

# Marine Resources

## Outstanding Questions/Comments

- The 2011 Comp Plan states: *“The Sewer District has been implementing system improvements over the years to reduce this type of contamination, although more improvements are needed.”* Have any of these improvements occurred since 2011? We have reached out to Jon for any updates to include here.
- We are working on getting maps of the sewered area. Is there any data related to septic system location and/or past malfunctions and failures?
- Any additional marine scenic vistas in Freeport?
- We are waiting on confirmation from Charlie Tetreau on updating the mooring details.
- We would like to map the public access locations by type (public and private, recreational & commercial). We are waiting on GIS data to complete this map.
- What are the details of the Falls Point Marina lease?

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# Highlights

- There are numerous boat access points in Freeport including the Town Wharf, 350 moorings, 221 boat slips, and at least four hand carry boat launches, however, access to the shore for pedestrians is limited. The Regional Shellfish Working Group and local partners are working to protect coastal access points for commercial shellfish harvesters.
- Marine water quality in Freeport faces threats from pollution sources that have led to shellfish harvesting closures and restrictions, algal blooms, and biotoxin closures that threaten Freeport's marine harvesting economies and valuable marine habitats. Pollution sources include:
  - Stormwater runoff
  - Wastewater treatment plant discharges into the Harraseeket River
  - Septic systems
  - Marine sanitary waste
- Freeport's shellfish landings reflect the changing water quality and environmental pressures, with soft shell clam landings generally decreasing over the past decade, while species such as American oysters and northern quahog clams emerged as new markets.
- Studies conducted as a partnership between the Town of Freeport, the Downeast Institute, and the Maine Clammers Association have found that soft shell clam populations are declining primarily due to predation by invasive (including green crabs and the milky ribbon worm) and native species.
- Freeport has a variety of important coastal and marine habitats including:
  - Coastal Wading Bird and Waterfowl Habitat along most of the Town's coastline
  - Salt-hay Saltmarsh on a section of Staples Cove and the Harraseeket River
  - Great Blue Heron habitat (a species of Special Concern) on French's Island
  - A noted seabird nesting island on Sister Island ledge
- Eelgrass coverage in Freeport has fluctuated overtime, but has declined precipitously from 1,948.7 acres in 2010 to 2.7 acres in 2022.
  - Eelgrass provides important marine habitat and shellfish beds, but is threatened by invasive green crabs, increasing sedimentation, and traditional mooring and tackle.
- The Town of Freeport has several ordinances which protect and regulate marine resources including:
  - Shoreland Zoning Ordinance
  - Coastal Waters Ordinance
  - Shellfish Conservation Ordinance
  - Municipal Shellfish Aquaculture Ordinance
  - Stormwater Management Requirements (Zoning & Subdivision Ordinances)

# Introduction

## Freeport Comprehensive Plan Inventory DRAFT 1 – 2/22/24

With approximately 35 miles of coastline, Freeport enjoys an abundance of coastal and marine resources from valuable shellfish flats and tidal waterfowl habitat to eelgrass beds and scenic marine vistas. Once one of the most productive in the state, Freeport's shellfish industry has suffered in recent years due to flat closures from water quality concerns as well as clam population declines due to predation and warming ocean temperatures. Freeport has enacted measurements to protect water quality and habitats, including a suite of shellfish studies in partnership with the Downeast Institute.

# Conditions and Trends

## Public Access

Marine water access is critical to the Town of Freeport for both recreational and commercial use. The majority of access is concentrated around the Town Wharf in South Freeport. In addition to commercial fish and shellfish harvest operations, there are at least six other commercial marine enterprises in Freeport, many of which are located in or operate out of South Freeport. Marine-oriented activities in the vicinity of the Town Wharf include two full-service marinas, two yacht brokers, the Bustins Island ferry, a yacht club, a tour boat operation, a commercial fish wharf, a charter fishing business, and four other commercial marine enterprises.<sup>1</sup> Freeport's Downtown Vision Plan (2022) includes recommendations to enhance connections between the Downtown and the Town's coastal resources.<sup>2</sup>

### Among the major waterfront facilities in South Freeport are the following:

1. Freeport Town Wharf—Wharf area with limited parking (approximately 32 spaces); dinghy tie-up for residents; short-term boat tie-ups for residents and non-residents; and a lightweight hoist available for use. Used also by the Bustins Island Ferry Service.
2. Harraseeket Lunch and Lobster—A restaurant and lobster pound located on the harbor, with 12 rental boat slips and a small parking lot.
3. Brewer South Freeport Marine—A full-service marina and boat storage facility with 110 boat slips and 300 parking spaces.
4. Strouts Point Wharf Company—A full-service marina and boat storage facility, with 110 boat slips and 70 parking spaces.
5. Harraseeket Yacht Club—A private club on Dixon Road, providing a clubhouse, parking, floats, and toilet facilities for its members.
6. Dunning Boat Yard—A town-owned property leased to Falls Point Marine.

### Hand-carry boat access points in Freeport include the following:

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<sup>1</sup> [https://www.freeportmaine.com/sites/g/files/vyhliif4436/f/uploads/cp\\_data\\_facts\\_trends.pdf](https://www.freeportmaine.com/sites/g/files/vyhliif4436/f/uploads/cp_data_facts_trends.pdf)

<sup>2</sup>

<https://www.dropbox.com/s/vjc8g6ru1kxzg7a/Freeport%20Downtown%20Vision%20Plan%20Draft%20Final%20Plan%2020220714.pdf?dl=0>

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1. Dunning Boat Yard—Available for canoe and kayak access; severe tidal limitations.
2. Sandy Beach—A 495-foot-wide beach area with tidal access, reached by steps down a steep slope; parking for four vehicles.
3. Mill Stream Boat Launch—Launch area for canoes and kayaks; parking for three to five cars; owned by the Freeport Conservation Trust.
4. Cove Road—Small launch area, walkway, and floats for hand-carried boats; parking area. Owned by the Town, including easement rights granted to the Town for public access to the shore with conditions for use.
5. Winslow Park—Town managed park and campground with water access for canoes and kayaks.

There are 350 moorings available in the Harraseeket River with 41 nonresident recreational moorings. (At least 10% of moorings must be allocated to non-residents, according to State law.) Moorings within the Town, including the Harraseeket River anchorage, are regulated by the Freeport Harbormaster via an annual application process.<sup>3</sup> The current (2024) breakdown of mooring types is as follows:

- 15 commercial marine enterprise moorings
- 17 commercial fishing moorings
- 30 marina moorings
- 41 non resident recreational moorings
- 223 resident recreational moorings
- 5 resident subsequent moorings
- 4 yacht club moorings

There are also 220 boat slips in Freeport, 110 of which are located at Strouts Point, 110 at Brewer South Freeport Marine, and 8-9 at Coffin's Wharf. Most of these slips are used by recreational boats except Coffin's Wharf which are all commercial boats. Other waterfront facilities in Freeport with deepwater boat access include:

1. Winslow Park Boat Ramp — Ramp usable only at high tide; fee charged.
2. Emerson Dunning's Boat Yard —Town-owned storage facility, leased for a private business and a public tidal boat ramp at Porter's Landing. Cannot be accessed at low tide.

Manomet, Tidal Bay Consulting, and the Freeport Conservation Trust are currently working on inventorying shellfish harvester access points in Freeport as part of a larger regional study that includes seven towns. The ultimate goal is to protect commercial access to shellfish harvesting areas. They are in the process of adding public access points to the Community Intertidal Data Portal,<sup>4</sup> but private access points will not be shared publicly.

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[https://www.freeportmaine.com/sites/g/files/vyhlf4436/f/uploads/050322\\_coastal\\_waters\\_ordinance\\_adoped.pdf](https://www.freeportmaine.com/sites/g/files/vyhlf4436/f/uploads/050322_coastal_waters_ordinance_adoped.pdf)

<sup>4</sup> <https://community-intertidal-data-portal-gpcog.hub.arcgis.com/>

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### Scenic Resources

Freeport's coast and islands provide a range of scenic vistas that are important for both residents and visitors to the Town. Primary coastal scenic locations include:

1. Wolfe's Neck Woods State Park — A 246-acre state park bordering the ocean and the Harraseeket River on Wolfe's Neck.
2. Tidebrook Preserve – A 44-acre Freeport Conservation Trust preserve on the Harraseeket River.
3. Walsh Preserve – A preserve conserved collaboratively with Yarmouth with views along the Cousins River and bordering saltwater marshes.
4. Powell Point Preserve – A 0.8-mile trail along Powell Point in South Freeport with views of Casco Bay.

### Water Quality

All surface waters in Maine are classified by the Department of Environmental Protection (DEP) based on designated uses and water quality goals. Coastal/tidal waters are classified as SA, SB, and SC in order of decreasing water quality and protection (See Title 38 M.R.S.A. Article 4A for more information). All tidal waters in Freeport are Class SB. According to the Maine statute that sets water quality goals for estuarine and marine waters of the state, Class SB waters are to be:

“...suitable for the designated uses of recreation in and on the water, fishing, aquaculture, propagation and harvesting of shellfish, industrial process and cooling water supply, hydroelectric power generation, navigation, and as habitat for fish and other estuarine and marine life. The habitat shall be characterized as unimpaired. .... Discharges to Class SB waters may not cause adverse impact to estuarine and marine life in that the receiving waters must be of sufficient quality to support all estuarine and marine species indigenous to the receiving water without detrimental changes in the resident biological community. There may be no new discharge to Class SB waters that would cause closure of open shellfish areas by the Department of Marine Resources.”

Surface waters are also classified according to Section 303(d) of the Clean Water Act by levels of impairment by one or more pollutants. Categories include:

- Category 1 – Meets water quality standards.
- Category 2 – Water of concern (indicate some evidence of a water quality problem that is not at the level of impairment).
- Category 3 – Insufficient data.
- Category 4 – Impaired water that does not require a Total Maximum Daily Load (TMDL).
- Category 5 – Impaired water requiring a TMDL or other water quality improvement project.

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Several marine water segments partially located in Freeport leading to Stockbridge Point, including portions of the Little River, Cousins River, Harraseeket River, and Bustins Island were delisted to Category 3 in the 2022 Maine DEP Integrated Water Quality Monitoring and Assessment Report.<sup>5</sup> Other segments of the Cousins River and Harraseeket River met Category 2 standards.

Two of Freeport's marine waters are included on the latest Nonpoint Source Impaired Marine Waters Priority List by the Maine DEP: the Little River and North Fogg Point. These are listed as priority waters by the Casco Bay Estuary Partnership and are listed because they contain high or moderate value shellfish beds and/or have a high to moderate harvester interest.<sup>6</sup> The Harraseeket River is also listed as a Threatened waterbody, due to nonpoint source (NPS) threats identified by the Maine Department of Marine Resources (DMR) as contributing to shellfish harvest closures.

Marine water quality is additionally overseen by the Bureau of Public Health within the Maine DMR which oversees the implementation of the National Shellfish Sanitation Program (NSSP) by the Interstate Shellfish Sanitation Conference to ensure harvested shellfish are safe for human consumption.<sup>7</sup> The DMR also oversees shellfish management and growing area classification, marine biotoxin monitoring, and other volunteer water quality and phytoplankton monitoring programs. Samples are collected year-round at nearly 1,400 stations along the Maine coast for fecal coliform bacteria. These results, along with visual surveys for pollution sources, result in shellfish areas being approved or closed to harvesting. Bacteria results are presented as the geometric mean (geomean) and the 90th percentile (P90) of the colony forming units (CFU) per 100 mL of water of the 30 most recent samples. The standards for Approved classification are 14 CFU or less (geomean) and 31 CFU or less (P90). The standards for Restricted are 88 CFU or less (geomean) and 163 CFU or less (P90). The standards for Prohibited are greater than 88 CFU (geomean) and greater than 163 CFU (P90). These standards are set by the NSSP. Forty-two DMR monitoring stations exist within Freeport.<sup>8</sup> Routine testing occurs with the Town and DMR twice a month year-round, except for December through February.

Based on these data, the Maine DMR allows or restricts harvesting of shellfish within commercial shellfish Growing Areas. Freeport's marine waters fall primarily within Growing Area WJ, except for the portion of coast south of Stockbridge Point which falls within Growing Area WI. Each Growing Area, or section within a Growing Area, is assigned a classification based on the results of the bacteria P90 and geomean scores as described above, sanitary surveys, and analysis of the effects of tides, currents, and other weather conditions that may affect pollutant

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[https://www.maine.gov/dep/water/monitoring/305b/2022/25-May-2022\\_2018-22\\_ME\\_IntegratedRpt-REP-ORT%20\(002\).pdf](https://www.maine.gov/dep/water/monitoring/305b/2022/25-May-2022_2018-22_ME_IntegratedRpt-REP-ORT%20(002).pdf)

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[https://www.maine.gov/dep/land/watershed/nps\\_priority\\_list/Marine%20Waters%20NPS%20Priority%20Watershed%20List%202022.pdf](https://www.maine.gov/dep/land/watershed/nps_priority_list/Marine%20Waters%20NPS%20Priority%20Watershed%20List%202022.pdf)

<sup>7</sup> <https://www.maine.gov/dmr/fisheries/shellfish/shellfish-sanitation-management-program>

<sup>8</sup> <https://www.maine.gov/dmr/fisheries/shellfish/shellfish-closures-and-aquaculture-leases-map>

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transport. Classification categories are Approved, Conditionally Approved, Restricted, Conditionally Restricted, or Prohibited.

Within Freeport's section of Growing Area WJ, five sections (WJ-P2-5 and P7) currently prohibit shellfish harvesting due to Overboard Discharges (OBDs), proximity to Wastewater Treatment Plants (WWTP), or other unresolved contamination issues.<sup>9</sup> Three sections (WJ-CA1-6) along the Harraseeket River are categorized as Conditionally Approved, indicating that harvest is permitted except following a malfunction at the Freeport Wastewater Treatment Plan (WWTP), when there is one inch or more of rainfall in 24 hours, and/or during seasonal closures.

Within Freeport's section of Growing Area WI, one section (WI-P1) on the Cousins River near Eider Pt is classified as Prohibited.<sup>10</sup> Another section (WI-CR2) on the Cousins River near Lambert Rd and Fogg Point is classified as Conditionally Restricted during a malfunction or combined sewer overflow (CSO) event at the Yarmouth WWTP or when flow rates at the Yarmouth WWTP exceed 1.31 million gallons per day over four hours. Harvest within this segment during open conditions requires a permit with the Maine DMR. A third segment along the Cousins River (WI-CA1) and a segment of the Freeport shore near Fogg Point (WI-CA3) are classified as Conditionally Approved for harvest except during a malfunction/CSO event at the Yarmouth WWTP, when flow rates exceed 1.31 million gallons per day over four hours, and/or with one inch or more of rain in 24 hours. The remaining sections are currently classified as Approved. See Shellfish Growing Areas map for more information.

## Threats to Marine Water Quality

The Town's marine water quality depends in part on the quality of stormwater runoff, the effectiveness of septic systems, and the discharge or containment of sanitary wastes by boats into marine waters.

### Stormwater Runoff

Stormwater runoff is caused by the runoff of rainwater and snowmelt along impervious surfaces, such as roads, driveways, and rooftops. This runoff carries sediment, bacteria, nutrients, fertilizers, pesticides, herbicides, oil, grease, and other pollutants into marine waters. As Maine continues to see an increase in rainfall intensity due to climate change, the threats of stormwater runoff to marine waters will be an increasing concern. Intense precipitation in a short period of time cannot infiltrate into the ground and thus causes more surface erosion and may carry additional pollutants into nearby waterbodies.

Freeport is part of the Municipal Separate Stormwater Sewer System (MS4) General Permit that regulates stormwater discharge for communities of a certain density. Freeport belongs to the group of Greater Portland communities that have formed the Interlocal Stormwater Working

<sup>9</sup> <https://www.maine.gov/dmr/sites/maine.gov.dmr/files/closures/WJ.pdf>

<sup>10</sup> <https://www.maine.gov/dmr/sites/maine.gov.dmr/files/closures/WI.pdf>



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Group (ISWG) to implement this program. As of 2024, Freeport is in Year 2 of a 5-year permit that requires implementation of six Minimum Control Measures. These minimum control measures include, (1) an education and outreach program; (2) public involvement and participation; (3) illicit discharge detection and elimination; (4) construction site stormwater runoff control; (5) post-construction stormwater management in new development and redevelopment; and (6) pollution prevention and good housekeeping for municipal operations.<sup>11</sup>

Implementation actions taken by Freeport include the following:

- In October 2023, the Planning Board approved changes to the Zoning and Subdivision Ordinances consistent with the MS4 General Permit. Broadly, these ordinance changes require an Erosion and Sediment Control Plan for proposed development disturbing one or more acres of land discharging stormwater runoff into the Town's Urbanized Area and to projects greater than 5,000 square feet applicable to all areas of Town.<sup>12</sup>
- A Post-Construction Stormwater Management Ordinance (Chapter 53) to ensure that post-construction stormwater management plans are followed, and stormwater management facilities are properly maintained and pose no threat to public safety.<sup>13</sup>

## Sewage Treatment Plant Discharges

The Freeport Sanitary District sewage treatment plant discharges to the Harraseeket River. Over the years, the clam flats have been closed due to high bacteria levels caused by either sewage system failures or by contaminated runoff during rain events. The Sewer District has been implementing system improvements over the years to reduce this type of contamination, although more improvements are needed.<sup>14</sup>

## Septic Systems

Septic systems can pose a serious threat to water resources. Systems located directly adjacent to marine bodies of water will inevitably have the greatest impact on marine water quality. Septic system malfunctions can cause leaks that expose local water resources to elevated levels of nutrients and bacteria, threatening closure of shellfish beds, aquaculture operations, and other fisheries. These malfunctions can easily go unnoticed, with leaks occurring underground and traveling to marine waters via groundwater. The travel time and filtration of bacteria and nutrients is highly dependent on the underlying soil type, with shallow to bedrock soils providing minimal filtration.

## Marine Sanitary Waste

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<sup>11</sup> Municipal Separate Storm Sewer System (MS4) General Permit #MER041000 Final - MER041007. Maine Department of Environmental Protection.

<sup>12</sup> Detailed ordinance change information available at [https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/chap53\\_final\\_20231003.pdf](https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/chap53_final_20231003.pdf)

<sup>13</sup> Post-Construction Stormwater Management Ordinance, Chapter 53. Amended October 3, 2023.

<sup>14</sup> [https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/cp\\_data.facts\\_trends.pdf](https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/cp_data.facts_trends.pdf)



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Discharge from boats poses another threat to marine ecosystems and human health when onboard holding tanks are emptied into marine waters instead of being pumped out at licensed marine sanitary pump out stations. All of Freeport’s marine waters are classified as No Discharge Areas, a federally designated protection that prohibits discharge of treated and untreated boat sewage.<sup>15</sup> Two pump-out stations are located in Freeport; at Strouts Point Wharf and Brewer South Freeport Marine. The Friends of Casco Bay also operate a seasonal on-call pump-out service, which services the bay from South Portland to Freeport and has an associated charge. Ensuring there are sufficient pump-out stations to meet local needs, along with education to boat owners on the locations and importance of pump-out stations will be vital to protecting marine water quality from this potential source of pollution.

### Nutrients and Dissolved Oxygen

The most common limiting nutrient in marine waters is nitrates; this means that the addition of nitrates to the marine system is the most significant limiting factor for expanded growth of many plant and algae species. Excessive nitrates in marine waters can stimulate overgrowth of marine algae. As the algae dies off and decomposes, excessive microbial activity consumes dissolved oxygen and can result in low oxygen conditions throughout the ecosystem. Algae blooms can also be caused or exacerbated by warm water temperatures. These blooms may become more frequent in the future as climate change brings stronger storms (and therefore increased stormwater runoff) and rising air and sea temperatures to Freeport. In addition to the environmental impacts of algal blooms, some species produce toxins which can be harmful to human health. The phenomenon known as red tide is one such example.<sup>16</sup> Maine’s red tide occurs during the annual spring bloom of the algae species *Alexandrium fundyense*. This species produces saxitoxin, which can cause paralytic shellfish poisoning (PSP) in humans that consume contaminated shellfish. In addition to the annual red tide, blooms of the algae species *Pseudo-nitzschia* are an emerging concern in Maine and have resulted in a number of shellfish closures along the Maine coast in recent years. This species produces domoic acid which can cause Amnesic Shellfish Poisoning (ASP) when consumed by humans via contaminated shellfish. Species of the genus *Dinophysis* are also monitored in Maine. Some *Dinophysis* species produce okadaic acid which can cause Diarrhetic Shellfish Poisoning (DSP) in humans. DSP closures have been rare in Maine historically. The table below details the number of closures experienced in Freeport over the past five years (2016-2021) due to these harmful biotoxins.

**Table 1.** Biotoxin closures for area 100-A, South Berwick to Bristol from 2016-2021. Data provided by Maine DMR.

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<sup>15</sup>

<https://maine.maps.arcgis.com/apps/webappviewer/index.html?id=d7c7e6027dce4109897f95289ac00f40>

<sup>16</sup> <https://www.maine.gov/dmr/fisheries/shellfish/bureau-of-public-health-programs/biotoxins-in-maine>

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Year	Closure Cause	# Days of Closure	Species Affected
2016	PSP	63	Mussels, European oysters, carnivorous snails
2017	PSP	130	Mussels, European oysters, carnivorous snails
2017	PSP	40	Clams (all species, varying duration)
2017	PSP	43	American oysters
2017	ASP	16	Mussels, clams, oysters, and carnivorous snails
2018	ASP	11	Mussels, clams, oysters, and carnivorous snails
2018	PSP	244	Mussels, European oysters, carnivorous snails
2018	PSP	7	Clams (all species, varying duration)
2018	PSP	44	Razor clams
2018	PSP	11	American oysters
2019	PSP	195	Mussels and carnivorous snails
2019	PSP	103	European oysters
2019	PSP	188	Clams (all species, varying duration)
2019	PSP	53	American oysters
2020	PSP	73	Mussels, surf/hen clams, razor clams, European oysters, and carnivorous snails
2020	ASP	3	Mussels, clams, oysters, and carnivorous snails
2021	PSP	60	Mussels, surf/hen clams, razor clams, European oysters, and carnivorous snails

## Existing Measures to Protect Marine Water Quality

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Freeport's ordinances that help to protect estuarine and marine water quality include Shoreland Zoning, a Coastal Waters Ordinance, a Shellfish Conservation Ordinance, and the Non-Storm Water Discharge Ordinance. In addition to these specific ordinances, the Town Zoning and Subdivision Ordinances include regulations for stormwater management during and post-construction. Applicable protections within each specific ordinance are as follows:

### Coastal Waters Ordinance<sup>17</sup>

- Article 14 explicitly prohibits discharge or dumping of sewage, garbage, or other pollutants into tidal waters within the Town, or within an area that may be washed into tidal waters.
- Article 13 includes provisions for marine water quality protection during construction of piers, docks, wharves, bridges, or other structures and uses over or below normal high-water.

### Shoreland Zoning Ordinance<sup>18</sup>

- Section 304 creates the Shoreland Area (SA) overlay district which extends 250 feet from the upland edge of a coastal wetland and all areas affected by tidal action. Certain development and uses within this district may be restricted or subject to a permit from the Code Enforcement Officer, Project Review Board, Coastal Waters Commission, or Local Plumbing Inspector, as described in Section 305.
- Section 306 requires a buffer of native vegetation sufficient to infiltrate stormwater and mitigate erosion within 25 feet of the normal high-water line of a water body or upland edge of a wetland. Stormwater management is required for other types of development in these zones, such as parking lots, and an erosion and sedimentation control plan is required when earthmoving activities are conducted which require a permit. All activities are prohibited from impaired water quality classifications and designated uses.

### Shellfish Conservation Ordinance<sup>19</sup>

- Section 32-601 Establishes a surcharge to each shellfish license to provide a revenue source for water quality testing.

### Non-Storm Water Discharge Ordinance<sup>20</sup>

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<sup>17</sup>

[https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/050322\\_coastal\\_waters\\_ordinance\\_adoped.pdf](https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/050322_coastal_waters_ordinance_adoped.pdf)

<sup>18</sup>

[https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/050322\\_chapter\\_65\\_shoreland\\_zoning\\_ordinance\\_adopted.pdf](https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/050322_chapter_65_shoreland_zoning_ordinance_adopted.pdf)

<sup>19</sup>

[https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/chap\\_32\\_shellfish\\_210803-waiting\\_dmr\\_approval.pdf](https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/chap_32_shellfish_210803-waiting_dmr_approval.pdf)

<sup>20</sup> [https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/chap27\\_final\\_20231003.pdf](https://www.freeportmaine.com/sites/g/files/vyhli4436/f/uploads/chap27_final_20231003.pdf)

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- Section 27-105 prohibits non-stormwater related discharges to the Storm Drainage System.

In addition to the testing conducted by the Maine DMR for monitoring shellfish flats, Winslow Park beach has historically participated in the Maine Healthy Beaches program. This state program works with local volunteers to seasonally monitor bacteria at beaches used for recreation. Winslow Park beach was monitored from 2008 to 2015. In the 52 total samples collected between 2008 and 2015, only three individual samples exceeded the Maine Beach Action Value (BAV or safety threshold) for Enterococci bacteria in marine waters (104 MPN/100mL). Two of these values were collected in 2010 (6/7/2010 and 8/9/2010) and one was collected in 2012 (6/4/2012). Data provided by the Maine Healthy Beaches Program in January 2024.

## Marine Resources

Freeport has a variety of significant natural resources and wildlife habitats. The Town's 35 miles of coastline in combination with a variety of salt marshes, mudflats, beaches, and islands add to that diversity with important habitat for many birds, fish, shellfish, and other wildlife.

### Shellfish

Shellfish have long been an important resource in Freeport. In partnership with the Downeast Institute and the Maine Clammers Association, the Town has conducted 32 experiments from 2013-2018 to investigate the cause of declining clam populations and to find solutions for increasing soft shell clam populations.<sup>21</sup> Experiments investigated issues such as predator protection, green crab trapping, sediment buggering, clam recruitment, growth and survival rates, and stock enhancement techniques. Results of the studies indicate that predation by invasive (including green crabs and the milky ribbon worm) and native species is the driving factor for the decline of soft shell clam populations. Rates of predation have increased as predator populations have flourished due to warming ocean temperatures, a trend that is expected to continue with the impacts of climate change. See the Water-Dependent Uses section for more information on shellfish landings.

In April 2023, The Maine Department of Marine Resources identified a gap in the municipal shellfish management programs. Municipalities are required to have Shellfish Management Plans, as required by 7.20 (2) prior to approval of a Municipal Shellfish Conservation Ordinance. Municipalities are expected to set conservation goals through their Shellfish Management Plan. Freeport does not have a Shellfish Management Plan.

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<https://downeastinstitute.org/research/soft-shell-clams/freeport-investigating-the-cause-of-the-clam-decline-2013-2018/>

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### Tidal Wading Bird / Waterfowl Habitat

In addition to supporting shellfish, intertidal flats and salt marshes support a variety of species that make these areas important feeding habitat for coastal wading birds and migratory waterfowl. Maine has designated these kinds of areas and others as a type of significant wildlife habitat under the Natural Resources Protection Act. The Maine Department of Inland Fisheries and Wildlife has mapped Coastal Wading Bird and Waterfowl Habitat, including 10,862 acres of Wading Bird and Waterfowl Habitat along much of the coast of Freeport. A section of Staples Cove and the Harraseeket River have identified Salt-hay Saltmarsh. French’s Island has identified Great Blue Heron habitat, a species of Special Concern and Sister Island ledge is a noted seabird nesting island.

### Eelgrass

In shallow, near-shore areas, eelgrass (*Zostera marina*) can grow in large meadows. Eelgrass meadows help trap sediment that creates shellfish beds and serves as nursery areas for several species of fish and shellfish.<sup>22</sup> They also provide food for migrating waterfowl. Today eelgrass meadows are comparatively rare. In the 1930’s an eelgrass wasting disease destroyed 90% of eelgrass growing along the East Coast. Reduced water clarity from excess suspended sediment can block light to eelgrass meadows and cause them to die back and relinquish their root system’s stabilizing effect on the bottom sediment. Although eelgrass has rebounded somewhat since the 1930’s it faces new threats such as sediment in runoff from development activities, boat traffic, dragging of fishing gear, harvest of shellfish and periodic dredging of navigational channels, and shading from aquaculture operations.

In 2013, the Casco Bay Estuary Partnership and Maine DEP conducted an aerial photography survey of Casco Bay to determine the growth/recession of eelgrass over time. A similar study conducted in 2001 was used to determine baseline conditions. The 2013 study found that Casco Bay had 8,789 acres of eelgrass in 2001, but only 3,650 acres in 2013. The Maine Department of Environmental Protection (DEP) conducted subsequent eelgrass surveys in 2018 and 2022. As of 2022, total eelgrass coverage in Casco Bay had decreased to 2,286 acres. Eelgrass coverage in Freeport has fluctuated overtime, but has declined precipitously since 2010 (Table 2).

**Table 2.** Total eelgrass coverage in the Town of Freeport from 1997 to 2022 based on surveys conducted by the Maine Departments of Marine Resources (1997, 2010) and Environmental Protection (2013, 2018, 2022).

Year	1997	2010	2013	2018	2022
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<sup>22</sup>

<https://adobeindd.com/view/publications/2f8cb7b4-5b37-4c50-8c4e-5aa0c92e1fa4/1/publication-web-resources/pdf/State-of-Casco-Bay-6th-Edition.pdf>

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Total eelgrass coverage in Freeport (acres)	1,569.4	1,948.7	11.5	724.4	2.7
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One cause of eelgrass habitat degradation is the threat from invasive European green crabs. First recorded in Casco Bay in 1905, green crabs are now the most abundant species of crab along Maine’s coast. Green crabs uproot eelgrass in their quest for soft shell clams. Eelgrass beds may also be threatened by increasing turbidity and silt deposits from freshwater runoff which can smother the plants. This threat may become more prevalent as climate change increases strong storm events and therefore promotes increased erosion and runoff. Eelgrass beds are also threatened by traditional mooring tackle which scars and damages the ocean floor when the chain is dragged by tides and wind. None of the 350 moorings in the Harraseeket River are located within eelgrass beds.

## Water-Dependent Uses

The significance of protecting marine resources on an ongoing basis is not only aesthetic and environmental, but also economic. There are many marine resource-harvesting businesses, restaurants, and tourism-centered businesses that depend on a continuing high quality marine environment.

### Fishing

Fishing and associated aquatic harvest activities have historically provided a large food and income source for Freeport residents. At the time of the last Comprehensive Plan in 2011, marine harvesting was centered in the following species: clams, lobsters, oysters, scallops, sea urchins, seaweed, and worms.<sup>23</sup> Of these, lobsters and clams provide the most employment and dollar revenue. From 2009-2012 commercial clambers in Freeport harvested more soft shell clams than in any other Maine coastal town.<sup>24</sup> Since then, the Town has reported nearly a 70% decline in landings.<sup>25</sup> This decrease is correlated with a 50% decline in clammer revenues.

Freeport has seen a shift in the last decade, with primary species including Atlantic menhaden, hardshell (Quahog) clams, soft shell clams, American oysters, and lobster.<sup>26</sup> Live weights of all marine landings reported in the Town from 2013-2022 are presented in the table on the following page (Table 3). Lobster and soft shell clam landings have remained relatively stable

<sup>23</sup> [https://www.freeportmaine.com/sites/g/files/vyhlf4436f/uploads/cp\\_data\\_facts\\_trends.pdf](https://www.freeportmaine.com/sites/g/files/vyhlf4436f/uploads/cp_data_facts_trends.pdf)

<sup>24</sup> Maine Department of Marine Resources Commercial Fisheries Landings, 2013.

<sup>25</sup>

<https://downeastinstitute.org/research/soft-shell-clams/freeport-investigating-the-cause-of-the-clam-decline-2013-2018/>

<sup>26</sup> <https://dmr-maine.opendata.arcgis.com/documents/mainedmr-landings-portal/explore>

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over the decade, exhibiting minor decreasing trends. American oysters and Atlantic menhaden landings have significantly increased over the past decade (Figure 1).

**Table 3.** Town of Freeport marine landings in live pounds 2013-2022. Data from the Maine DMR Landings Portal.<sup>24</sup>

Species	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Atlantic Menhaden</b>							355,005	70,495	282,974	153,141
<b>Bloodworms</b>	934		841	1,036	703		30			
<b>Northern Quahog (Hardshell) Clams</b>			14,556	27,647	29,962	13,422	14,818	10,479	3,263	5,066
<b>Atlantic Razor Clams</b>				1,227		2,973	193			
<b>Eastern / American Oysters</b>			4,495	1,783	47,653	40,168	46,664	54,921	209,547	204,676
<b>European Flat Oysters</b>						40,019				
<b>Elvers</b>			7	55	1					
<b>Lobster</b>	199,654	261,841	325,961	337,627	284,604	454,679	300,429	223,482	241,584	197,996
<b>Soft Shell Clam</b>	840,653	590,597	289,775	242,339	388,052	525,681	497,981	346,979	435,151	304,208



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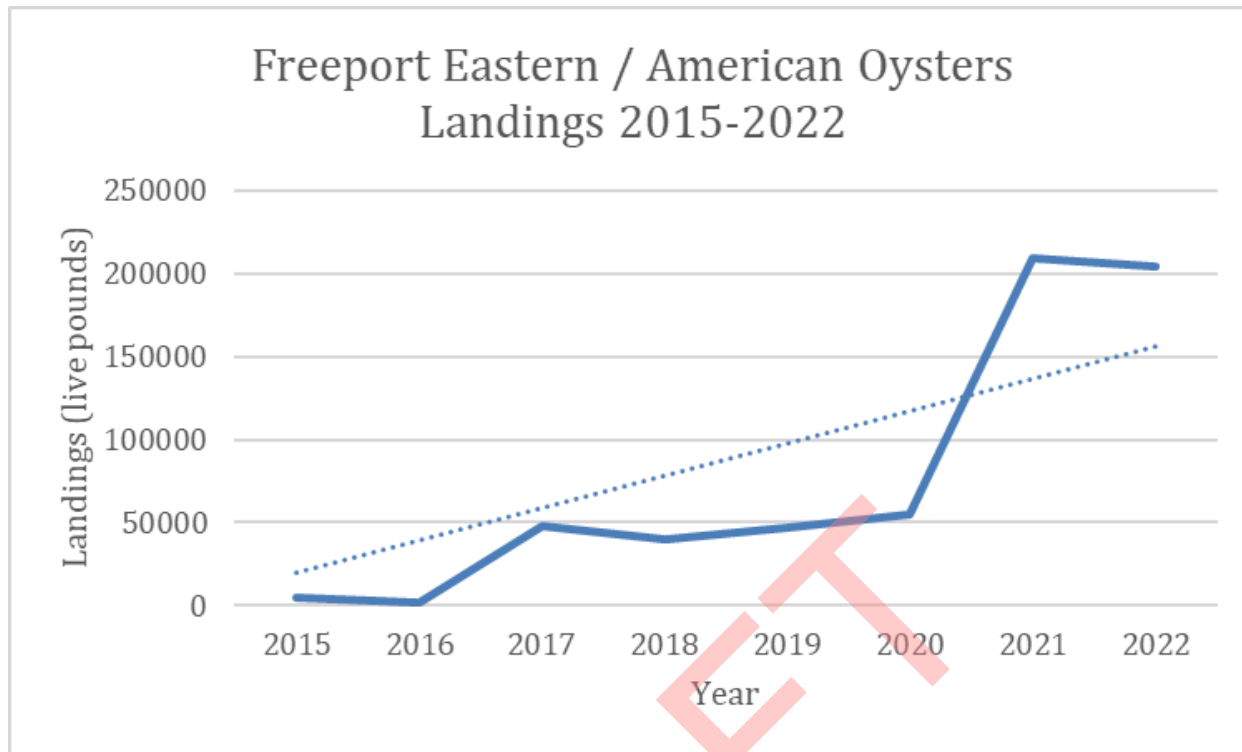


Figure 1. Freeport Eastern / American Oyster Landings 2015-2022.

One hundred and ninety-four (194) full-year licenses were issued in Freeport in 2021.<sup>27</sup> The most common license types were commercial shellfish (44), lobster/crab non-commercial (39), and recreational saltwater registry (29). All 2021 licenses are shown in Table 4.

<sup>27</sup> Maine DMR, 2021 Fall Comprehensive Plan - Full year licenses for 2021.

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**Table 4.** Town of Freeport full-year 2021 marine harvesting licenses. Data from the Maine DMR.

<b>License Type</b>	<b># Issued in 2021</b>
Commercial Shellfish (CS)	44
Lobster/Crab Non Commercial (LNC)	39
Recreational Saltwater Registry (SWR)	29
Lobster/Crab student (LCS)	9
Lobster/Crab Class 1 (LC1)	8
Recreational Saltwater Fishing Operator (SWRO)	8
Lobster/Crab Class 3 (LC3)	6
Menhaden Commercial (MENC)	6
Vibrio Harvester (VH)	5
Commercial Fishing Crew (CFC)	4
Commercial Pelagic and Anadromous Crew (CPC)	4
Aquaculture (AL)	3
Commercial Shellfish +70 (CSO)	3
Marine Worm Digging (MWD)	3
Menhaden Non Commercial (MENR)	3
Elver 1 Fyke Net (E1)	2
Green Crab (GC)	2
Lobster/Crab Class 2 (LC2)	2
Lobster/Crab Class 3 +70 (LC3O)	2
Scallop Dragger (SD)	2
Seaweed (SW)	2
Carrier (CAR)	1
Demo Lobster (DL)	1
Elver 2 Fyke Nets Crew (E2C)	1
Elver Dip Net (E0)	1
Elver Dip Net 1 Fyke Net (E6)	1
Lobster/Crab +70 (LCO)	1
Lobster/Crab Class 2 +70 (LC2O)	1
Scallop Non Commercial (NCS)	1
<b>Grand Total</b>	<b>194</b>

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### Aquaculture

Aquaculture is the managed production of aquatic organisms such as fish and shellfish. It is a potential solution to meeting future food needs and reducing threats from overharvesting wild organisms. The Town of Freeport does not have jurisdiction over aquaculture operations in Freeport's coastal waters. Nearshore coastal waters are regulated by the State of Maine and the Maine Department of Marine Resources issues licenses and permits for aquaculture operations. Nine aquaculture leases are currently active in Freeport.<sup>28</sup> Species harvested under these leases include Eastern / American oysters, sea scallops, hard clams / quahog, blue sea mussels, European flat oyster, and surf clams. There are additionally 37 limited purpose aquaculture licenses in Freeport and five more pending or under review. Species under these licenses include those previously mentioned as well as bay scallops, razor clams, and various kelp species. Due to the Town's limited deepwater access, aquaculture activity in Freeport is limited by access to dock space at the Town Wharf.

### Boating

Given Freeport's access to the coast, boating is important recreationally and commercially. The 2014 Active Living Plan survey indicated that 27.8% of respondents displayed strong interest in boating as a physical activity.<sup>29</sup> See the Public Access section under Conditions and Trends for an inventory of available moorings in Freeport.

In 2021, 89 boats were registered in the Town of Freeport, with vessel lengths ranging from 12-57 feet.<sup>30</sup> The average length was 25.9 feet, and the median was 22 feet. This represents an increase in licenses from recent years, with 83 in 2020 and 72 in 2019.

## Management and Protection

### Dredging

There are no pending marine-related dredging projects in Freeport. Minor dredging has occurred at Brewer South Freeport Marine to enhance boat slip access within the last five years.

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<sup>28</sup> <https://www.maine.gov/dmr/fisheries/shellfish/shellfish-closures-and-aquaculture-leases-map>

<sup>29</sup> [https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/freeport\\_active\\_living\\_plan\\_final-2b.pdf](https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/freeport_active_living_plan_final-2b.pdf)

<sup>30</sup> Maine DMR. 2019-2020-2021 Comprehensive Plan Vessel Length- REVISED.

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### Zoning

The Town of Freeport has several zones and overlays dedicated to marine use and protection. These include:

- Island District
  - Applies to all islands, except Bustins Island.
  - Prohibits any new dwellings or structures on Bowman, Crab, Googins, Indian, Little Bustins, Little French, French's Ledge, Pound of Tea, Pumpkin Knob, Sister's Ledge, and Sow and Pigs Islands.
- Shoreland Zoning
  - The area shown on the official Town of Freeport Zoning Map which includes the land area located within two hundred and fifty (250) feet, horizontal distance, of the normal highwater line of any river; within two hundred and fifty (250) feet, horizontal distance, of the upland edge of a coastal wetland, including all areas affected by tidal action; within two hundred and fifty (250) feet of the upland edge of a freshwater wetland; or within seventy-five (75) feet, horizontal distance, of the normal high-water line of a stream.
  - Includes four Zoning Districts:
    - Resource Protection 1
      - Prohibits residential and commercial development and limits use to low-impact development such as low-impact recreational uses, wildlife management practices, and other similar uses.
    - Shoreland Area
      - Requires a 75' building setback from the high-water mark or the top of the bank, with no other restrictions.
    - Stream Protection
      - Includes all land areas within 75 feet of the normal high water line of a stream except for those areas within 250 feet of the upland edge of a freshwater or coastal wetland.
    - Marine Waterfront
      - Protects water-dependent, commercial marine operations from being forced out by non-water-dependent land uses.
      - Has no minimum lot size and allows the following as permitted uses requiring site plan approval: boat yards, marinas, ship chandleries, commercial fishing activities, and municipal wharves.

## Freeport Comprehensive Plan Inventory DRAFT 1 – 2/22/24

### Marine Planning Efforts

In addition to the zoning ordinances discussed above, additional Freeport town ordinances that help to protect estuarine and marine resources include the Coastal Waters Ordinance, the Shellfish Conservation Ordinance, and the Municipal Shellfish Aquaculture Ordinance. The purpose of each are as follows:

#### Coastal Waters Ordinance<sup>31</sup>

- To regulate “marine activities within the anchorage of the Town of Freeport, Maine, in order to ensure safety to persons and property, to promote availability, preservation and use of valuable public resources, and to create a fair and efficient framework for administration of same.”

#### Shellfish Conservation Ordinance<sup>32</sup>

- “To establish a Shellfish Conservation Program for the Town of Freeport which will insure the protection and optimum utilization of shellfish resources within its limits. These goals will be achieved by means which may include:
  - A. Licensing;
  - B. Managing the number of shellfish harvesters;
  - C. Restricting the time and area where digging is permitted;
  - D. Limiting the minimum size of clams taken;
  - E. Limiting the amount of clams taken daily by a harvester;
  - F. Enhancing the clam resources by the various recognized means; e.g. reseeded, etc.
  - G. Identifying and addressing water quality issues;
  - H. Public education;
  - I. Working with state, federal and local officials to protect and optimize the shellfish resource;
  - J. Any other activity reasonably related to the purpose of the protection and optimum utilization of Freeport’s shellfish resources.”

#### Municipal Shellfish Aquaculture Ordinance<sup>33</sup>

- “To ensure that intertidal shellfish aquaculture activities conducted within the Town of Freeport protect and optimize Freeport’s shellfish resources through introduction and support of sustainable aquaculture practices.”

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<sup>31</sup>

[https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/050322\\_coastal\\_waters\\_ordinance\\_adoped.pdf](https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/050322_coastal_waters_ordinance_adoped.pdf)

<sup>32</sup>

[https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/chap\\_32\\_shellfish\\_210803-waiting\\_dmr\\_approval.pdf](https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/chap_32_shellfish_210803-waiting_dmr_approval.pdf)

<sup>33</sup>

[https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/chapter\\_59\\_-\\_aquaculture\\_ordinance.pdf](https://www.freeportmaine.com/sites/g/files/vyhlif4436/f/uploads/chapter_59_-_aquaculture_ordinance.pdf)

## Freeport Comprehensive Plan Inventory DRAFT 1 – 2/22/24

In addition to these existing ordinances, Freeport, in partnership with Tidal Bay Consulting and the Greater Portland Council of Governments (GPCOG), is currently working on a Shore & Harbor Grant through the Maine Coastal Program to do a feasibility study for the installation of a deep water boat ramp for commercial and recreational shellfish harvesters. Through this feasibility study, the Town is looking at nine sites and is hoping to identify one or two locations that would be feasible for a deep water boat ramp. The initial nine sites represent town, state-, and privately-owned land. Selection of a site will be contingent on permitting requirements, landowner participation, dredging, and more.

### Regional Coordination

Regional watershed management efforts, such as the Casco Bay Estuary Partnership and the Friends of Casco Bay, are working on all the issues noted above, and Freeport in varying degrees is participating in such regional efforts. Freeport is also involved in the Casco Bay Regional Shellfish Working Group. These organizations offer monitoring, data and technical options, and programs for working on these issues. The Town may wish to consider using these resources for educational purposes and/or for the development of more effective Town ordinances.

The Freeport Conservation Trust is currently working in collaboration with neighboring communities on an Intertidal Access Project through the Casco Bay Regional Shellfish Working Group. This study across seven Towns, including Freeport, identified that 65% of harvester access to the water is via private property and informal agreements. Change in ownership of coastal properties has caused the loss of many of these agreements. This project is working on securing public access points with individual private landowners.

Freeport also participates in the southern Maine MS4 cluster, which collaborates to mitigate and control stormwater within member towns including the installation of BMPs and outreach and education.

Freeport is also currently working with Maine DMR to develop a shellfish harvester apprentice program, similar to the existing lobster apprenticeship program. This would be a 2-year pilot program with five licenses for apprentice clammers.

Freeport is also currently partnering with GPCOG on a Climate Action Plan and vulnerability assessment. The assessment evaluated impacts to the Town for various sea level rise and flooding scenarios. Freeport and GPCOG are also partnering with the Gulf of Maine Research Institute (GMRI) on the Climate Ready Casco Bay Initiative. This includes gathering data on flooding in Freeport at Winslow Park, the Town Wharf, Porters Landing, and Upper Mast Landing. More information about these projects can be found in the Climate Change Chapter.