importance for wildlife, mudflats also aid in preventing coastal erosion by lessening wave energy.

There are hundreds of acres of mudflats in Frenchman Bay, and many people depend on the mudflats for their livelihood. Commercial harvesting of species that live in mudflats is threatened by a number of things, including unsustainable fishing practices, exotic invasive species, bacterial pollution, and nutrient inputs from activities such as sewage treatment.

In 2009, the Frenchman Bay Regional Shellfish Committee (Shellfish Committee) was formed to manage the intertidal mudflat resources in seven towns in response to widespread overharvesting in Frenchman Bay after red-tides closed much of the rest of Maine to shellfish harvesting. Along with the Frenchman Bay Partners, the Shellfish Committee is working to address long-term stewardship of the region's resources.

## Mudflats in Frenchman Bay

The importance of the ecological health of mudflats cannot be overstated. Frenchman Bay's mudflats, which support several of Maine's most important commercial shellfish species, are a natural resource which many people in the watershed depend upon.

The primary goal of the mudflats conservation target is to **open 610 acres of clam flats in Frenchman Bay to harvesting that are currently closed due to high bacterial pollution (they are classified as restricted)**. Current strategies underway to achieve this goal include building capacity for shoreline or watershed surveys to help locate sources of bacterial contamination, and management within the municipal shellfish programs. Asking "how do we open closed clam flats" led to the following insights:

- Opening closed clam flats is an ecological and a social process.
- It requires an understanding of decision making processes, monitoring, and enforcement across jurisdictions.
- It requires knowing the status of identified pollution sources.
- A framework with ecological, economic, and social assessments is necessary for prioritizing flats for opening.

### Factsheet

The Frenchman Bay Partners are guided by a conservation plan, the *Frenchman Bay Action Plan*, which identifies four conservation priorities:

- 1) Eelgrass
- 2) Benthic Habitats
- 3) **Mudflats**
- 4) Diadromous Fish

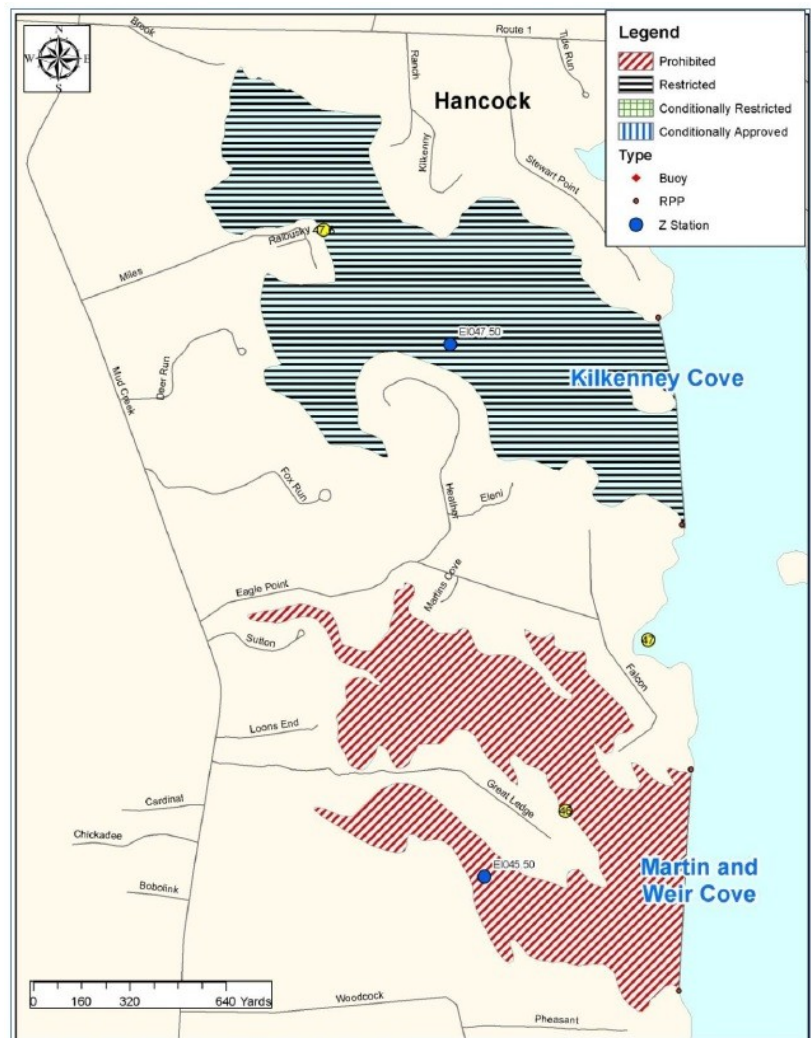


## The 610 Project

The Shellfish Committee and the Partners identified the goal of opening 610 acres of restricted clam flats in the next ten years and received a \$7,500 grant in 2013 from the Maine Community Foundation to help partners start working towards this goal. One of the first steps was assembling an advisory board to steward the use of funds and the implementation of project objectives. The advisory board meets regularly and consists of harvesters, DMR representatives, university and college liaisons, research scientists, and representatives from the Hancock County Planning Commission.

Capacity building of partner organizations is another important step in this process. Regular updates and announcements about the 610 Project are provided at monthly Shellfish Committee meetings, and different partners have collaborated with the Shellfish Committee to conduct shellfish surveys throughout the bay. A harvester, hired on 610 Project funds, created and maintains a website for the Shellfish Committee (<https://frenchmanbayregionalshellfish.wordpress.com/>).

Martin and Weir Cove, the Trenton airport, and Kilkenney Cove were initially prioritized as focal areas for understanding the status of closures and taking the necessary steps to make progress towards opening. The Department of Marine Resources responded to requests for help in finding pollution sources in several locations and provided important updates about the status of these closures. One site, Weir Cove, may potentially be upgraded to a conditional approval once the water quality dataset is large enough. Sources of bacterial contamination still need to be identified in Martin Cove. Kilkenney Cove needs additional sampling by the Department of Environmental Protection for shellfish tissue contamination.



## Shellfish stewardship

The Frenchman Bay Partners are proud of their work with the Regional Shellfish Committee to help resolve harvester conflicts related to the development of an ordinance to regulate mussel harvesting and clamming. The Partners continue to monitor the need for group facilitation to address conflict among different user groups as the need arises.

In 2013, Emma Fox, an AmeriCorps member, conducted a resource economics assessment of intertidal mudflats and potential economic losses from restricted clam flats. This report serves as a foundation for understanding the economic value of mudflats and provided key recommendations that have guided prioritization of efforts related to opening closed areas.

Closure Area Number	Closure Section	Name	Classification	Acreage	Low loss estimate (2008 \$US)	High loss estimate (2008 \$US)
42	A3	Northwest Cove	R	90	\$25,920	\$1,296,000
47	A1	Bar Hbr to Thrumcap	P	1106	\$318,528	\$15,926,400
47	A2	Bar Hbr to Hulls Cove	P	728	\$209,664	\$10,483,200
47	A3	Sand Pt to Levi Pt	P	132	\$38,016	\$1,900,800
47	A4	Salisbury Cove	P	14	\$4,032	\$201,600
47	A5	Trenton Airport	R	136	\$39,168	\$1,958,400
47	A6	Thomas Bay	R	34	\$9,792	\$489,600
47	B	Thomas Bay	CA	59	\$16,992	\$849,600
47	C	Bar Hbr Bar	CR	73	\$21,024	\$1,051,200
49	A	Jellison Cove	P	9	\$2,592	\$129,600
49	B	Carrying Place	R	88	\$25,344	\$1,267,200
49	B2	Kilkenny Cove	R	212	\$61,056	\$3,052,800
49	B3	Mud Creek	R	28	\$8,064	\$403,200
49	B4	Mill Cove Pond	R	22	\$6,336	\$316,800
		TOTAL	R	610	\$175,680	\$8,784,000
		TOTAL	P	1989	\$572,832	\$28,641,600
		TOTAL	CLOSED	2731	\$786,528	\$39,326,400

Table 1. A comparison of high and low loss estimates for annual harvester sales (in 2008 \$US), based on estimates on per acreage losses for Machias Bay from a technical report for the University of Maine at Machias (Athearn, 2008). It should be noted that these values are direct unit transfers and are rough calculations only, demonstrated by the huge range between the low and high estimate—these values would change considerably depending on the density and size of clams in each location. Classification refers to the type of closure. Yellow rows indicate restricted closures and red rows indicate prohibited closures. White row CA refers to conditionally approved, and white row CR refers to conditionally restricted.

## Controlling green crabs

Building from the 610 Project, the Partners and the Shellfish Committee received a \$6,000 grant from the Maine Community Foundation for the Green Crab Control Project in 2014. This project allowed the Committee to trap green crabs in select coves, measure the impact of the trapping, and be prepared to participate in market-based solutions to this problem.

In summer 2014, the group purchased 15 traps from Brooks Trap Mill and 15 traps from the Brazier Trap Company and tested the difference in trapping efficacy. Preliminary data about green crab abundance in select coves were collected. The traps were also lent to a scientific study of the impact of green crabs on marine ecosystems and eelgrass. See the website for more information about these studies.



Jim Norris and Chris Petersen checkout some green crabs caught in the traps.





## Next Steps

- Continue to work with the 610 Project advisory board to advance project goals.
- Explore collaboration with DMR for shoreline surveys and watershed monitoring.
- Communicate with the Department of Environmental Protection on the importance of testing shellfish tissue at Kilkenney Cove for heavy metals as a result of the old tannery upstream.
- Create decision flow chart and multi-criteria framework for opening closed clam flats to guide efforts in other municipalities and regions.
- Share Frenchman Bay Partners and 610 Project model at the 2015 Fisherman's Forum.
- Explore possible collaborations among the three municipal shellfish management programs in Frenchman Bay, including the Regional Shellfish Committee, Gouldsboro, and Bar Harbor.
- Expand focus on mudflats to develop projects of interest to mussel harvesters and wormers.
- Continue to monitor collaborative capacity needs among mudflat user groups.

## Partners

Collaboration is critical to any Frenchman Bay Partner undertaking. Key partners on mudflat projects include: Acadia Aquafarms, Acadia Bays Clams and Oysters, College of the Atlantic, the Department of Marine Resources, the Frenchman Bay Regional Shellfish Committee, Hancock County Planning Commission, MDI Biological Laboratory, and the University of Maine.

## For more information

For more information about our partners, projects, and events, visit our website at [www.frenchmanbaypartners.org](http://www.frenchmanbaypartners.org) or call FBP President Jane Disney at 207.288.3605 x 429.



**Frenchman Bay  
Partners**

The Frenchman Bay Partners strives to ensure that the Frenchman Bay area is ecologically, economically and socially healthy and resilient in the face of future challenges.