Natural Resources (including Water, Marine, Agricultural + Forest Resources) Subcommittee

Meeting Agenda

Friday, November 1, 2023 – 8:30AM

Location: Remote via Zoom (pursuant to the Committee's adopted Remote Meeting Policy)

Join Zoom Meeting

https://us06web.zoom.us/j/88204387303?pwd=d7jqK7FKj6DX9T08O6uopla6ZmegUH.1

Meeting ID: 882 0438 7303

Passcode: 04543

1. Call to Order
2. Review draft Natural Resources Topic Area Inventory
3. Review draft Agricultural & Forest Resources Topic Area Inventory
4. Review draft Marine Resources Topic Area Inventory
5. Review draft Water Resources Topic Area Inventory
6. Committee/Public Comment
7. Adjournment

Natural Resources

Overview

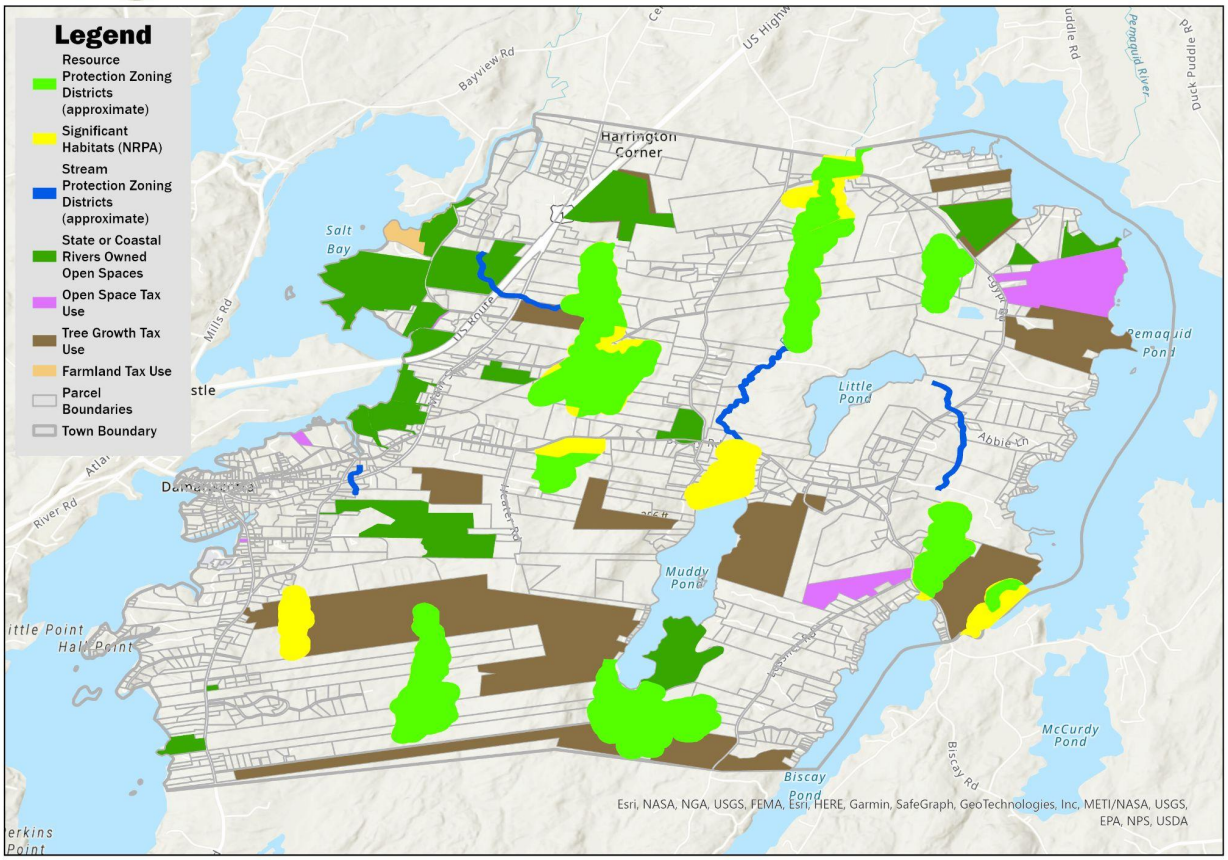
The Town of Damariscotta is bounded on two sides by water, and Damariscotta's most significant natural resources are defined by its waterways and adjacent wetland ecosystems. Wetlands run along the shore of the Damariscotta River and Salt Bay, attracting shorebirds, migrating birds, fish, and harbor seals.[1] Further inland, the woodlands and watersheds of Damariscotta's ponds provide ample habitat for waterfowl and areas for deer migrating in the winter.

In addition to providing habitat for waterfowl, amphibians, and shellfish, the community's natural resources act as a natural barrier for nearby infrastructure. Healthy wetlands provide flood control during heavy precipitation periods by storing excess water, and the mudflats along the Damariscotta River and Salt Bay prevent shoreline erosion by holding soil in place. Shellfish and aquatic vegetation also filter sediments and other pollutants that would be carried into waterways from stormwater and snowmelt runoff.[2]

Development along watersheds and through wooded areas has fragmented habitats, and pollution from human activity has impaired the health of many ecosystems. For some migrating birds, even the presence of nearby human activity runs the risk of reducing the time available for shorebirds to eat and rest before continuing their migration.[3] The Town has worked to prioritize ecosystem health through the adoption of ordinances meant to limit the pollution caused by development, described in further detail below. The Town also relies on Coastal Rivers Conservation Trust to conserve land for passive recreation and on the restoration of ecosystems impacted by development.

[1] "Wildlife of the Damariscotta," (Coastal Rivers Conservation Trust, 2023), https://www.coastalrivers.org/about-us/river-facts/river-critters/.
[2] "Conserving Maine's Significant Wildlife Habitat: Waterfowl & Wading Birds," (Maine Audubon, 2009).
[3] "Conserving Maine's Significant Wildlife Habitat: Shorebirds," (Maine Audubon, 2009).

Natural Resource Areas



Source: Resource Protection Zoning Districts and Stream Protection Zoning Districts data from the Town's Shoreland Zoning Map (revised through 9/2019); Significant Habitats, Parcel Boundaries, Town Boundary data from the Maine Geolibrary; State or Coastal Rives Owned Open Spaces, Open Space Tax Use, Tree Growth Tax Use, and Farmland Tax Use data from the Town's FY2023 tax records.

The most significant wetland areas within the community stretch along the shore of the Damariscotta River and Salt Bay, the banks of Back Meadow Brook, and the southern shore of Muddy (Paradise) Pond. Multiple oyster and clam species grow along the mud flats of the Damariscotta River, and Bald Eagles are active in two areas along the shoreline within Town boundaries; south of Hall Point and in wetlands west of Salt Bay Farm.[4]

The entirety of Salt Bay has been designated as a focus area of statewide ecological significance.[5] Within the area, eelgrass beds are abundant. Eelgrass beds are ecologically important because they serve as a nursery, habitat, and feeding area for many fish, waterfowl, wading birds, invertebrates, and other wildlife (including commercially valuable

[4] Beginning With Habitat, *High Value Plant and Animal Habitats* (Maine Department of Inland Fisheries and Wildlife, May 2018), https://www.maine.gov/ifw/fish-wildlife/wildlife/beginning-with-habitat/maps/pdf/Damariscotta/Damariscotta%20Map%202.pdf.

[5] By biologists from the Maine Natural Areas Program (MNAP), Maine Department of Inland Fisheries and Wildlife (MDIFW), Maine Department of Marine Resources (DMR), U.S. Fish and Wildlife Service (USFWS), The Nature Conservancy (TNC), Maine Audubon, and Maine Coast Heritage Trust (MCHT).

fish and shellfish). Eelgrass also reduces water pollution by absorbing nutrients, and it dampens wave energy and slows currents, which helps stabilize sediments and buffer shorelines.

Salt Bay also boasts one of the best breeding locations in the state for horseshoe crabs. Horseshoe crabs feed primarily on clams and worms, and in turn are fed upon by shorebirds, crabs, gastropods, many fish species, and sea turtles.

Within the Damariscotta River, the mud flats between Glidden Point and Damariscotta Mills sustain multiple species of shellfish (including oysters and soft-shell clams), as well as shorebirds who eat their potential predators.[6] Directly west of Salt Bay is the Damariscotta Mills fish ladder (in the neighboring Town of Newcastle), which leads to Damariscotta Lake. The fish ladder enables the annual migration of over a million alewives into the lake, through the Damariscotta River and Salt Bay.[7] Historically, the Damariscotta River alewife fishery was the largest in the state and recent improvements to the fish ladder have enhanced the upstream migration of this species. Not surprisingly, the spring alewife run attracts a variety of bird species that prey on the fish, including osprey and bald eagles.[8]

Additionally, the mixed saltmarsh around Oyster Creek are considered a rare natural ecosystem. Its S3 rank means that it is vulnerable to extirpation (being destroyed completely).[9] Currently, there is no recorded presence of endangered, threatened or special concern plant and animal species in this ecosystem (per data provided by Beginning with Habitat), but saltmarshes do potentially provide habitats for rare plant species, such as Salt Marsh Sedge, as well as rare animal species (for example, birds like the Big bluet, Black-crowned night-heron, Laughing gull, Least tern, Saltmarsh sharp-tailed sparrow, and the Short-eared owl).[10]

The Little Pond watershed houses a population of Brook Trout maintained and consistently restocked by the Maine Department of Inland Fisheries and Wildlife (IF&W), and the woodland areas surrounding the pond act as winter shelter for deer. The largest deer wintering area is along the southern border of Town, among wetlands south of Castner Creek.

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[6] "Focus Areas of Statewide Ecological Significance: Salt Bay," (Beginning With Habitat).
[7] Annie Sherman, "The Centuries-Old Fish Ladder That Feeds Maine's Lobster Industry," (Atlas Obscura, April 26, 2022), https://www.atlasobscura.com/articles/fish-ladder-maine-lobster-industry.
[8] "Focus Areas of Statewide Ecological Significance: Salt Bay," (Beginning With Habitat).
[9] Amy Dowley, Beginning With Habitat, ed. Steve Walker, Beginning With Habitat (Maine Department of Inland Fisheries and Wildlife, 2023), https://webapps2.cgis-solutions.com/beginningwithhabitat/mapviewer/
[10] Mixed Saltmarsh fact sheet, Maine Natural Areas Program, https://www.maine.gov/dacf/mnap/features/communities/mixedsaltmarsh.htm

Scenic Views

In 2019 and 2020, the Town's Land Use Advisory Committee compiled a list of scenic views in the Town of Damariscotta, as well as the threats posed to them. The most common threats identified come from development of residential or recreational areas and climate change.

Scenic View	Description of view	Nearest access point	Threats to scenic view
Days Cove	View to mud flats and river	Route 129 at Days Cove	None
Great Salt Bay	View of fields and Great Salt Bay	Hard clam bed (Great Salt Bay)	Mid-and far-view building development
View along Belvedere Road 1,000 feet south of Branch Road	Undeveloped farmscape along rural road	Belvedere Road at Branch Road	Residences along road frontage
Biscay Pond	Morning mist on Biscay Pond from the road near the public beach	Biscay Road	Camp development
Paradise Pond	View across Paradise (Muddy) Pond	Shamrock Lane	Camp development
Misery Gulch	Looking across Misery Gulch to back of parking lot. The wreck of The Candage shows at low tide.	Schooner Landing parking lot	Climate change
Back view of Damariscotta	View of town from The River Tripper cruise	Damariscotta River	Climate change, development

DARA Pond	Looking across DARA Pond, a historic spot for ice skating	Church Street	Further development in the area
Damariscotta River	Tombolo landform, horseshoe crab spawning ground	Huston Landing Preserve	Climate change
Hilltop Cemetery	Historic Cemetery and trees	Hodgdon Street	None
River and Lewis Point	Looking up the river toward Lewis Point	Parking lot behind Damariscotta Pottery	Further condo development
Mook Sea Farm	Oyster Farming on the River	Damariscotta River from River Tripper	Additional aquaculture, loss of habitat due to climate change
Whaleback Midden	Damariscotta River	Johnny Orr Rapids looking south	None
Cemetery and Old Oaks	Historic view of cemetery and old oak trees	Belvedere Road south of Branch Road	Development, farm buildings
Castner Creek	Castner Creek looking toward the Damariscotta River	Church Street	Development, storm surge, run-off
Castner Creek	Castner Creek looking toward upper Main Street	Church Street	Development, storm surge, run-off
Wetland area	Behind/adjacent to Main Street Grocery	Between Main Street and Chapman Street	Run-off

Existing Protective Measures

The Town of Damariscotta works closely with Coastal Rivers Conservation Trust to maintain the health of Damariscotta's habitats and wildlife. Coastal Rivers oversees the majority of the conserved land in Town. In addition to conserving land, Coastal Rivers also restores ecosystem health where possible, one example being the restoration of wetlands on the shores of the Great Salt Bay Farm in 1997. The Town also collaborates with the Great Salt Bay Sanitary District, the community's primary source of drinking water, to limit development in the Little Pond watershed, and works with the Maine Department of Inland Fisheries and Wildlife to minimize the risk of bacterial contamination in Little Pond during the restocking of Brook Trout. Damariscotta and neighboring Newcastle have also formed a joint Shellfish Committee and developed a Shellfish Ordinance to protect the health of their shared mudflat ecosystems from human activity and overfishing by shellfish harvesters. (For more information on shellfish and mudflat conservation efforts, please reference the Marine Resources section of this Plan.)

The Town's Site Plan Review Ordinance requires a stormwater management plan and an erosion and sediment control plan for new construction subject to the Ordinance.[11] This is meant to minimize the risk of contamination to nearby water sources. Damariscotta also implemented a Shoreland Zoning Ordinance,[12] which established all land within 75 feet of a high water line as a Stream Protection District, and all land within 250 feet of a coastal or freshwater wetland ecosystem as a Resource Protection District. This Ordinance regulates areas where development would adversely affect water quality, productive habitat, biologic ecosystems, or quality of scenic views. Any new construction in these sensitive areas must partially re-establish trees and local vegetation removed during construction to ensure the retention of natural stormwater buffers.

The Shoreland Zoning Ordinance, adopted to be consistent with the State's Chapter 1000 guidelines, limits commercial land uses in order to prevent contamination from fertilizers, petrol products, chemical, heavy metals, or other industrial pollutants. Any construction or natural resource harvesting must provide an erosion and sediment control plan to ensure minimal threat of runoff. Minimizing threats to water quality protects the health of nearby wetland ecosystems and the species relying on them.

Regional Coordination

Most conserved land in Damariscotta is managed by the Coastal Rivers Conservation Trust. Coastal Rivers oversees the health and public use of the region's most valuable natural resources. In Damariscotta, this includes the Castner Brook Community Forest, which

[11] See the Town's adopted Site Plan Review Ordinance.
[12] See the Town's adopted Shoreland Zoning Ordinance.

protects over 85 acres of woodland west of Paradise Pond,[13] and Salt Bay Farm, which conserves 115 acres of former farmland that now provides educational and recreational activities to the community.[14]

Threats to Critical Natural Areas

Threats to Ecosystems

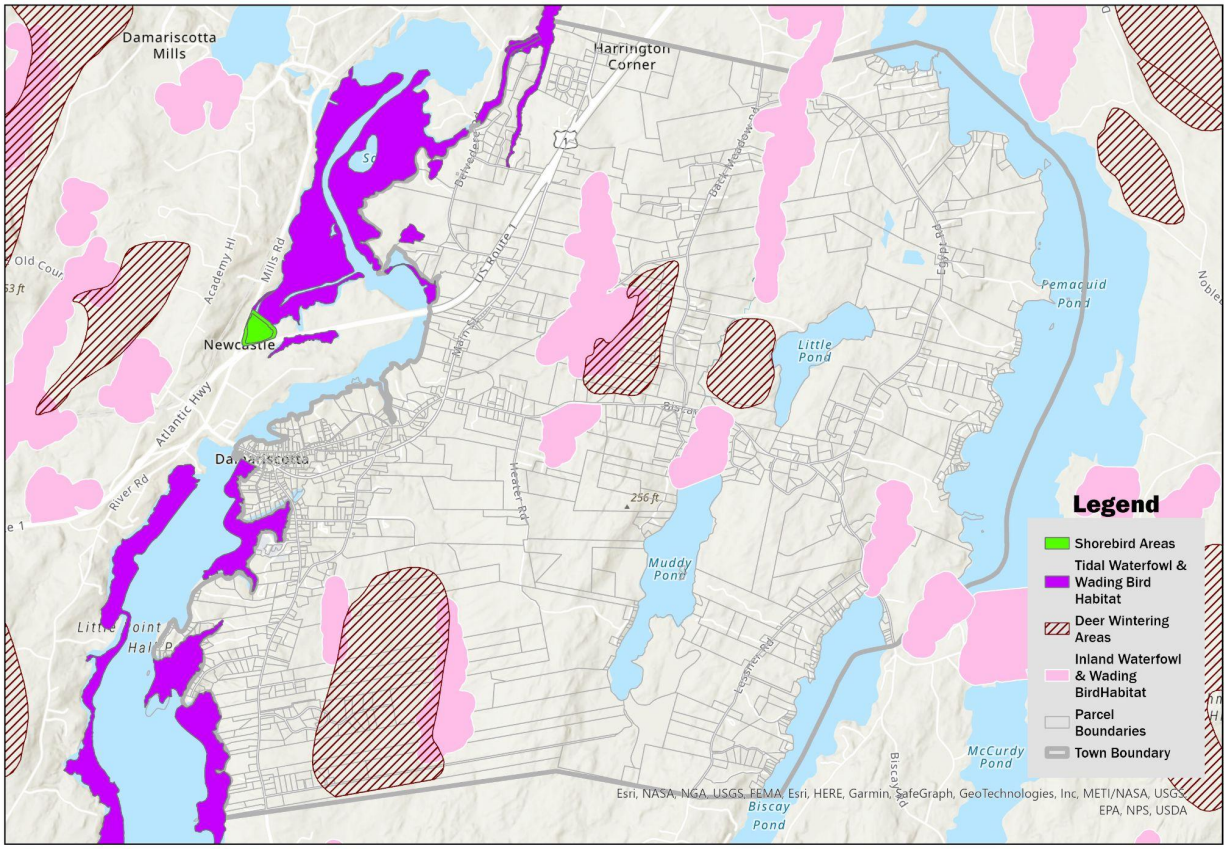
The watersheds around Muddy and Little Ponds, as well as Back Meadow Brook, are considered impaired due to development and pollution, meaning these ecosystems are vulnerable to degrading water quality. Physical structures, even docks and moorings, can block sunlight growth of wetland and saltmarsh vegetation. Shoreline development and subsequent habitat degradation is also a potential threat to the area's horseshoe crab population in Salt Bay.[15] Since shorebirds feed on horseshoe crabs, this could also mean the loss of multiple bird species.

Development near a wetland can degrade wildlife habitat by increasing disturbances to birds or making habitats unsuitable for use due to stormwater runoff and sediment pollution. Stormwater runoff can contaminate wetland habitats with road salt, pesticides, and other toxic substances that make them unsuitable for certain species. Without direct action to minimize stormwater runoff sources, pollution is likely to become more common as climate change leads to increased annual precipitation rates.

As referenced in the Marine Resources section of this Plan, the wetlands and mud flats around downtown Damariscotta are vulnerable to runoff pollution and disruption from human activity. The discharge of treated wastewater from the municipal parking lot area has led to the presence of fecal coliform in the Damariscotta River.[16] Given the close proximity of Salt Bay to downtown Damariscotta, and the presence of an additional wastewater discharge site located next to the Damariscotta Mills fish ladder in Nobleboro, the presence of human waste contamination is possible in Salt Bay, which would likely affect the health of fish migrating north to Damariscotta Lake and contaminate the exemplary saltmarsh ecosystems in Oyster Creek.

[13]Hannah McGhee,"Purchase of Castner Creek Community Forest Complete" (Coastal Rivers Conservation Trust, March 21, 2019), https://www.coastalrivers.org/castner-creek-community-forest/.
[14]"Salt Bay Farm & Nature Center," Coastal Rivers Conservation Trust, 2023, https://www.coastalrivers.org/great-salt-bay-farm/.
[15] "Focus Areas of Statewide Ecological Significance: Salt Bay," (Beginning With Habitat).
[16] Susanne K Meidel, "2018/2020/2022 Integrated Water Quality Monitoring and Assessment Report Appendices https://www.maine.gov/dep/water/monitoring/305b/2022/25-May-2022_2018-22_ME_IntegratedRpt-LIST.pdf.

Animal Habitats in the Region



Source: Maine Geolibrary/Maine Department of Inland Fisheries & Wildlife.

Threats to Species

No plant animal species listed as endangered or threatened have been documented within Damariscotta yet (per Beginning with Habitat data provided in 2022), although as referenced above, Bald Eagles nest along the Damariscotta River. Bald Eagles were considered an endangered species in Maine until 2009, and are still a species of concern protected by the federal Bald Eagle-Golden Eagle Act of 1963.[17] Any significant threats to the health of ecosystems in the Damariscotta River pose a risk to the health of the Town's Bald Eagle population as well.

A variety of invasive plant species have been documented in Damariscotta, including Asiatic Bittersweet, Japanese Barberry, Norway Maples, and Buckthorn (among others). Development and human activity provides ample opportunity to introduce new plants and animals to local ecosystems. Roadside erosion-control plantings, construction, and even vehicles traveling from outside areas can all inadvertently bring invasive species. Roadways also provide an avenue for animals to travel to new ecosystems they might not otherwise

[17] "Forest Management Recommendations for Bald Eagles," (Maine Department of Inland Fisheries & Wildlife).

have access to. Climate change may make the introduction of non-native species inevitable as migration patterns shift across the eastern United States.

Road collisions pose a threat to the population of local species, particularly amphibians, birds, and small mammals. Deer wintering areas are critical habitat for white-tailed deer living in Maine, as they provide refuge from harsh weather and deep snow but roads near wintering areas pose the highest risk of collisions that are fatal both to wildlife and to drivers.[18] Russell Lane (off of Bristol Road) partially cuts through the Town's largest deer wintering area, south of Castner Brook Community Forest. The other two known wintering areas, which are located just north of Biscay Road, are surrounded by roads on most sides, a hazard to both deer and drivers during migration periods that also threatens to isolate migrating deer from potential food and shelter.[19]

In addition to increasing fatalities to local wildlife, roads provide a consistent source of runoff pollution as stormwater carries off sediments, road salt, and heavy metals directly into adjacent ecosystems. Roads also fragment habitats by creating dangerous barriers for terrestrial animals. The increased danger, as well as noise and air pollution, can indirectly hamper the use of ecosystems near areas of frequent activity as wildlife search for more suitable locations.[20]

Erosion and Landslide Risk

Degradation of mud flats and wetland habitats (and more specifically, the loss of eelgrass in Salt Bay), which act as natural buffers to slow erosion, can increase the risk of landslides. In addition to threatening the integrity of shoreline structures, a large enough landslide threatens to damage nearby habitats and release large amounts of sediment and pollutants that can significantly impact water quality. In 2001, the Maine Geological Survey mapped out the erosion potential of shoreline along the Damariscotta River, finding land at risk of potential landslide south of Days Cove, along Cottage Point, and the coast off of Hog Island (in nearby Bremen).[21] Additionally, one stretch of coastal bluff near the southern border of town along the Damariscotta River was found to be highly unstable.[22]

While no shoreline was found at significant risk of erosion, that may have changed in the years since the last available study in 2001. Properties near the Damariscotta River, especially those built before the adoption of the Town's Shoreland Zoning Ordinance that were therefore exempt from its regulations of construction near waterways, are at increased risk of causing landslides.

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[18] "Living on the Edge: White-tailed Deer at the Northern Range Limit," (Maine Department of Inland Fisheries & Wildlife).
[19] "Living on the Edge: White-tailed Deer at the Northern Range Limit," (Maine Department of Inland Fisheries & Wildlife).
[20] "Conserving Wildlife On and Around Maine's Roads," a joint publication of Beginning with Habitat, Maine Audubon, and Maine Department of Transportation.
[21] Stephen M Dickson, *Coastal landslide hazards in the Damariscotta quadrangle,* Maine, Maine Geological Survey, Open-File Map 01-514, map, scale 1:24,000, 2001 https://digitalmaine.com/mgs_maps/266/
[22] Thomas et. al., *Coastal bluffs in the Damariscotta quadrangle, Maine,* Maine Geological Survey, Open-File Map 02-185, map, scale 1:24,000, 2002, https://digitalmaine.com/mgs_maps/513/

Note: At this point, this is simply a placeholder with my own notes/recommendations (+ the State's). We will discuss local policies, goals and strategies once we finalize the text in this chapter.

Overarching Policies

State Policies

1. To protect the State's other critical natural resources, including without limitation, wetlands, wildlife and fisheries habitat, sand dunes, shorelands, scenic vistas, and unique natural areas.

Local Policies

1. Identify and protect critical natural areas in the community.
2. Continue to coordinate with neighboring communities, Coastal Rivers Conservation Trust, and other regional and state agencies to protect shared natural resources.

SMART Strategies

- Work with willing landowners near areas such as Salt Bay and Oyster Creek to permanently protect undeveloped areas, such as through conservation easements or similar.
- Work with Coastal Rivers Conservation Trust to determine an inventory of possible rare species in Oyster Creek's salt marsh and act to conserve this land.
- Monitor for invasive plant and animal species, and stay updated on species migration trends in Maine as a response to climate change.
- Consider alternatives to wastewater outfalls that impair quality of shellfish beds and wetland habitats.
- Use available Beginning with Habitat mapping to steer development away from important habitats and any large blocks of undeveloped land.
- Identify locations on roadways, culverts, and bridges that can be restored or retrofitted with wildlife crossing structures to improve wildlife movement, such as the deer wintering regions along Biscay Road
- Use only native species for roadside plantings, erosion control, and slope stabilization. Plant maintenance-free native wildflowers and other plants along roadsides to prevent non-native plant species from invading.
- Consider deer wintering area mapping when planning future road constructions. Contact the local DEP office for all permitting information required.
- Incentivize timber harvesting landowners to sustain quality deer wintering habitat.
- Consider adoption of a pesticide/fertilizer ordinance to minimize runoff from farmland and yards

Agricultural + Forest Resources

Overview

Statewide, total agriculture output has been trending upward,[1] and is likely to continue to remain a priority after the State Climate Action Plan's call to triple the amount of locally produced food consumed in the state by 2030.[2] However, in Damariscotta, agriculture is hampered by competing interests. Some of the most suitable soils for farming are in zoning districts zoned for residential and commercial use. Furthermore, a significant amount of the most suitable farmland in Damariscotta lies within wetlands, bird habitats, and watersheds. In many of the prime agricultural spots, farming would be costly and threaten the fragmentation of protected habitats.

There are some limited efforts to conserve farmland in Damariscotta, such as the Maine Farmland Trust's work to permanently protect agricultural land in northern Damariscotta for Morning Dew Farm. But while Coastal Rivers Conservation Trust provides agricultural land for Twin Villages Foodbank Farm and preserves natural habitats and water bodies (and the Town works to regulate the same), there are no Town-wide policies or committees directly working to specifically support agriculture or timber harvesting.

Status and Trends

Agriculture

There are three known farms located within the boundaries of Damariscotta: Townley Farm, Oyster Creek Mushroom Farm, and Biscay Orchards.

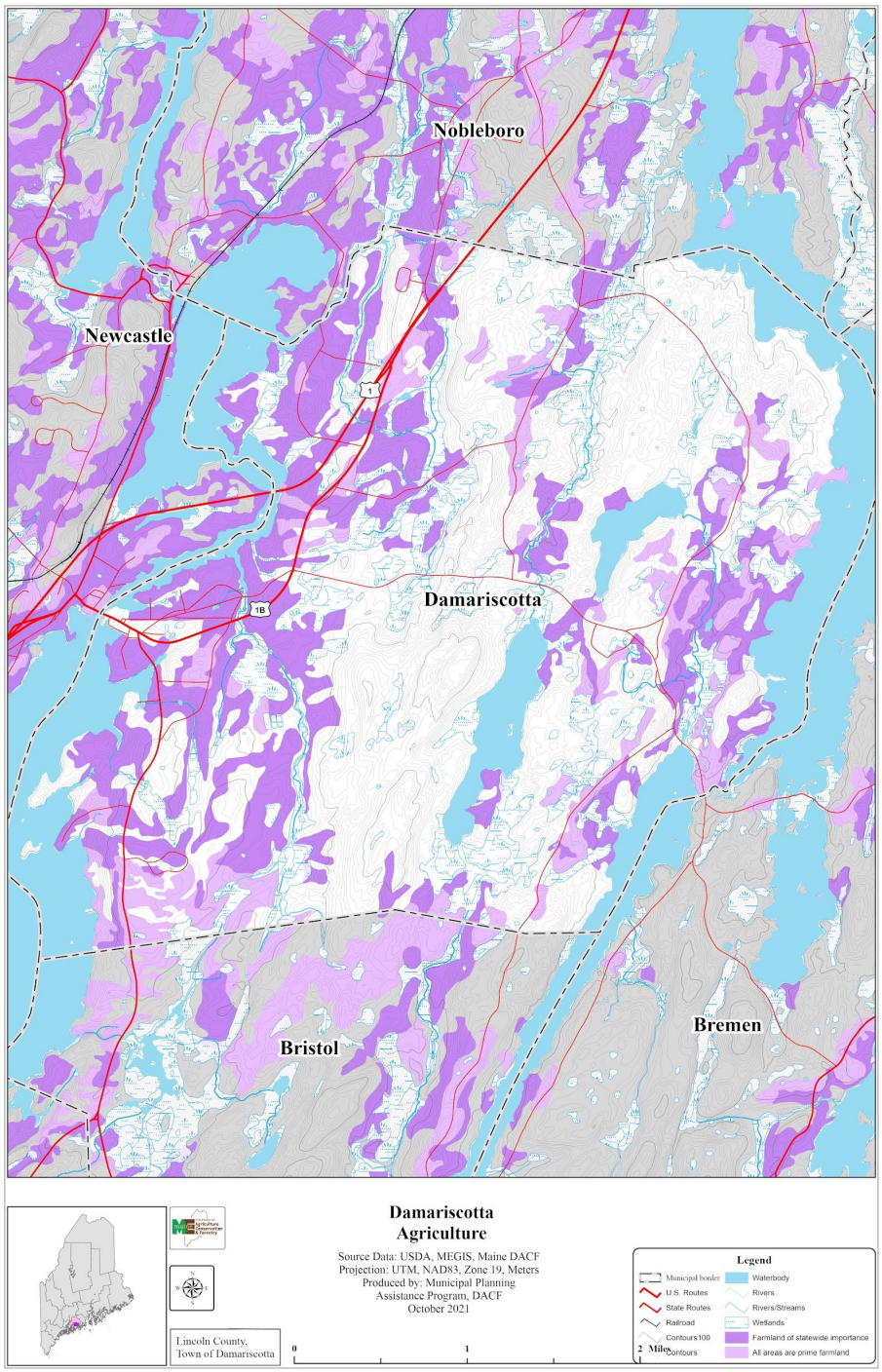
Name	Address	Map-Lot	Acreage	Utilizing Farmland Tax Use Exemption?
Townley Farm	21 Townley Dr	003-043-001	29	Yes
Oyster Creek Mushroom Farm	61 Standpipe Rd	004-009	5.3	No
Biscay Orchards	23 Reny Rd	002-030	150	No

[1] Megan Gray, "Maine's Agriculture Harvest Grew in Size Last Year, While National Production Fell," Press Herald (Portland Press Herald, January 17, 2023), https://www.pressherald.com/2023/01/17/maines-agriculture-harvest-grew-in-size-last-year-while-national-production-fell/.
[2] "Maine Won't Wait: A Four-Year Plan for Climate Action," Maine Governor's Office for Policy Innovation and the Future, (2020), https://www.maine.gov/future/sites/maine.gov.future/files/inline-files/MaineWontWait_December2020.pdf.

Damariscotta has a seasonal Farmer's Market that is held at Coastal Rivers' Round Top Farm, land that was once a dairy operation that has now been conserved by Coastal Rivers and is used for their office space and for events. In terms of community agriculture, there are a few raised beds built by Healthy County Lincoln on Main Street,[3] and a student garden at Coastal Rivers' Round Top Farm run by Great Salt Bay Community School staff. Over the past few decades, many of Damariscotta's farms have been sold or have been conserved for public recreation. The latter includes Great Salt Bay Farm (though Twin Villages Foodbank Farm continues to be based there).

Given the current layout of Damraiscotta's built environment, and the presence of significant wetland and water bodies and their policy protections, there is very little area in Damariscotta with prime arable soil where new farming operations would be desirable.[4] The largest block of undeveloped land, at 3,877 acres, lies between Muddy Pond and the Damariscotta River (as shown on the map below). The most arable land within this block coincides with roads, wetlands, and the town's largest deer wintering habitat.[5]

[3] "Giving Garden Emerges on Damariscotta's Main Street," The Lincoln County News, June 28, 2019, https://lcnme.com/announcements/giving-garden-emerges-on-damariscottas-main-street/.
[4] Amy Dowley, Beginning With Habitat, ed. Steve Walker, Beginning With Habitat (Maine Department of Inland Fisheries and Wildlife, 2023), https://webapps2.cgis-solutions.com/beginningwithhabitat/mapviewer/
[5] ibid.

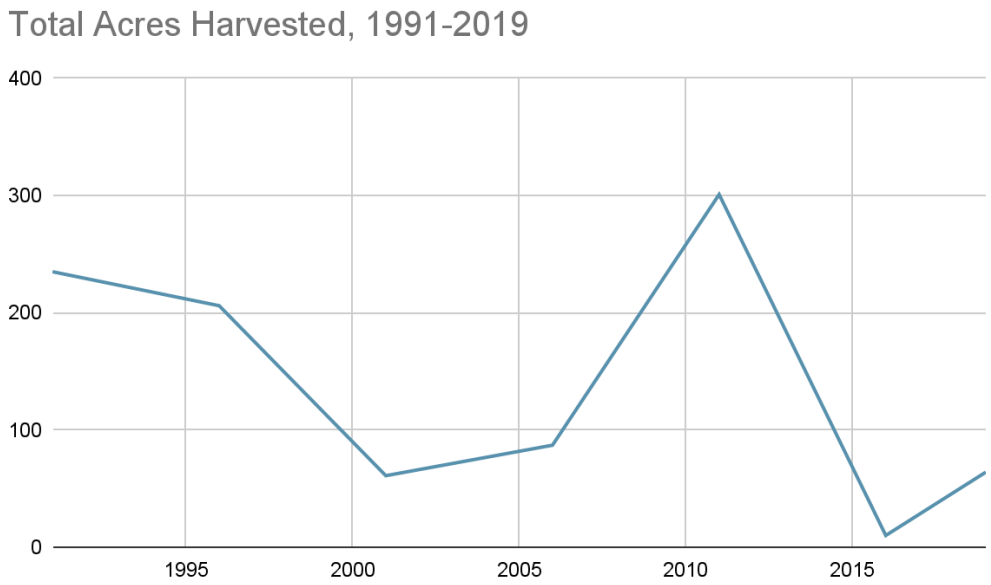


Prime farmland (the area shown in light purple on the map above) is land that is best suited to producing food, feed, forage, fiber and oilseed crops. It has the soil quality, growing season, and moisture supply needed to produce a sustained high yield of crops while using acceptable farming methods. The map above, produced by the Maine Department of Agriculture, Conservation and Forestry, shows the land most suitable for farming is along

Damariscotta's western border, running along the river and downtown districts, and the eastern border, on the shores of Pemaquid Pond. While the eastern block of prime farmland coincides with undeveloped land, they also run between significant wetland habitats.

Timber Harvesting & Forestry

Timber harvesting in Damariscotta has fluctuated greatly in the past thirty years, but has been steadily trending upward since reaching a thirty-year low of 10 acres harvested in 2016.[6] The most recently available data is for 2019, at 64 acres harvested. While the amount of wood harvested annually varies, a total of twenty landowners currently utilize the Tree Growth Tax Exemption Program.



Data compiled from Confidential Year End Landowner Reports to Maine Forest Service. Timber harvesting includes selection harvest and shelterwood harvesting. No acreage was permitted for clear-cutting in the timespan above.

There are two community forests in Damariscotta: Castner Creek Community Forest (where selective cutting and timber harvesting for wildlife purposes is managed by Coastal Rivers Conservation Trust) and Dodge Point Preserve (where the State of Maine harvests Red Pine at regular intervals). Additional analysis is required to determine if additional lands would benefit from forest management.

Threats to Farms and Forest Resources

Competing Interests

Residential and commercial sprawl threatens to disrupt current and potential agriculture and forest management areas. Most land east of Route 1 is currently in the Town's Rural Zoning District, the only zone where agriculture and timber harvesting is expressly

[6] Per data from the Town Assessor's Office.

permitted.[7] In the Rural zone, one- and two-family dwelling units are also expressly permitted, as well as a variety of commercial and industrial uses. Given that the 2014 Comprehensive Plan designated all areas outside of downtown Damariscotta as Growth Areas, residential and commercial sprawl has been occurring in these areas for the past 10 years.

Sprawl (both commercial sprawl up Route 1 but also residential sprawl into rural areas) is an issue in this case because viable farm and forestry operations need substantial uninterrupted acreage. The optimal size for small woodlot management can reach up to 200 acres, and even a small herd of cattle require between 50 and 100 acres for grazing. Even large, multi-acre residential lots can disrupt manageable farm or forestry units.[8] Farming and timber harvesting is a conditional use (subject to Planning Board review) within the two commercial districts in Town, but unlikely to actually occur in these areas for the reasons stated. Not only would new farming or tree growth operations hamper development in the faster growing areas of town, but any substantial residential and commercial development occurring would also make agricultural and forestry uses less feasible.

The Town's Solar Energy System Ordinance, adopted in 2021, limits the installation of ground-mounted solar energy systems exceeding 1-acre in panel area to the Rural and C-2 Zoning Districts.[9] Because the land most suitable for solar farms usually overlaps with prime agricultural land, future commercial solar developments may directly compete with farming interests for the most optimal land.[10]

As noted in the Water Resources section of this Plan, the Shoreland Zoning Ordinance regulates most uses that may contaminate waterways and wetlands. This includes agriculture, as farmland can contaminate nearby ecosystems with runoff fertilizers, pesticides, and tilled soils. Under the Ordinance, manure stockpiles, livestock grazing, and tillage is restricted within 100 feet of a great pond (or river flowing to a great pond) or within 75 feet of other water bodies, tributary streams, or wetlands. Any soil tillage of 40,000 square feet or more within Shoreland Zoning districts requires a conservation plan to ensure minimal contamination of waterways and wetlands.[11] Town policy that prioritizes protecting natural resources may be inadvertently creating obstacles to future farming operations.

[7] See the Town's Land Use Ordinance for more information.
[8] State Planning Office, *Comprehensive Planning: A Manual for Maine's Communities*, 2005. pp. 83-95.
[9] See the Town's Solar Energy Systems Ordinance.
[10] Kate Cough, "Maine's Prime Farmland Is Being Lost to Solar. Is 'Dual Use' the Answer?," The Maine Monitor, January 16, 2022, https://www.themainemonitor.org/maines-prime-farmland-is-being-lost-to-solar-is-dual-use-the-answer/.
[11] See the Town's Shoreland Zoning Ordinance.

Pollution and climate change

The prevalence of per-and polyfluoroalkyl substances (PFAS) in existing agricultural land and waterways is still being evaluated across Maine, but could pose a threat to Damariscotta's bodies of water. The State of Maine's decision to ban the use of treated sewage sludge as a fertilizer source in 2022 implies any farmland in Damariscotta could potentially have been contaminated with PFAS.[12] Additional study would be needed to confirm this potential threat.

Climate change threatens to disrupt the economic well-being of farms and timber harvesters across the state. As referenced in the Natural Resources chapter, there have been a variety of invasive plant species recorded within Damariscotta that could threaten the health of forests, including Asiatic Bittersweet (which has been shown to impact soil composition and forest vegetation), Multiflora Rose (which crowd out native species), and Japanese Barberry (which crowd out native species and reduces available food for white-tailed deer). In addition, wood-boring insects, such as the Emerald Ash Borer, could threaten the health of Damariscotta's woodland ecosystems if introduced.[13] Maine Forest Service quarantines prohibit the movement of material from areas where Emerald Ash Borer and similar species have been found to be present and regulate the movement of material across state lines, meaning introduction could affect timber harvesting sales in addition to the overall health of woodlands.

Efforts to Support Agriculture and Forestry

There are currently few direct efforts by the Town of Damariscotta to expand farming within the Town, which would be ranked as "Farm Ambivalent" on the Maine Farmland Trust's Farm Friendly Test.[14] The Maine Farmland Trust, in collaboration with Coastal Rivers' (then Damariscotta River Association), has worked to protect and preserve agriculture in Maine, and (as noted above) has worked to conserve a total of 135 acres in Damariscotta for permanent agriculture use.

The main incentive farmers and timber harvesters have in Damariscotta come from the State's Farmland and Tree Growth Tax Exemption programs. Farmers can reduce their tax burden by applying to the program, which requires only 5 contiguous acres of farmland that produce an annual gross income of at least $2,000 per year. The Tree Growth Tax Use Program requires a forest management and harvesting plan and requires at least 10 acres be used for commercial harvesting.[15] The parcel may be used for multiple uses, as long as

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[12]Tom Perkins, "Maine Bans Use of Sewage Sludge on Farms to Reduce Risk of PFAS Poisoning," The Guardian (Guardian News and Media, May 12, 2022), https://www.theguardian.com/environment/2022/may/12/maine-bans-sewage-sludge-fertilizer-farms-pfas-poisoning.

[13]"Emerald Ash Borer,"Maine Forest Service, (Maine Department of Agriculture, Conservation, and Forestry, 2021), https://www.maine.gov/dacf/mfs/forest_health/invasive_threats/eab/index.shtml

[14] https://www.mainefarmlandtrust.org/wp-content/uploads/2012/01/2014-Farm-friendly-test-FINALupdate915.pdf

[15]"Maine Land Use Program," Maine Revenue Services, (Department of Administrative and Financial Services, 2020) https://www.maine.gov/revenue/taxes/tax-relief-credits-programs/property-tax-relief-programs/land-use-programs

the parcel remains primarily used for the growth of trees used to produce forest products that have commercial value.[16]

Note: Currently Sarah Gladu and my own notes/recommendations. Will be discussed further after we finalize the text.

Overarching Policies

State goal: To safeguard the State's agricultural and forest resources from development which threatens those resources.

Suggested potential strategies

- Develop a community farm survey to gather information on what products are grown, what challenges farmers face, and why they operate in Damariscotta (perhaps worked on by an intern or volunteer committee)
- Work with Coastal Rivers Conservation Trust to identify opportunities for timber harvesting and farming or gardening on their conserved land in Damariscotta, especially on conserved open space that is identified as prime farmland
- Consider adjusting the Land Use Ordinance to create buffer zones to agricultural land and timber harvesting woodlots, similar to the Stream Protection District defined in the Shoreland Zoning Ordinance
- Consider adopting a "right to farm" provision within the Town's Land Use Ordinance expressly exempting farming operations from nuisance complaints as long as they are complying with applicable state and federal laws, rules and regulations.
- Promote more farmer's markets and community gardens
- Provide tax incentives or small grants to build community gardens in residential properties
- Revise solar use ordinance to allow zoning of dual-use on farmland
- Consider further incentives to encourage landowners to manage tree growth in areas with high ecological values (eg. deer wintering habitats, land near pond watersheds)
- Amend the Land Use Ordinance to expressly permit "accessory agricultural businesses" in the rural district (vet services, feed milling, etc.)
- Fund community gardens or work with a non-profit to establish more community agriculture spaces throughout the community
- Remove the Rural Zoning District from the Town's Growth Area

[16] "Maine Tree Growth Tax Law, Bulletin 19," Maine Revenue Services Property Tax Division, (Department of Administrative and Financial Services, December 19, 2022).
https://www.maine.gov/revenue/sites/maine.gov.revenue/files/inline-files/bull19.pdf

- Create a Small Farm Animal Keeping Ordinance to allow for the safekeeping of a small number of farm animals on residential lots in order to encourage small-scale agriculture in appropriate areas
- Find and evaluate means to limit (or incentivise the opposite) subdivisions of land that create many small properties to ensure large blocks can someday be used for farming, wildlife, forestry etc.

MAINE FARMLAND TRUST

IS YOUR TOWN FARM-FRIENDLY?

Take This Test!

Land Use Ordinances and Regulations

Does your town...

...have a detailed section on agriculture in your comprehensive plan?
☐ Yes ☒ No

Does your town's comprehensive plan refer to "maintaining rural character", but overlook agriculture as a primary component? Agriculture shouldn't be an afterthought! Make sure to include agriculture in the sections on economy, critical natural resources, and land use, too.

...allow agricultural uses in more than one zoning district?
☒ Yes ☐ No

Some towns confine agricultural businesses to the commercial zone only, while other towns prohibit such uses in the commercial zone! Farm enterprises are often hybrids of several different uses; ordinances and regulations should allow farm businesses flexibility to adapt to changing markets.

...allow flexibility in regulations to accommodate the unique needs of agricultural businesses?
☐ Yes ☒ No

Both the land use impact and the off-site impact of a seasonal farm business are much less than that of a full-time business. Do your town's regulations provide for reduced restrictions such as expanded hours of business operation, temporary signs, parking near pick-your-own fields, or on street parking? Pick-your-own strawberries or Christmas tree farm businesses may struggle in a town that treats farms like all other retailers.

...require buffer zones between farmland and residential uses?
☐ Yes ☒ No

The old saying "good fences make good neighbors" has a modern corollary that says "good buffer zones make new neighbors good neighbors." New development should not place the burden on existing farms to give up boundary land as a buffer zone between agricultural and residential uses. New residential development should provide for its own buffer zone and/or landscape plantings for screening neighboring farms.

....allow off-site signs to attract and direct farm stand customers?
☒ Yes ☐ No

Farm stands are often seasonal businesses that need to capture potential sales at harvest time. Signs that give directions to the farm stand and let customers know what's available (such as strawberries, corn, apples) are vitally important.

...provide for the agricultural use of open space land created by innovative residential subdivisions?
☐ Yes ☒ No

Some towns have adopted innovative subdivision regulations like cluster housing, which provide for setting aside open space land within the subdivision. Ideally, such land should be the most valuable agricultural land, be big enough for commercial agricultural purposes, and specifically allow long term agricultural use. Smaller plots of set aside land could accommodate community gardens.

...allow accessory uses to agriculture?
☒ Yes ☐ No

Remember, it's not just the farmland that makes farming possible: businesses related to agriculture (veterinarians, equipment and supply dealers, feed milling and delivery, etc.) have to be close enough to serve farmers' needs.

Adapted from "Is Your Town Farm Friendly - A Checklist for Sustaining Rural Character" presented by the New Hampshire Coalition for Sustaining Agriculture and UNH Cooperative Extension - http://cecf1.unh.edu/sustainable/farmfrnd.cfm

Fair Enforcement of Local Regulations

Does your town...

...have a consistent policy approach for local land use procedures that deal with agriculture?
☐ Yes ☒ No

Update your comprehensive plan to express what agriculture contributes to your town's economy and quality of life through open space, wildlife habitation, watershed purification and natural resource preservation. Make sure your select board, planning board, and code officer recognize the importance of farming and build their policies and practices around that presumption.

...have a good idea of how much agriculture there is in town?
☒ Yes ☐ No

Consider having a town committee conduct a farm inventory, survey or economic impact analysis. You may be surprised at the number and variety of farms in your community – and the impact they have on your local economy!

...allow roadside stands or pick-your-own operations by right?
☒ Yes ☐ No

Consider amending your zoning ordinance so that certain agricultural operations don't need a Special Exception or Variance – or even a permit!

...use zoning definitions such as "agricultural accessory uses" in a broad and inclusive manner?
☐ Yes ☒ No

"Agricultural accessory uses" refers to everything from machinery sheds to housing for seasonal workers. Various agricultural businesses have very different needs that can test the balance of rule and exceptions. Write flexibility into ordinances or regulations that may apply to agricultural land uses so the intent is clearly to promote such uses.

...allow farm stands to sell produce purchased elsewhere?
☒ Yes ☐ No

Some towns have rules that a certain percentage of farm stand produce must be grown on the farm. Such regulation may penalize farm operators who have a crop failure or wish to offer a broad range of products.

...properly assess specialized agricultural structures?
☐ Yes ☒ No

Specialized structures such as silos, milking parlors, and permanent greenhouses depreciate in value over time. Providing assessors with depreciation schedules may enable more accurate valuations, which can lead to lower assessments. Even small reductions in taxes can help farmers financially.

...allow non-traditional or retail-based farm businesses in an agricultural zoning district?
☒ Yes ☐ No

Agricultural businesses don't all look alike. Your town should recognize that newer types of farm businesses such as agri-tourism, horse arenas, landscape nurseries, or greenhouses are more intensive in land use, but still carry valuable elements of rural character that benefit the town.

...address agricultural structures in building and safety codes?
☒ Yes ☐ No

Building practices that are state of the art for a specialized use in agriculture may not fit the specifics of codes meant for housing or commercial structures, while bringing agricultural buildings that are historic structures up to code may destroy the very qualities that make them special.

Adapted from "Is Your Town Farm Friendly - A Checklist for Sustaining Rural Character" presented by the New Hampshire Coalition for Sustaining Agriculture and UNH Cooperative Extension - http://cecf1.unh.edu/sustainable/farmfrnd.cfm

Understanding and Encouraging Farming

Does your town....

...consider farmland a natural resource and encourage conservation easements and purchase of farmland?
☐ Yes ☒ No

Easements and outright purchases of farmland ensure preservation of the natural resource base for agriculture. Farmland costs less to taxpayers than land developed for residential uses, and protecting it will ensure it is available for future generations to farm.

...have any visible demonstration of the value of agriculture?
☐ Yes ☒ No

Does your town have a county fair, an apple festival, or an Old Home Day parade? Making agriculture visible to the general public helps establish the economic, cultural, and resource stewardship value of having active farms in a town.

...respect the state Agriculture Protection Act, which helps protect farmer's rights?
☐ Yes ☒ No

Local control is an important tradition for Maine towns. Conflicts between agriculture and other land uses can be reduced when town officials are informed about Best Management Practices (BMP's) that may alleviate nuisance complaints. The University of Maine's Cooperative Extension Service writes BMP's about various agricultural practices based on sound scientific research.

...encourage farmers to take advantage of the current use tax programs to help relieve their tax burdens?
☐ Yes ☒ No

By reducing the tax burden on agricultural land, towns can encourage the maintenance of open space at a relatively low cost. The Voluntary Municipal Farm Support Program is a new tool that towns can use to help further reduce the tax burden on farmers in exchange for keeping land in farming.

...have farmers serving on local planning, comprehensive plan, ordinance review boards, or conservation commissions?
☐ Yes ☒ No

There are few better ways to incorporate agricultural concerns into local land use ordinances and regulations than having farmers serve. Farmers can help your town¹s land use boards keep a broad perspective by asking "Have you thought of the consequences...?"

...have farmers serving on the local Economic Development Committee?
☐ Yes ☒ No

Agricultural businesses are frequently undervalued in terms of their effect on the community. Much of the economic activity generated by farms stays within the community. And the regional economic impacts of farming in Maine are growing each year!

...know where to go to get advice and assistance on farm questions?
☒ Yes ☐ No

Make the connection to resources such as:

- the Department of Agriculture, Conservation, and Forestry (industry regulator, statewide perspective)
- UMaine Cooperative Extension (technical questions, BMP's)
- Maine Farm Bureau (non-governmental farm lobby, broad experience); Natural Resource Conservation Service (land and water resource management)
- Maine Farmland Trust (farmland conservation, technical assistance).

For more information on any of these topics, or about farming in Maine, go to www.mainefarmlandtrust.org or call Maine Farmland Trust at (207) 338-6575.

Adapted from "Is Your Town Farm Friendly - A Checklist for Sustaining Rural Character" presented by the New Hampshire Coalition for Sustaining Agriculture and UNH Cooperative Extension - http://cecf1.unh.edu/sustainable/farmfrnd.cfm

MAINE FARMLAND TRUST

IS YOUR TOWN FARM-FRIENDLY?

Your Results... 9: Farm Ambivalent

FARM CHAMPIONS - If you answered YES on 17-21 questions, your town is especially helpful to farmers.

FARM SUPPORTERS - If you answered YES on 11-16 questions, your town knows that farmers are good neighbors who provide lots of benefits to the quality of life, but you may be able to take other steps to encourage them.

FARM AMBIVALENT - If you answered YES on 6-10 questions, your town may be less farm friendly than you think. It's time to get to work helping your fellow citizens understand the importance of protecting its agricultural base.

FARM UNFRIENDLY - If you answered YES on 5 or fewer questions, your town is not farm friendly, but there still may be hope. Seek help immediately from farmers, farm groups and organizations like a local land trust or Maine Farmland Trust.

Presented by Maine Farmland Trust – adapted from "Is Your Town Farm Friendly – A Checklist for Sustaining Rural Character" by the New Hampshire Coalition for Sustaining Agriculture and UNH Cooperative Extension.

Marine Resources

Overview

Damariscotta is located in midcoast Maine, twelve miles from the Atlantic Ocean at the head of the Pemaquid Peninsula. The village area is situated at the head of navigation on the eastern side of the Damariscotta River. The municipal boundary extends up the middle of the river and Salt Bay, the state's first marine protected area. Dubbed the "oyster capital of Maine," the Damariscotta River is a major source of shellfish, with some farms claiming the river alone provides 80% of the state's oyster population. The Damariscotta River estuary's unique ecosystem supports a variety of shellfish, including soft shell clams, quahogs, razor clams, blue mussels, American oysters, and European oysters. Clams and other shellfish have historically provided more income to Mainers than any other marine species, and fishermen and harvesters in Damariscotta, Newcastle and surrounding towns continue to rely on income from shellfish harvesting year-round. As a major source of seafood in a time where demand has only been growing, commercial and recreational harvesting of shellfish is expected to continue to trend upward.

The Town shares its portion of the Damariscotta River and Salt Bay with neighboring Newcastle. The two towns work collaboratively to maintain the health of the river and to promote sustainable harvesting of shellfish via their existing Harbor Ordinance and Shellfish Ordinance, respectively. Newcastle's Harbormaster oversees permits for moorings for both Damariscotta and Newcastle, and assists in the review of applications for floats, pilings, and wharves in the Inner Harbor of the Damariscotta River (from the western-most point of Lewis Point downstream to the southern-most edge of Walker's Point (Jack's Point) defined by a line across the Damariscotta River to the southernmost edge of Belknap's Point).

Shellfish Harvesting and Aquaculture

The Maine Department of Marine Resources (DMR) lists 38 aquaculture leases in the waters of the river shared by Damariscotta and Newcastle.[1] 14 of these operate solely in waters designated as within Damariscotta's municipal borders, with an additional 3 leases located in both Damariscotta and Newcastle waters. The Pemaquid Oyster Company is currently the only business in Town boundaries currently utilizing the working waterfront tax use exemption.[2]

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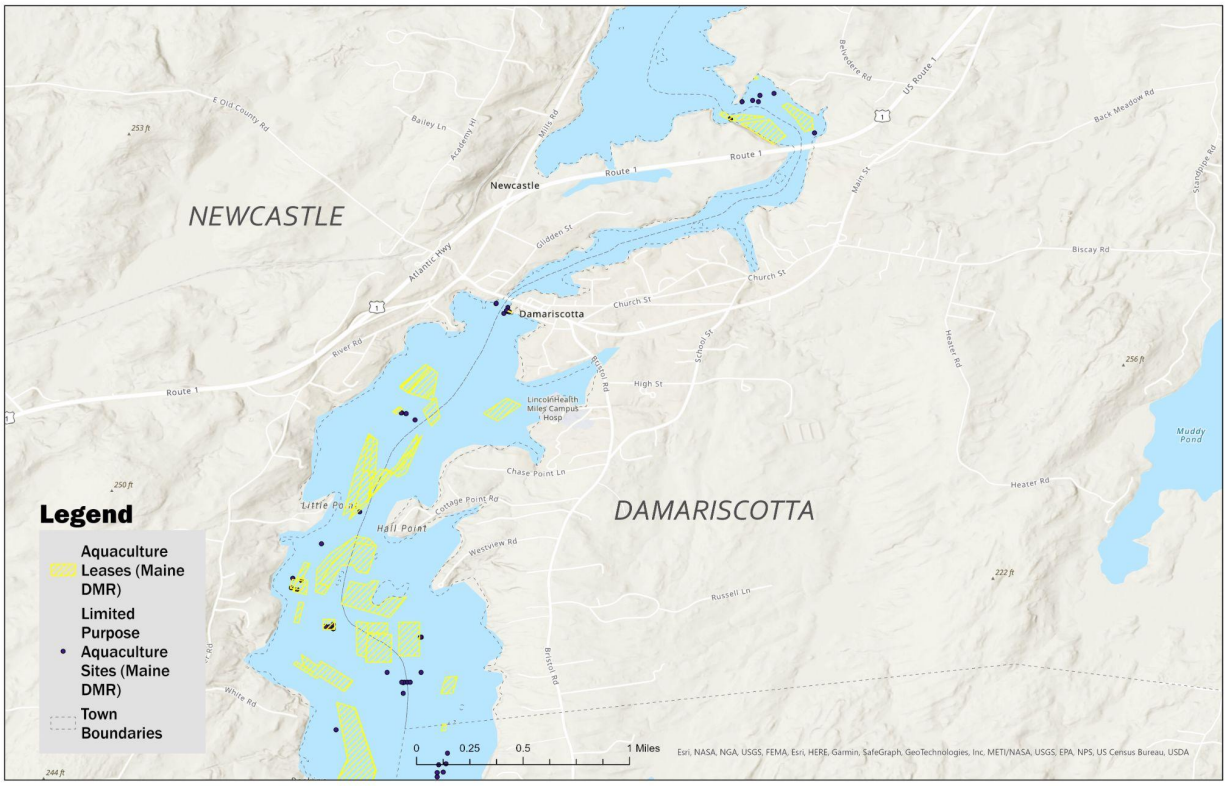
[1] William Devoe, MaineDMR Aquaculture - AQ Leases, MaineDMR Aquaculture - AQ Leases (Maine Department of Marine Resources, March 21, 2019), https://maine.hub.arcgis.com/datasets/a0b3c775cfc243a2b92df328ad85c642/explore?filters=eyJDSVRZIjpbIkRhbWFyaXNjb3R0YSJdfQ%3D%3D&location=44.013991%2C-69.514457%2C12.91.

[2] Damariscotta Working Waterfront Tax Use Properties, FY2023 (data courtesy of the Damariscotta Assessor's Office). This program was enacted to encourage the preservation of Maine's working waterfront and is intended to support commercial fishing activities. To qualify, a landowner must have a parcel of land abutting tidal waters and must use the land primarily (more than 50%) for commercial fishing activities.

Map of Aquaculture Leases (Damariscotta River and Salt Bay)



In terms of licenses to harvest shellfish, the Newcastle-Damariscotta Joint Shellfish Committee annually establishes the number of shellfish harvesting licenses to be issued (based on available information about the size distribution and abundance of these resources). Four different types of licenses are available: Commercial Shellfish License (for residents); Commercial Shellfish License (for non-residents); Recreational Shellfish License (for residents); and Recreational Shellfish License (for non-residents). Recreational licenses for both residents and non-residents are limited to the harvesting of no more than one peck per day from the shores and flats of either Newcastle or Damariscotta. The number of licenses issued annually must be approved by the Maine Department of Marine Resources (DMR).[3] As there is a limited number of licenses available and applicants frequently outnumber the amount of licenses available, the administering Town holds a lottery for licenses each year. For Commercial Licenses, those who received a license from the lottery in the previous year are eligible to apply for early renewal the next year.[4] The Towns' Joint Shellfish Committee also sets the fees for licenses, and annually establishes the

[3] For more information, see the Town's Shellfish Conservation Ordinance, available online here: https://www.damariscottame.com/home/pages/town-ordinances

[4] https://www.damariscottame.com/shellfish-committee

conservation measures required to be implemented by commercial harvesters in order for them to receive a license.

From 2018-2022, the breakdown of the number of licenses issued held steady at the following numbers:

- Commercial Resident License: 18 available
- Commercial Nonresident License: 14 available
- Recreational Resident License: 35 available
- Recreational Nonresident License: 10 available

In 2023, the approved number for Resident Licenses decreased from 18 Commercial Licenses to 16 and from 35 Recreational to 25. The number of Nonresident Licenses remained the same in both categories.

In addition, DMR (with input from local authorities and nearby landowners) offers Limited Purpose Aquaculture sites, shown on the above map. A Limited Purpose Aquaculture license permits the licensee up to 400 square feet of area for one calendar year for the culture of certain shellfish species and marine algae using certain types of gear. It is typically used as a tool for trying new areas or nursery sites or for hobby or small operations (so might indicate where farms will attempt to expand in the future).

Threats to Marine Resources

Shellfish

The shellfish beds around downtown Damariscotta are particularly vulnerable to disruption from consistent human activity, development, and dredging at moorings. Not only are mud flats vulnerable to the sediment and runoff pollution from development in and around the downtown area, but disturbances from people and boats drive away shorebirds who would otherwise feed on the shellfish species' major predators.[5] Traditional shellfish harvesting and shellfish aquaculture dominate Damariscotta's marine resource industry.

A 2019 study by the Darling Marine Center observed a rapid decline in shellfish populations such as softshell clams. The study interviewed local shellfish harvesters, all of whom noticed changes in the estuary and shellfish populations over the 20 years prior. The changes described included an increase in oyster populations (88% of respondents mentioned), and a decline in softshell clam populations (75% of respondents mentioned). Harvesters responded to these changes by switching harvest species (38%), harvesting less (frequency and catch, (25%), looking for licenses elsewhere (13%), and depending more on income from other work (13%).[6]

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[5] Maine Audubon, *Conserving Wildlife in Maine's Coastal Habitats*, (2006).
[6] Kara Pellowe and Heather Lesllie, *Current and Historical Trends in the Shellfish Resources of the Upper Damariscotta River Estuary* (University of Maine, December 20, 2019),

The 2019 study suggested continued monitoring of shellfish populations in the Damariscotta River estuary to ensure that robust information is available to inform license allocation and other local management decisions. Continued studies have been conducted by the Darling Marine Center each year since the initial 2019 study, with findings continually provided to the surrounding Towns.[7] This careful monitoring is crucial, as a crash in shellfish populations would devastate local commercial harvesters and impede water based recreation. Because oysters act as a natural filter for runoff sediments, overfishing could also negatively impact water quality. At the time of plan drafting, concerns such as these have led to a moratorium on new aquaculture leases in the nearby Town of South Bristol, and attempts to enact a moratorium in the Town of Waldoboro.[8] There is a critical need to continue to update and refine the Town's shellfish management program as new information becomes available regarding the rapidly changing conditions in the Damariscotta River estuary, as shellfish resources provide important jobs and significant income for the area.

Pollution Sources and Hazards

Wastewater from the public sewer provider, the Great Salt Bay Sanitary District, is discharged directly into the Damariscotta River near the municipal parking lot and in Salt Bay, near the Damariscotta Mills fish restoration ladder in neighboring Nobleboro. The Sanitary District treats wastewater in an aerated lagoon system before discharging, but fecal coliform is still present in the Damariscotta River, which can impair harvesting of the shellfish in the river. Occasionally, DMR must prohibit entirely the digging, taking or possession of any clams, quahogs, oysters, mussels, or whole or roe-on scallops taken from the shores, flats and waters of the Damariscotta River and Salt Bay because of pollution (nonpoint sources) or following a malfunction at the Great Salt Bay Sanitary District (point discharge).[9]

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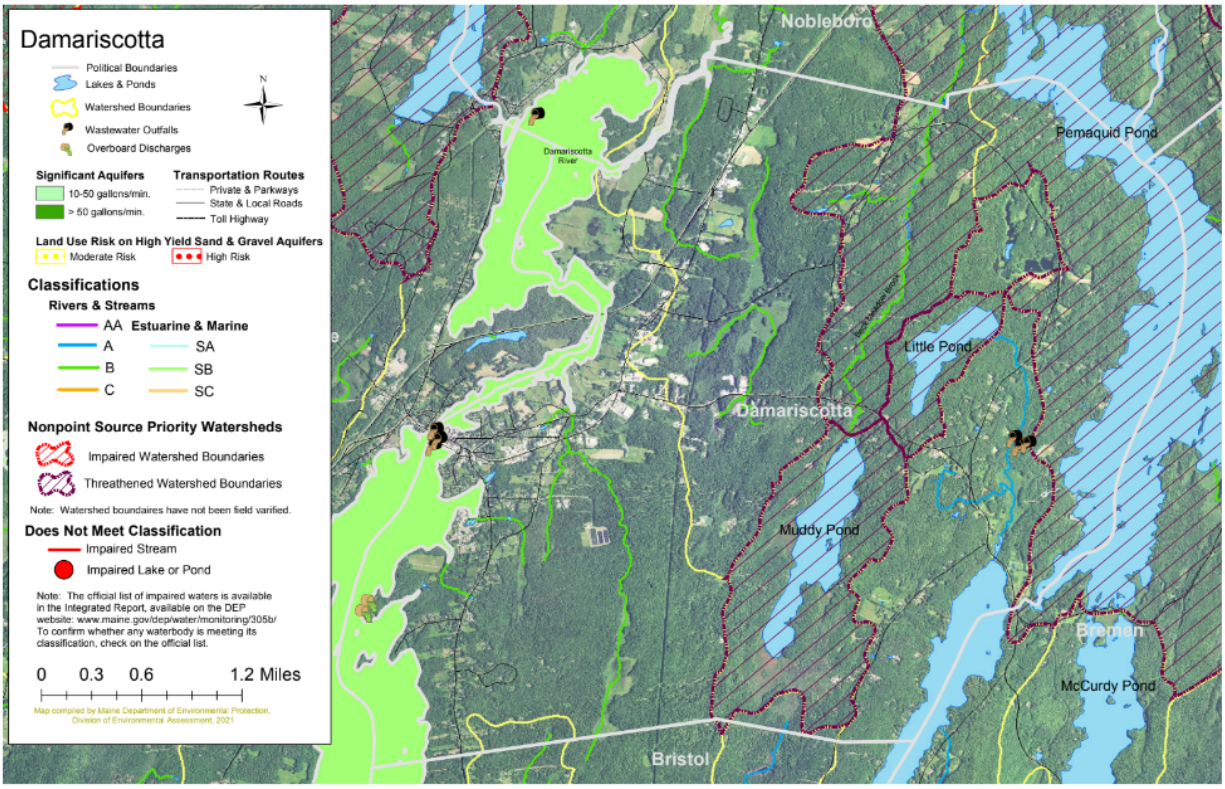
https://umaine.edu/leslie-lab/wp-content/uploads/sites/151/2020/01/2019-Final-Report_Damariscotta-Newcastle-Shellfish-Resilience-Project.pdf.

[7] Findings are available for public viewing on the Town's website here: https://www.damariscottame.com/shellfish-committee/pages/maine-shellfish-restoration-and-resilience-project-damariscottanewcastle

[8] Elizabeth Walztoni, "Waldoboro Residents to Consider Aquaculture Moratorium at Annual Town Meeting," The Lincoln County News, April 4, 2023, https://lcnme.com/currentnews/waldoboro-residents-to-consider-aquaculture-moratorium-at-annual-town-meeting/.

[9] Maine DMR, "Shellfish Harvesting Area Classification - Notification of Changes," September 14, 2023, https://www.maine.gov/dmr/sites/maine.gov.dmr/files/closures/WQ.pdf (accessed November 27, 2023).



Map compiled by Maine Department of Environmental Protection, Division of Environmental Assessment (2021)

As referenced in the Water Resources section of this Plan, the State of Maine's decision to ban the use of treated sewage sludge as a fertilizer source in 2022 implies that any waste from sewage treatment systems could potentially have been a point-source of PFAS.[10] Continuing to discharge human waste in the Damariscotta river runs the risk of impairing shellfish harvesting with "forever chemicals." Additional research is needed regarding the potential significance of this threat and, if found to be an issue, how to treat wastewater more effectively going forward.

Invasive Species & Bacteria

One example of an invasive (non-native) species is the green crab, which arrived in the eastern U.S. in the mid-1800s via ballast water from vessels from Europe and significantly impacts soft-shell clams. A more recent introduction to the Damariscotta River in 2010, MSX (oyster disease) poses a threat to the aquaculture industry in the region.[11]

Maine DMR is tasked with protecting the public from bacteria typically found in shellfish, namely vibrios. Vibrios are naturally occurring bacteria that can be found in marine waters.

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[10] Tom Perkins, "Maine Bans Use of Sewage Sludge on Farms to Reduce Risk of PFAS Poisoning," The Guardian (Guardian News and Media, May 12, 2022), https://www.theguardian.com/environment/2022/may/12/maine-bans-sewage-sludge-fertilizer-farms-pfas-poisoning.

[11] https://www.maine.gov/dmr/science/species-information/invasives

Several species of Vibrio are pathogens and can cause illness in humans. Illnesses from Vibrio infections are often associated with the consumption of raw or undercooked seafood, including oysters and other shellfish. Several factors can affect the growth of Vibrio, with temperature having the largest impact. Because of this, DMR has special regulations in effect in specific areas that reduce the risk of Vibrio infections caused by the consumption of oysters or hard clams. These regulations are in effect from June 1st to October 15th (the warmest months of the year) and impact the Damariscotta River north of Montgomery Point in Boothbay (including Damariscotta and Newcastle).[12]

Public Access & Sea-Level Rise

Shorefront properties that have long provided overland access to the shore (for clamming or marine worm digging) on a handshake deal or an existing understanding are disappearing. When these homes are sold to new owners who have no relationship or understanding of what that access means to the locals and their economy, frequently long-standing access points are lost. The Town Landing, in the municipal parking lot, is Damariscotta's only public access on the river for both recreational and commercial motorized boats. Competing interests between recreational and commercial access at this facility were documented during the planning process. For the Town, this means increased use and competition among users at the limited public facility. This facility also lacks infrastructure that fishermen would typically need, including commercial hoists, forklifts, and areas to load or maneuver trucks (though these facilities are available at commercial docks along the river outside of Damariscotta).

In addition, the landing and surrounding parking areas frequently flood during significant rain events, which impairs the safety of recreational and commercial boats using it, inhibits access, and threatens to damage any structures nearby.[13] Additionally, the municipal parking lot being right on the water ensures it is a consistent source of nonpoint pollution as storm and flood waters wash away sediment, road salt, and any other contaminants on the pavement.

Climate change promises to worsen the threats that storms and flooding already pose to the Town's only public access to the Damariscotta River. The increasing frequency and intensity of severe storms will make the embarkment and disembarkment inaccessible more often, and threatens to significantly damage float infrastructure. In the long-term, the low-lying municipal parking lot could remain underwater for hours of the day as sea level rise increases the average high tides for coastal and inland systems.

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[12] Maine Department of Marine Resources, Chapter 115: *Vibrio parahaemolyticus CONTROL PLAN*, April 26, 2022, https://www.maine.gov/dmr/sites/maine.gov.dmr/files/inline-files/Chapter115_04262022.pdf

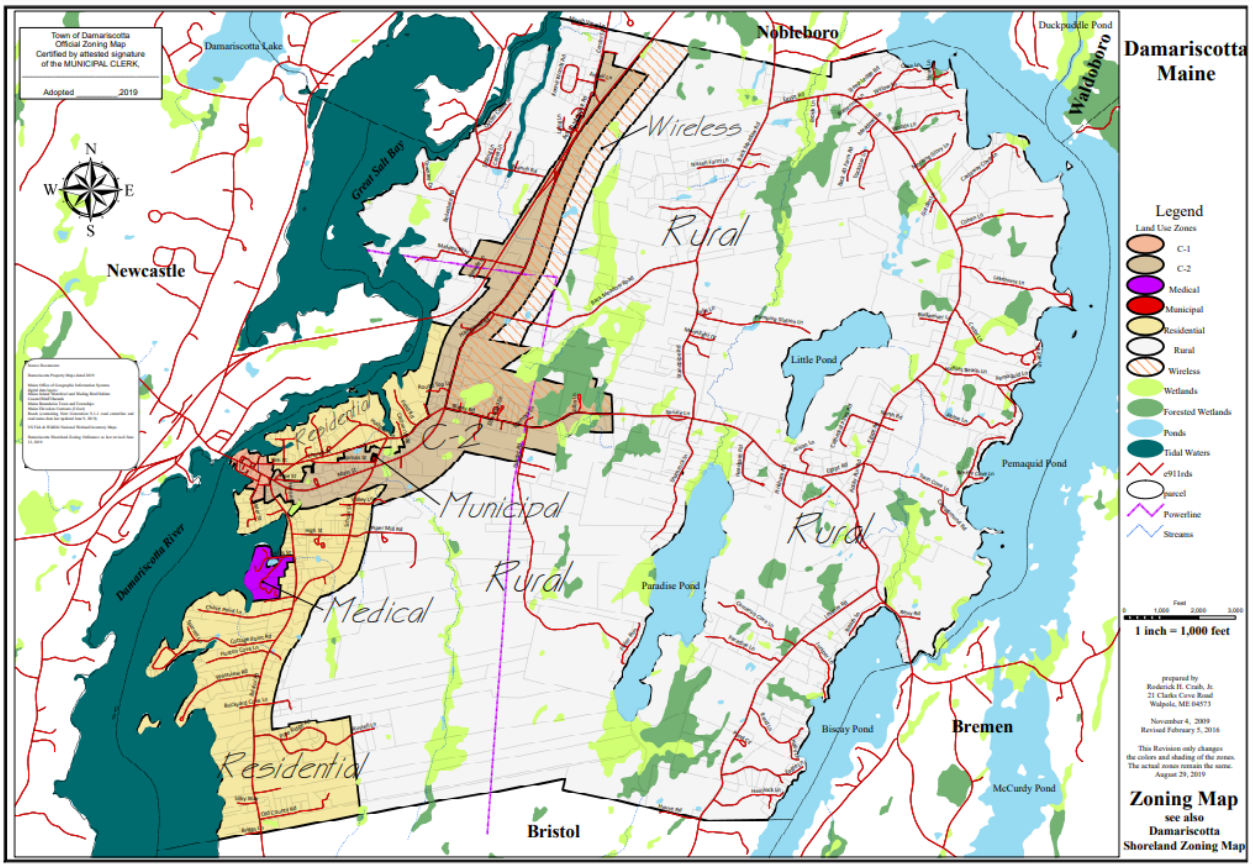
[13] Jessica Picard, "Damariscotta Parking Lot Floods for Second Time in Two Months," The Lincoln County News, March 6, 2018, https://lcnme.com/currentnews/damariscotta-parking-lot-floods-second-time-two-months/.

More frequent inland flooding also increases the rate of erosion and the risk of landslides along vulnerable spots of the riverbank, especially shoreline properties that were built without the impacts of climate change in mind. This is described in further detail in the Natural Resources chapter of this Plan.

Local Zoning & Land Uses

Overview of Local Zoning

The majority of properties abutting the Damariscotta River or Salt Bay are either in the Town's Rural Zoning District (for properties located north of Route 1) or in the Residential Zoning District (for properties south of Route 1). A limited number of properties directly abutting the Damariscotta River are in either the C-1 or Medical Zoning Districts, as shown below on the Town's existing zoning map (in effect at the time of plan drafting).



The stated purpose of the Rural Zoning District is to "allow for a diversity of uses, while still maintaining the essential rural character of this area." The stated purpose of the Residential Zoning District is "to preserve the physical, aesthetic, and social quality of Damariscotta's developed residential areas and to provide for areas within the Town for residential growth." The C-1 (Downtown) Zoning District was created in order to "provide general retail sales, service, and business space within the Town of Damariscotta in locations capable of

conveniently servicing community-wide and/or regional trade areas."[14] The Medical District lacks a stated purpose but is generally the area that houses the Lincoln Health campus.

Regulations in these zones prohibit many "working waterfront" or harbor-related uses, which may have led to an increase in residential development located on prime tidal water frontage. Land uses typically associated with "working waterfront" include (but are not limited to) commercial and recreational fishing and boating facilities (excluding recreational boat storage buildings), finfish and shellfish processing, fish storage and retail and wholesale fish marketing facilities, waterfront dock and port facilities, shipyards and boat building facilities, marinas, and the like. "Outdoor recreational facilities associated with boating and kayaking classes and rentals" (as defined in the Land Use Ordinance) are allowed, with prior conditional use approval by the Planning Board, in the C-2 and Rural Zoning Districts. Boat building facilities are similarly allowed, with prior approval by the Planning Board, in the C-2 Zoning District. Retail fish markets may be allowed with conditional use approval by the Planning Board under the definition of retail store in the C-2 Zoning District. Marinas, finfish or shellfish processing areas, commercial fishing or boating facilities, and the like are not allowed anywhere in the community.

Protective Measures

The Town has adopted policies intended to prevent degradation of Damariscotta's water bodies and their workable ecosystems. This includes the Town's Site Plan Review Ordinance, which requires an erosion and sediment control plan, a stormwater management plan, and a report on the phosphorus impact of any new construction or alteration (if located within the watershed of a great pond, as defined in Title 38 M.R.S.A. §436-A).[15] Damariscotta has also implemented a Shoreland Zoning Ordinance which establishes land within 75 feet of a normal high water line of a stream as a Stream Protection District and land within 250 feet of coastal or freshwater wetlands as a Resource Protection District.[16] This Ordinance regulates all new construction or alterations within this buffer zone, and expressly prohibits any new construction within 25 feet of a water body or wetland.[17] See the Protective Measures section in the Water Resources chapter for additional detail.

Damariscotta and neighboring Newcastle have formed a joint Shellfish Conservation Committee and developed a Shellfish Conservation Ordinance to protect the health of their shared mudflats from overfishing by shellfish harvesters. The Committee and Harbormaster work with the Darling Marine Center and Coastal Rivers Conservation Trust to evaluate the health of shellfish habitats to plan conservation measures. The Darling Marine Center provides intensive research on the ecological trends of the Damariscotta River and Salt Bay.

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[14] Purposes of each Zoning District from the Town of Damariscotta Land Use Ordinance, Sec. 101.5.A.
[15] See the Town's Site Plan Review Ordinance.
[16] See the Town's adopted Shoreland Zoning Ordinance.
[17] See the Town's Shoreland Zoning Ordinance.

They also train volunteers for Coastal River's Tidewatch Program, which monitors dissolved oxygen, salinity, total nitrogen, transparency and temperature of the bay and river estuary.

Both towns have also adopted an interlocal Harbor Management Ordinance to ensure public safety and balance commercial, recreational, and natural interests on the Damariscotta River.[18] It establishes the 5 harbor districts, and forms a committee of members from both towns to work with the shared Harbormaster to designate mooring districts, anchorage areas, and public boat launch areas for both communities. The Harbormaster also handles applications for commercial and recreational moorings, and regulates unattended or illegal floats.

The Harbor Ordinance divides the waters shared between Damariscotta and Newcastle into five districts:

- Inner Harbor, on the Damariscotta river from the western-most point of Lewis Point downstream to the Southernmost edge of Walker's Point, defined by a line across the Damariscotta River to the southernmost edge of Belknap's Point.
- Lower Harbor, on the river from the southern boundary of Inner Harbor downstream to a line connecting the southernmost points of the two town's boundaries.
- Upper Harbor, on the Damariscotta River from the western-most point of Lewis Point upstream into Salt Bay to the Marine Protected Area.
- Great Salt Bay, on the water body beginning at the southerly boundary of the Marine Protected Area northerly to the Newcastle Town line.
- Sheepscot River, the body of water within the corporate limits of Newcastle that includes the Sheepscot River and its tidal tributaries, including the tidal portion of the Marsh River.

District 1, the Inner Harbor area, is considered a special boater and public safety area, and requires an application to the applicable Selectboard for use. Floating commercial wharves are permitted by application to Harbormaster. Marina owners are required to provide parking spaces for moorings in accordance with the applicable Town's Ordinances. Water skiing and tubing is prohibited in the Inner Harbor, and the Harbor Management Ordinance formally prohibits abandoning water or fishing craft, as well as the discharge of fuel, sewage, or trash from motorcraft into the river. These provisions are strictly enforced by the Harbormaster.

Damariscotta also has a Town Landing Ordinance to ensure safe and timely operation of the town boat landing area.[19] It sets a time limit that watercraft are allowed to tie up to the public float before entering or exiting the water. Only skiffs 12 feet long or less may be stored on the landing, on the inner southerly facing area, and only for up to 2 hours. There

[18] See the Town's Harbor Ordinance.
[19] See the Town's Town Landing Ordinance.

are fees and penalties for misusing the floats. Swimming and recreational fishing is allowed at Town landing.

Scenic Views

In 2019 and 2020, the Town's Land Use Advisory Committee compiled a list of scenic views in the Town of Damariscotta, as well as the threats posed to them. Listed below are the scenic views located on the Damariscotta River. For the full inventory of scenic views, please refer to the Natural Resources section of this Plan. The most common threats to scenic marine views come from increased development pressure as well as impacts from climate change.

Scenic View	Description of view	Nearest access point	Threats to scenic view
Days Cove	View to mud flats and river	Route 129 at Days Cove	None
Salt Bay	View of fields and Salt Bay	Hard clam bed (Salt Bay)	Mid- and far-view building development
Misery Gulch	Looking across Misery Gulch to the back of the parking lot. The wreck of The Candage shows at low tide.	Schooner Landing parking lot	Climate change and associated storm surge events
Back view of Damariscotta	View of town from The River Tripper cruise	Damariscotta River	Climate change and associated storm surge events, increased development
Damariscotta River	Tombolo landform, horseshoe crab spawning ground	Huston Landing Preserve	Climate change
River and Lewis Point	Looking up the river toward Lewis Point	Parking lot behind Damariscotta Pottery	Condo development
Mook Sea Farm	Oyster Farming on the River	Damariscotta River from River Tripper	Additional aquaculture, loss of habitat due to climate change
Whaleback Midden	Damariscotta River	Johnny Orr Rapids looking south	None

The Planning Board is required to find, during its review of Site Plan or Subdivision applications, that the proposed project will not have an undue effect on rare or irreplaceable natural or scenic areas.[20] In making this determination, the Planning Board has the authority to limit the extent of tree-clearing and minimize the view of development from adjacent roads. Outside of this requirement, there are limited protections for these identified scenic resources. Opportunities for further protection are discussed in the Opportunities section, below.

Opportunities

This section describes a number of opportunities to address threats indicated above.

First, in order to further protect scenic areas, the existing protections within the Site Plan Review Ordinance could be strengthened by delineating the extent of scenic resources on the Town's Zoning Map, and specifically not allowing development within these limited, high-value areas. This would be comparable to the way that neighboring Newcastle regulates their scenic areas.

If the desire of the Town is to return to a working waterfront or shipbuilding community (as Damariscotta was historically known as), creative solutions will be required. These could include the utilization of the Small Harbor Improvement Program through the Maine Department of Transportation (which assists municipalities with improving or creating facilities, such as public wharves, piers, landings, and boat ramps) or the Boating Facility Grant Program through the Maine Department of Agriculture, Conservation and Forestry (primarily reserved to assist towns, cities and other public and private agencies in the acquisition, development and maintenance of public boating facilities for recreational use).

Marine invasives, such as those described in the Invasive Species subsection above, can be spread by ocean currents, but more likely they are spread through importation (when species are shipped in holding tanks on ships). Thus, perhaps the best way to control their spread is through prevention efforts, such as eating locally and limiting importation or requiring inspections of imported species, monitoring of the health and number of oysters or other shellfish, and continued education of the public on removing potential invasives from boats when being moved between water bodies.

The Town does not currently have a local harbor or bay management plan or a plan to identify and eliminate pollution sources. However, given the identified conflicts between recreational and commercial uses, the continued concern around overharvesting of shellfish, and the desire to protect the unique natural resources surrounding the Damariscotta River and Salt Bay, a bay management plan that further explores these areas

[20] See Sec. 102.6 of the Site Plan Review Ordinance and Sec. 103.6 of the Subdivision Ordinance.

may be necessary. The bay management plan would inventory existing physical features, natural habitats, uses, access points, and moorings and would suggest goals and objectives to better balance shared uses and eliminate pollution sources (this could potentially include suggested updates to the Harbor Management Ordinance).

Note: at this point these are just my own (and Sarah's) notes/recommendations. We will refine goals, policies and strategies further once we agree on final text for this section

Overarching policies

State goal: To protect the State's marine resources industry, ports and harbors from incompatible development and to promote access to the shore for commercial fishermen and the public.

Suggested strategies:

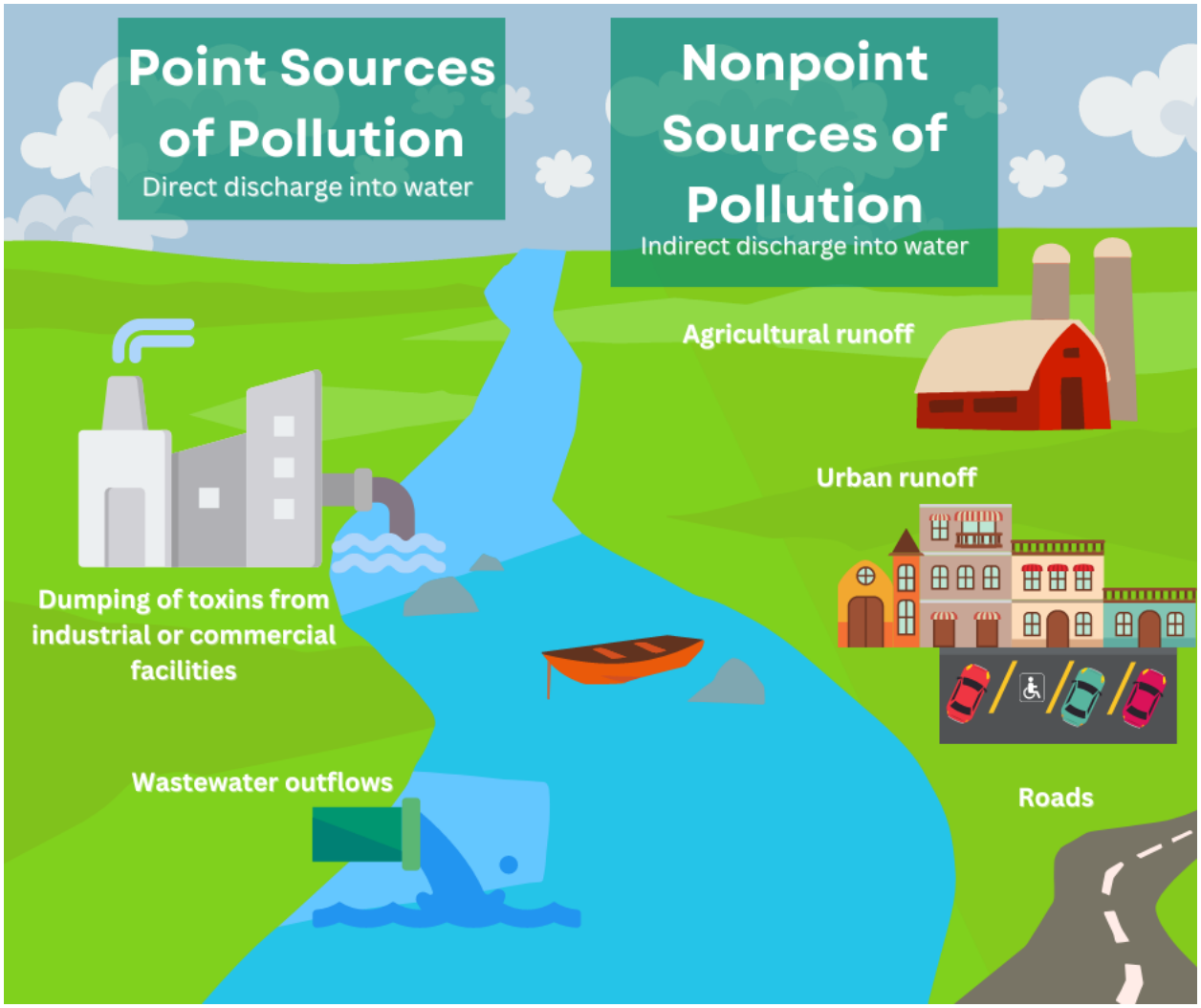
- Work closely with the Darling Marine Center to research reasons for shellfish population declines and continually monitor populations
- Work with Coastal Rivers Conservation Trust to develop a monitoring program for shellfish counts in mud flats
- Incorporate high astronomical tide projections into shoreland zoning to ensure structure build on riverbed aren't vulnerable to landslides
- Interview local shellfish harvesters to determine how to incentivize natural resource harvesters to operate within Town boundaries
- Work with Great Salt Bay Sanitary District to try to develop a plan to deal with the human waste currently being dumped in the Damariscotta River

Water Resources

Overview

In Damariscotta, water is the character defining feature of the community. The Town is bounded on two sides by water: the tidal Damariscotta River and Salt Bay to the west, and Pemaquid and Biscay Ponds to the east. The Town is located just twelve miles from the ocean at the head of the Pemaquid Peninsula. Wholly within the boundary of Damariscotta are Little Pond and Paradise (or Muddy) Pond, and just north of the Town (in neighboring Nobleboro) is Damariscotta Lake. In addition to serving as habitats for a variety of plant and animal species, the Town's waterways are used for a variety of economic and recreational activities (described in greater detail in the Marine Resources and Recreation sections of this Plan).

The Little Pond watershed acts as the primary source of drinking water for the Town of Damariscotta, and is managed by the Great Salt Bay Sanitary District. The Sanitary District disinfects the water taken from Little Pond using an ultraviolet light system, but has received a waiver from filtration requirements due to the pond's high water quality, leaving it otherwise untreated. In order to receive the waiver, the District demonstrated that water from Little Pond has low turbidity and coliform counts, and that potential sources of contamination are managed to minimize risk. The Town and District work together to establish policy and management practices to prevent contamination of Little Pond from point and nonpoint pollution sources to maintain current drinking water quality.

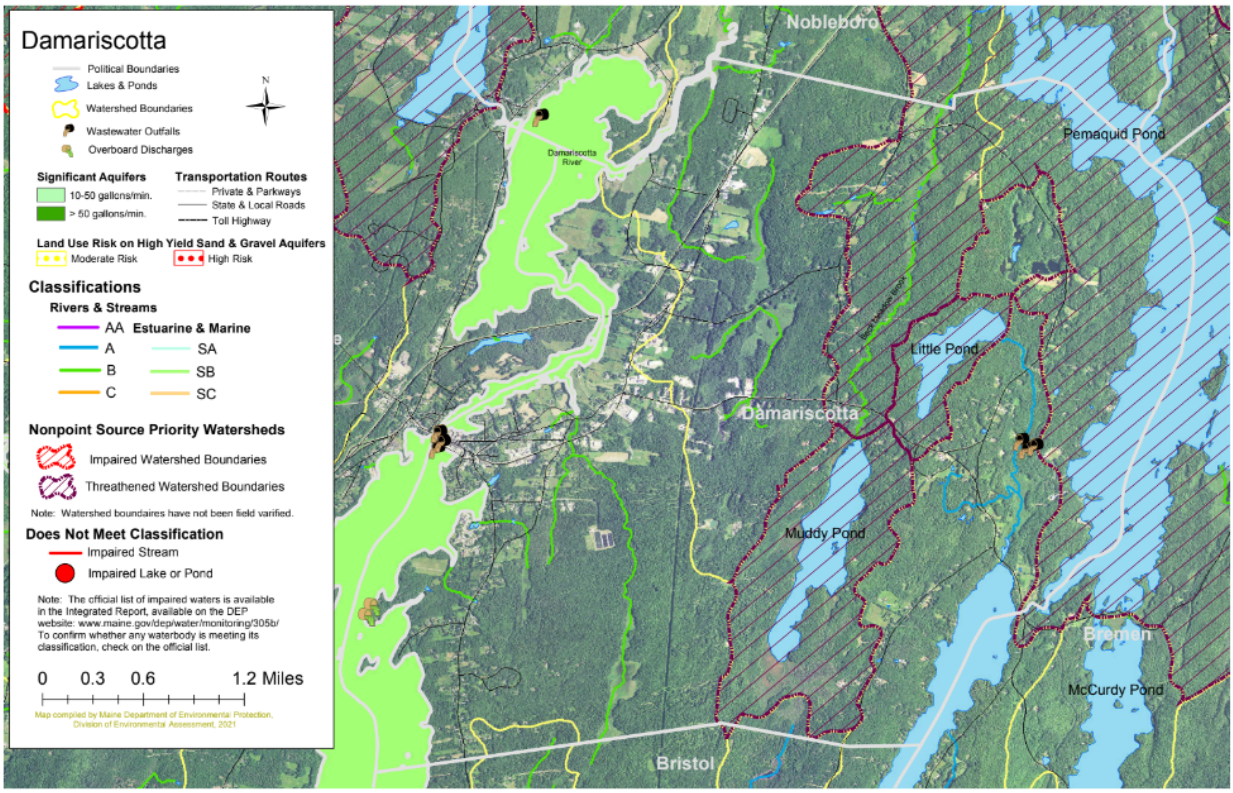


The Town minimizes contamination of watersheds through the Shoreland Zoning Ordinance, which regulates new construction and commercial use of land surrounding all bodies of water in town, in accordance with the State's Chapter 1000 standards. In addition, the Town's Site Plan Review Ordinance requires the Planning Board to evaluate plans to minimize erosion of soil and includes standards for stormwater management on all sites within the community where new development is proposed. Developers are required to evaluate the impact of phosphorus runoff by any proposed operation in cases where this would be a concern.

Major Bodies of Water

The Damariscotta River bisects the downtowns of Damariscotta and neighboring Newcastle. Running from the river is Oyster Creek, which contains shellfish habitats and a saltmarsh classified as an "exemplary natural community" by the Maine Department of Inland Fisheries and Wildlife (IF&W). All four ponds located within Damariscotta support

aquatic life, and brook trout stocks in Little Pond are replenished by the IF&W. Muddy Pond is home to wetland habitats, as is its main tributary Back Meadow Brook.



Source: Maine Department of Environmental Protection (2021)

Groundwater

Groundwater is water existing within the pore spaces of subsurface geologic material (e.g., saturated soil). An aquifer is a water-bearing geologic formation capable of yielding a usable amount of groundwater to a well. In Maine there are two types of aquifers; loose soil materials (such as sand, gravel, and other sediments) and fractured bedrock. A sand and gravel deposit is considered a *significant aquifer* when a well in that deposit is capable of being continuously pumped at a rate of 10 gallons per minute (gpm) or more. There are no significant aquifers, so defined, mapped in Damariscotta.[1]

Surface Waters

Surface waters are bodies of water located on top of the land, forming oceans, rivers, ponds, lakes, or streams. The State has four classes for freshwater rivers and streams (AA, A, B, C), three classes for marine and estuarine waters (SA, SB, SC), and one class for lakes and ponds (GPA). Water body classification should be viewed as a hierarchy of risk, more than one of use or quality (the major risk being the possibility of a breakdown of the ecosystem and loss of use due to either natural or human-caused events). Classes AA, GPA and SA waters involve little risk since activities such as waste discharge and impoundment are expressly prohibited. Class A waters allow impoundments and very restricted

[1] https://www.maine.gov/dacf/mgs/explore/water/facts/aquifer.htm

discharges, so the risk of degradation, while quite small, does increase since there is some small human intervention in the maintenance of the ecosystem. Classes B and SB have fewer restrictions on activities but still maintain high water quality criteria. Finally, Classes C and SC have the least restrictions on use and the lowest (but not low) water quality criteria. Classes C and SC waters are still of good quality, but the margin for error before significant degradation might occur in these waters in the event of an additional environmental or human-made stress being introduced (such as a spill or a drought) is the smallest.[2]

Ponds[3]	**Ecological[4] Value**	**Water Body Classification**	**Watershed threatened or impaired**	**Threats to water quality**	**Documented threats or invasive species**
Little Pond	Coldwater fishery Pemaquid river watershed Department of Fisheries and Wildlife Brook Trout replenishment site	Class GPA	Yes	Sediment runoff Contamination from fish stock replenishment Wastewater discharge in adjacent water body	No
Paradise (Muddy) Pond	Warm Water fishery Pemaquid River watershed Wetland habitats present 250 foot riparian buffer	Class GPA	Yes	Sediment runoff Development	No
Pemaquid Pond	Coldwater fishery Warm Water fishery Pemaquid River watershed Wetland	Class GPA	Yes	Wastewater discharge in adjacent water body Nearby septic contamination Sediment runoff	No

[2] For more information about the classification of waterbodies, see M.R.S.A. Title 38, §465.
[3] Thompson, Woodrow B.,"Surficial geology of the Damariscotta quadrangle, Maine, Maine Geological Survey, Open-File Map 09-6, map, scale 1:24,000, (Maine Geological Survey Maps, 2009), http://digitalmaine.com/mgs_maps/1838
[4] "Your Lake - Search Results, Damariscotta, Maine," Lakes of Maine (Lake Stewards of Maine, 2023), http://www.lakesofmaine.org/search-results.html?DoWhat=&l=&t=damariscotta&c=&z=&m=.

	habitats present				
Biscay Pond	Coldwater fishery Warm Water fishery Pemaquid river watershed	Class GPA	No	Wastewater discharge in adjacent water body Sediment runoff	No
Rivers, Streams & Bays					
Damariscotta River	Shellfish growing area Wetland habitats present 250 riparian buffer zone	Class B	No	Sediment runoff Development Direct wastewater discharge site	No
Oyster Creek	Wetland habitats present Mixed saltmarsh habitats present (listed as an “exemplary natural community” by BWH map) Damariscotta River watershed 250 foot riparian buffer zone	Class B	No	Sediment runoff Wastewater discharge in adjacent water body	No
Back Meadow Brook	Wetland habitats present 75 foot riparian buffer zone	Class B	Yes	Sediment runoff Nearby septic contamination	No
Stream connecting Little and Biscay Pond	75 foot riparian buffer zone Wetland	Class A	No	Sediment runoff Direct Wastewater	No

	habitats present			discharge	
Salt Bay	Wetland habitats present Oyster growing area	Class SB[5]	No	Sediment runoff Wastewater discharge (out of town boundary)	No

Threats to Water Quality

The majority of Damariscotta's surface waters are classified at B or higher quality. The major threats to water quality come from nonpoint sources of pollution, mainly phosphorus from sediment runoff, as well as increased risk of soil erosion due to development. The prevalence of per-and polyfluoroalkyl substances (PFAS) in existing agricultural land and waterways is still being evaluated across the state, but could pose a threat to Damariscotta's bodies of water. The State of Maine's decision to ban the use of treated sewage sludge as a fertilizer source in 2022 implies any farmland in Damariscotta could potentially have been a nonpoint source of PFAS to nearby waterways.[6] Because the Town deposits treated wastewater directly into the Damariscotta River, the local shellfish habitats and wetland ecosystems may also be contaminated by PFAS.

Threats from invasive species, nonpoint pollution, and erosion may also become more severe in the future due to climate change. These are discussed in detail in the Marine Resources and Natural Resources sections of this Plan.

Point Sources (Direct Discharges) of Pollution

There are multiple wastewater outfalls in and around Damariscotta's downtown, and overboard discharges on Hall Point, all of which release wastewater into the Damariscotta River.[7] Wastewater from the public sewer provider, the Great Salt Bay Sanitary District, is discharged into the Damariscotta River near the municipal parking lot after being treated. Additionally, multiple wastewater discharge sites east of downtown Damariscotta empty into an unnamed stream connecting Biscay Pond to Little Pond.

The Sanitary District treats wastewater in an aerated lagoon system before discharging. However, like in many rivers across Maine, fecal coliform is still present in the Damariscotta River, which could restrict in the future any harvesting of the shellfish habitats in Salt Bay or the area of the river around Downtown Damariscotta. The Maine Department of Marine

[5] "Your Lake - Search Results, Damariscotta, Maine," Lakes of Maine (Lake Stewards of Maine, 2023), http://www.lakesofmaine.org/search-results.html?DoWhat=&l=&t=damariscotta&c=&z=&m=.
[6] Tom Perkins, "Maine Bans Use of Sewage Sludge on Farms to Reduce Risk of PFAS Poisoning," The Guardian (Guardian News and Media, May 12, 2022), https://www.theguardian.com/environment/2022/may/12/maine-bans-sewage-sludge-fertilizer-farms-pfas-poisoning.
[7] Map of Damariscotta Watersheds, Maine Department of Environmental Protection (2021).

Resources uses fecal coliforms to most accurately assign classifications based on quantities of bacteria originating from the digestive tracts of warm-blooded animals that are potentially pathogenic and therefore reflect a human health risk. Classes SA and SB state that "waters must be of such quality that they are suitable for…harvesting of shellfish", while Class SC waters must be "suitable for…restricted harvesting of shellfish." The Damariscotta River is currently rated Class SB.[8] Please refer to the Marine Resources section of this Plan for further information on the impacts of pollution to the town's working waterfront.

Nonpoint Sources of Pollution

The watersheds around Little, Muddy (Paradise), and Pemaquid Pond, as well as Back Meadow Brook, are all considered impaired due to pollution. These are most likely from sediment runoff and erosion due to development around the watershed areas. Phosphorus from runoff, fertilizers, and sewage is a primary factor causing eutrophication, a process in which waters become so nutrient-rich, algae and plant species bloom to the point that they kill off aquatic species and impact water quality.

In the 1970s, Little Pond experienced several algae blooms and was classified as eutrophic, the highest category of algae productivity. (Water quality has improved sufficiently since the 1990s and continues to be high enough to support a filtration waiver.) Little Pond's historic contamination was caused by significant runoff from a gravel mining operation northeast of its watershed, which increased the turbidity of the drinking water and contributed to its high eutrophic classification. The gravel mining operation has ceased, and the Great Salt Bay Sanitary District now owns the remaining pits, and has been managing runoff through a series of dams meant to impede sediment runoff and revegetation efforts to ensure permanent soil retention of the former work site.

The most recent report prepared for the Maine Center for Disease Control and Prevention's Source Water Assessment Program (SWAP), from 2003, cites concerns from Sanitary District staff regarding the integrity of the dams, and the substantial influx of turbid water that could contaminate the pond if the dams failed to prevent the runoff. The dams were not built to account for the increased severity and frequency of precipitation events due to climate change, meaning the risk of a substantial release of contaminated water could be more severe than previously accounted for.

Drinking Water

Great Salt Bay Sanitary District

Due to the Town's existing land use controls and the management practices of the Great Salt Bay Sanitary District, threats from contamination of the Town's drinking water are currently considered low. Conservation and management of Little Pond is done primarily by

[8] Susanne K Meidel, "2018/2020/2022 Integrated Water Quality Monitoring and Assessment Report Appendices, https://www.maine.gov/dep/water/monitoring/305b/2022/25-May-2022_2018-22_ME_IntegratedRpt-LIST.pdf.

the Great Salt Bay Sanitary District, a quasi-municipal entity which serves approximately 700 residential and commercial customers in Damariscotta. More than 95% of the 424 acre watershed is currently undeveloped. The Great Salt Bay Sanitary District owns all but 1,000 acres of the shoreline, and development within the watershed has been limited due to District management and Town regulations intended to prevent shoreline erosion or any new sources of pollution.[9] Other than the water intake station, the only structures in the vicinity of Little Pond are low-density rural developments built around the periphery of the watershed.

According to data included in the most recent Source Water Assessment Program Report for Great Salt Bay Sanitary District: Little Pond Watershed (from 2003), soil along the shoreline of Little Pond has low to moderate erodibility and the Sanitary District has not observed areas of significant erosion along the shoreline. There are no known commercial facilities in the watershed that use petroleum or other materials that could pose a threat to the water quality of the pond. Commercial land uses within the watershed are limited to periodic timber harvesting, all of which is managed by a forest manager to ensure safe harvesting practices that do not pose a threat to drinking water.

Access to Little Pond is limited to a gravel drive to the water intake station (which the District keeps locked) and a foot trail from Biscay Road at the south end of the pond to facilitate limited recreational canoeing and fishing. Fishing is permitted only in the summer months, and use of live bait or motorized water vehicles is prohibited. Fish stocks are replenished by the Maine Department of Inland Fisheries & Wildlife (IF&W), which poses a minor threat of contamination to water sources as it occurs in close proximity to the pond's only water intake station. The District has developed a specific protocol with IF&W to minimize the contamination risk of fish stock replenishment. Based on these factors, the overall threats to quality of the Little Pond water supply is considered to be low.

Contamination Threats to Other Drinking Water Sources

The chart below shows public water systems that are outside the management of the Great Salt Bay Sanitary District. A system may still be considered a "public" water system (even if the system of pipes is completely privately owned) if it has at least 15 service connections or serves more than 25 individuals per day for at least 60 days out of the year.[10] The Maine Center for Disease Control and Prevention's Source Water Assessment Program monitors these supplies and identifies potential threats in order to assist with local regulatory decisions.[11] Information obtained from the most recent reports of the Source Water Assessment Program found no current contamination in any of the water supplies, but did

[9] Maine Public Drinking Water Source Water Assessment Program Report for Great Salt Bay Sanitary District: Little Pond Watershed (March 2003).

[10] For more information, see the State's Public Water Systems page, available online here: https://www.maine.gov/dhhs/mecdc/environmental-health/dwp/pws/whataPWS.shtml

[11] PWS Data provided by the Maine Center for Disease Control and Prevention Drinking Water Program, Fall 2021.

find varying levels of risk of current and future contamination for each. The major sources posing a risk to future contamination came from the water supply's close proximity to private septic systems or a lack of ownership of the land surrounding the wellhead. The findings were unable to determine significant risks of chronic contamination due to a lack of data on the distance of wellheads from potential chemical contaminants.

Supply owner	**Risk of geologic contamination**	**Risk of acute contamination**	**Risk of chronic contamination**
Pines Mobile Home Park	Low	Moderate Future: Moderate	Low Future: High
Miles Health Water System	Moderate	Low High	Moderate High
Lake Pemaquid Campground	Low	Moderate Moderate	N/A
Reunion Station Restaurant	Low	Moderate Low	N/A

In the list above, risk assessment of contamination is organized by contamination type. Risk of geologic contamination is based on the type of well and thickness of well walls. Risk of acute contamination is based on proximity of septic and waste systems to wellheads. Risk of future acute contamination is based on the radius of land around the well owned by the well owner. Risk of chronic contamination is based on the presence of potential sources of chemical contaminants. Risk of future chronic contamination is based on ownership or control of the entire wellhead protection area.

Protective Measures: Local Ordinances

Town policy intended to prevent degradation of Damariscotta's water resources includes the Town's Site Plan Review Ordinance, which requires an erosion and sediment control plan to mitigate the risk of erosion and sediment contamination during construction, a stormwater management plan, and a report on the phosphorus impact of any new construction or alteration (if located within the watershed of a great pond, as defined in Title 38 M.R.S.A. §436-A). This type of planning is meant to minimize the risk of contamination as much as possible to nearby water sources. In addition, in order for development projects to be approved, the Town's Planning Board must ensure that the quantity and quality of groundwater is not unduly affected by the proposal.[12]

[12] See Sec. 102.6 of the Site Plan Review Ordinance and Sec. 103.6 of the Subdivision Ordinance, respectively.

The Town has also implemented a Shoreland Zoning Ordinance, which establishes land within 75 feet of a normal high water line of a stream as a Stream Protection District, land within 250 feet of coastal or freshwater wetlands as a Resource Protection District.[13] This Ordinance regulates all new construction or alterations within this buffer zone, and expressly prohibits any new construction within 25 feet of a water body or wetland. It also regulates the maximum size for new structures based on their distance from the water body boundary, and requires pre-existing structures to obtain a permit for any new alterations. Any new construction must partially re-establish trees and local vegetation removed in order to build a new structure, and ensure the retention of natural stormwater buffers in the area whenever possible.

The Shoreland Zoning Ordinance also limits commercial use to prevent contamination from fertilizers, petrol products, chemical, heavy metals, or other industrial pollutants. Any agriculture, mineral extraction, or natural resource harvesting near a body of water is heavily regulated, and any operation (whether natural resource gathering or construction) must provide an erosion and sedimentation control plan to ensure minimal threat of runoff.

NOTE: This is just a placeholder for now, including my own notes and suggestions. We will discuss goals, policies and strategies after finalizing each section

Overarching Policies

State Goal

1. Protect the quality and manage the quantity of the community's water resources, including lakes, aquifers, great ponds, estuaries, rivers and the like.

State Policies

1. To protect current and potential drinking water sources.
2. To protect significant water resources from pollution and improve water quality where needed.
3. To protect water resources in growth areas while promoting more intensive development in those areas.
4. To minimize pollution discharges through the update of existing public sewer systems and wastewater treatment facilities.
5. To cooperate with neighboring communities and regional/local advocacy groups to protect water resources.

[13] See the Town's adopted Shoreland Zoning Ordinance.

Suggested potential policy recommendations:

- Collaborate with the Sanitary District to ensure strong watershed protection through zoning and enforcement support from town officials. Poor water quality in the past shows little Pond is highly susceptible to contamination and point to changes in land use policy as the source of recovery of water quality to current levels.
- The Town should work closely with the District to prevent soil erosion or phosphate accumulation in the pond from the gravel pits north of the pond
- The Town should work closely with the District to evaluate the integrity of the impoundment dams and repair these as necessary, to prevent the inadvertent release of water.
- Further information signage on the access trail from Biscay Road may be helpful in notifying the public that Little Pond is a source of drinking water, and outlining what recreational activities are permitted.
- Collaborate with the Maine DEP and local conservation organizations to understand the impact projected increases in annual precipitation will have on stormwater runoff to help minimize future contamination of waterways
- Work with Coastal Rivers Conservation Trust to monitor invasive species migration in the region to ensure native ecosystems are safe from this potential stressor.