To: Municipal Shellfish Management Programs
From: DMR Shellfish Advisory Council
Re: List of recommendations from regional shellfish workshops

September 26, 2023

In May of 2022, the Shellfish Advisory Council (ShAC) and the Department of Marine Resources (DMR) held workshops in Machias, Ellsworth, Brunswick, and virtually through Zoom. Over 92 participants attended these workshops. The purpose was to hear from the shellfish community on what makes a municipal shellfish program successful, what might be useful to improve upon, and what might be best to stay unchanged. Over 90 recommendations were raised at these workshops, and are included in this summary report. The ShAC discussed and prioritized the state-level recommendations and is currently addressing the top three priorities. In addition, there are a number of recommendations that could be beneficial for municipalities to consider.

The list below includes all the recommendations that have some level of municipal involvement, whether it is solely a town responsibility or a partnership between the state, town, and other organizations. The recommendations are organized into nine categories. Some of the recommendations have since been addressed or are currently in progress. The actual recommendations (numbered list) have not been edited (aside from minor grammatical edits) from the original language stated at the workshops. The implementation ideas and existing resources were further developed by members of the ShAC Co-management Committee and DMR staff. This document was shared to solicit feedback from the public at the Maine Fishermen's Forum and a ShAC meeting in March 2023.

Marine Resource Scientists from the Nearshore Marine Resources Program at DMR are available to provide guidance to towns wishing to implement these recommendations. Municipalities that are interested in implementing these recommendations, but lacking the resources to do so, may consider applying for a DMR Shellfish Management Mini-Grant. The next anticipated deadline for proposals will be February 2024, with funding available in May 2024.

In addition, DMR is holding regional shellfish meeting this fall where attendees can hear about initiatives other towns are working on and talk to the Marine Resource Scientists. For more information on these meetings, visit the DMR Regional Shellfish Meeting webpage. The dates and locations of the meetings are as follows:

- Southern - Tue, Nov 14 at 9:00 AM - 11:00 AM - Curtis Memorial Library, Brunswick
- Central - Mon, Dec 4 at 2:00 PM - 4:00 PM - Bucksport Town Hall, Bucksport
- Eastern - Mon, Nov 20 at 3:00 PM - 5:00 PM - UMaine Reynold Center, Machias

Shore Access

1. Developing a similar program to Maine's Department of Inland Fisheries and Wildlife (IF&W) hunter access programs and related regulatory materials (i.e., Summary of Maine Hunting Laws) to share with harvesters upon receiving their state license, or to share with municipal shellfish committees.
    - Implementation: Contact IF&W for more information; conduct a review of what information towns distribute with licenses (e.g., Milbridge, Frenchman Bay); develop content (considering literacy), assign program staff, update website and materials, and distribute along with state license applications/renewals (along with town student licenses/apprenticeship programs)
    - Existing resources: Also review IFW Outdoor Partners Program (Landowner Relations Program).
2. Create a pamphlet for current and prospective coastal landowners that includes language on promoting harvester access.
    - Implementation: Collaborate on developing statewide, regional, and/or local information for the pamphlet; fundraise to develop and design the materials; distribute to riparian owners, realtors, chamber of commerce, etc.
    - Existing Resources: Maine Sea Grant developed similar pamphlets for Harpswell and Moosabec in the early 2000s. MCFA released a pamphlet for Harpswell in 2022.
3. Create tax break incentives (or more effectively advertise them) for landowners providing harvester access.
    - Implementation: Create something like the land sharing program (Outdoor Partners) that IF&W has or the "open space" Current Land Use Program that the Department of Agriculture, Conservation and Forestry (DACF) coordinates with Maine Revenue Services. This could result in a legislative bill. Interim measure would be to connect with the Maine Coastal Program and others with expertise to learn more information.
    - Existing Resources: Maine Revenue Service's Current Land Uses Programs - Open Space and Working Waterfront options.
4. Create standard language for municipal comprehensive planning that includes preserving harvester access.
    - Implementation: Review model guidelines in the Comprehensive Planning: A manual for Maine Communities (2005) and update. Also, consider information from Climate Action Planning/Maine Won't Wait. Address shellfish issues like shore access, funding for wardens, leadership, etc.; perhaps also consider language for model ordinances (shoreland zone/land use ordinances)
    - Existing Resources: Milbridge worked with the Washington County Council of Governments on their comprehensive plan (Judy East).
5. Provide services to [riparian] landowners in exchange for access.
    - Implementation: Educate harvesters (through clam committees) about gaining personal (individual) permission, offer caretaking services for properties, provide funds for private road maintenance, improve trails, offer clams, etc. Also, communicate information about conservation, trash clean-up, etc., adjacent to their property. Have the police chief/warden recognize that clammers have eyes on properties for security.

- Existing Resources: TBD

6. Municipal planning committees (in collaboration with shellfish committees) should develop recommendations for shore access, including parking.
    - Implementation: Develop ordinance changes to provide shore access in new developments and include parking. This language can also be incorporated into comprehensive plans. Once language is drafted, reach out to planning consultants. Also, connect with conservation committees and other planning committees. Standard language could also be incorporated into the next iteration of the Maine Shellfish Handbook and/or online.
    - Existing Resources: Preserving Access to the Intertidal; Maine Shellfish Learning Network (MSLN);
7. Provide educational opportunities for realtors.
    - Implementation: Create trainings on working waterfront, pamphlets, and talking points so buyers understand the role of fishing in the community. Communicate the benefits for clammers to provide services to landowners. Also, explain that it is a two-way street to inform clammers on landowners' rights. Potentially coordinate with the Maine Real Estate Commission on training and/or outreach on this topic.
    - Existing Resources: Gouldsboro Shore Access Project, Casco Bay Regional Shellfish Working Group, Maine Coast Fishermen's Association (Harpswell Scuttlebutt brochure), and Deer Isle/Stonington outreach program (in the past)
8. Highlight the importance of shore access to local land trusts.
    - Implementation: Connect land trusts to shellfish committees, etc.
    - Existing Resources: Downeast Conservation Network, Gouldsboro Shore Access - MCHT and Frenchman Bay Conservancy, Casco Bay Regional Shellfish Working Group - meeting with land trusts, Maine Indian Tribal-State Commission published a special report, Sea Run.
9. Increase availability and use of DMR coastal grants, including working waterfront grants.
    - Implementation: Increase funds, increase awareness, and help towns access grants; funding priorities should emphasize the importance of shore access to the intertidal. Create an online map or document that helps committees identify contacts/organizations for technical assistance. Also, have a link to that information from the Maine Municipal Association website.
    - Existing Resources: Maine Coastal Program Funding Guide; Guidebook: Ocean Climate Funding for Coastal Cities
10. Incentivize/increase easements on private property to provide more shore access.
    - Implementation: Find funding to compensate landowners and increase awareness and importance. Connect with other landowner compensation programs. Provide information on limited liability under Maine state law for landowners.
    - Existing Resources: Kennebec Estuary Land Trust - has easement language for one of their properties to allow commercial harvesting and parking. Current Land Use Program - Working Waterfront. Gouldsboro Shore - landowner liability research.
11. Inventory shore access points including walk-in locations.
    - Implementation: Inventory and identify access points and provide information on a web platform that various parties could contribute to. Consider the confidentiality of this information, especially with individual handshake agreements for access through private property.

- Existing Resources: Manomet - Intertidal access mapping project (six towns in Casco Bay); Maine Coast Heritage Trust - working on a GIS layer; Maine Coastal Program - working on updating their coastal access guides.

12. Tax the intertidal property owned by upland landowners.
    - Implementation: Create legislation to tax intertidal lands. Public trust doctrine (rockweed case opened up questions about ownership). This is a private/public issue that has been the focus of court cases and is a complicated legal issue. Towns may be able to have authority over this issue.
    - Existing Resources: Maine Principles of Ownership Along Water Bodies (Maine Law Review); Accessing the Maine Coast – Using Tax Policy for Access

Licensing

1. Creating new pricing for different types of licenses based on age, for example: seniors (free), juniors (free), 17-18 (cost less), and 18-65 (cost the most).
    - Implementation: Ordinance change; outreach - State/ShAC can provide educational materials about what categories are allowed and the 10% non-resident rule applies to each category.
    - Existing Resources: Lubec example - they have one general license category, but different fee structures based on age.
2. Allow for more flexibility in terms of proof of residency, including vehicle registration, utility bills, identification cards, etc. (*This comment may also be interpreted as increasing flexibility to meet town residency requirements.*)
    - Implementation: Ordinance change, town office policies, education - creating 'grandfather' language for the residency requirement.
    - Existing Resources: State to clarify that they don't define residency, and what options are available for towns. Bates College students conducted a review of 'residency' requirements in shellfish ordinances across the state (the report is available by request to Bridie McGreavy at the University of Maine).
3. Raise fees (through revising state statutes and ordinances) for non-residents to help cover the warden's salary.
    - Implementation: State statute (legislation states that non-residents can't be charged more than 150% over resident licenses) unless it's a change across the board (resident and non-resident fees). This would also require an ordinance change.
    - Existing Resources: See 12 MRS §6671 [PL 1997, c. 589, §1 (RPR); PL 1997, c. 589, §2 (AFF).] for more information on current regulations.
4. Allow any non-resident child (younger than 16) to dig without buying a municipal license.
    - Implementation: Ordinance change
    - Existing Resources: TBD
5. Improve municipal license accessibility.
    - Implementation: For students, all citizens of Maine, and First Nations; open licensing, reduced fees, etc. Consider ordinance changes and educational opportunities (at the state level) to provide tools for towns to achieve some accessibility. Also, considerations with the Maine Indian Settlement Act (treating tribes like municipalities instead of sovereign tribal governments) - may be wrapped into renegotiations with this Act.

- Existing Resources: Example - Pembroke, Perry, and Eastport - Tribal License; however, state statute restricts access to require municipal license aside from harvesting in open areas. The elver fishery is an example of tribal access - a very lengthy and involved process.

6. Prioritize areas for commercial diggers, and then determine areas that could be opened for non-residents without impacting resident commercial harvester livelihoods and be limited to a bushel, or similar amount, or alternatively limited to seasonal access.
    - Implementation: Ordinance change or legislative change (if there is interest in restricting commercial harvest).
    - Existing Resources: Clarify that towns can only limit recreational harvest areas, aside from setting output controls. Additionally, towns cannot limit the harvest of non-resident commercial harvesters below the harvest limit for resident commercial harvesters. However, a legislative revision could change this authority.
7. Restrict the amount of non-resident municipal licenses held by one individual on a statewide level.
    - Implementation: At the state level, could create a law that would disallow individuals to hold multiple non-resident licenses. The current state focus is primarily on 10% non-resident license allocation. This could be an equity issue and is best addressed at the town level. An ordinance change could partially address this. Would require coordinated enforcement between states and towns. This would be complicated to address and is not an interest for the state to address.
    - Existing Resources: Recommended for towns to address this, and not address it at the state legislative/enforcement level.
8. Open additional licenses [or reduced fee licenses] in exchange for conservation time.
    - Implementation: Add free licenses to allow additional participants if they complete conservation time.
    - Existing Resources: Provide education around options for conservation incentives tied to license fees. Some towns require conservation, and others have voluntary programs, which affects participation. Lubec has a tier system = full price license ($300), if you attend meetings = reduced price ($250), if you attend meetings + participate in conservation work = further reduction ($100).
9. Standardize residency requirements.
    - Implementation: Create standard requirements through regulation. Towns are accountable for their residency requirements and have been challenged in court (and have lost cases). Trade-off between state standard regulations/local flexibility/jurisdiction. Educate town clerks. Towns should have robust requirements for documentation to prove residency.
    - Existing Resources: Some towns in southern Maine are revising their residency requirements to allow harvesters who move out of town to maintain their commercial license. DMR has residency recommendations in the model ordinance. There would also be enforcement considerations. Educate towns about a standard set of documents that are more foolproof indicators of permanent residency (for example, state driver's license residency requirements, etc.).
10. Improve communication with municipal license holders.
    - Implementation: Remind license holders of the timing and options to renew licenses. Advertise non-resident licenses when they are available. Compile a packet of

information for license holders when they renew or get a new license. Post information online, for example, on Facebook.

- Existing Resources: Milbridge process - they also mail notices to all current license holders and those on the waitlist. Lubec also has a Facebook page that is updated with all relevant information.

11. Set license numbers based on assessed resources.
    - Implementation: Conduct resource surveys by species and set licenses for the following year. This type of assessment is beyond the capacity of some towns to conduct. Towns also use different methods and approaches to surveys. Towns can require harvester-reported data on landings. The state needs to identify some criteria for towns (and open/state-managed areas) to meet to support allocation changes. For example, town landings data, harvester testimony, resource assessment, or visual assessment.
    - Existing Resources: Issue - Towns propose license allocation changes to the state without data to support increases or decreases in license numbers. State-managed flats are also not tied to resource surveys. The state regularly assesses state-managed flats. Educate towns about the availability of the Maine DMR landings portal. Example - Milbridge has harvester reporting.
12. Evaluate the pros/cons of municipal reciprocal licensing agreements.
    - Implementation: Committees can consider reciprocal licensing agreements, which increase area harvesters can access, allow for shared financial responsibilities for enforcement, etc. Municipal law governs this option, and there must be a formal reciprocity agreement.
    - Existing Resources: Milbridge has reciprocity with Stueben and Harrington. They have a reciprocity agreement in place. Damariscotta - Newcastle also has an agreement. Educate about Maine Municipal Association requirements about formal agreements.
13. Use student licensing to increase fishery participation.
    - Implementation: Include an apprentice phase into licenses/ordinances, provide lower cost/entry level licenses, consider age in license structures, provide education, etc.
    - Existing Resources: St. George provides incentive for students in that the first year you get a free license. Lubec offers free licenses to those under the age of 16, and half-price (ages 16-21) with proof of school. Brunswick shellfish ordinance has student licensing revisions. Milbridge only licenses 16 and over, but it's open to harvest for younger participants.

Conservation

1. Encourage/increase participation in conservation activities, especially by harvesters.
    - Implementation: Incentivize participation through reduction in license fees, points earned for license qualification, clear results demonstrated, allowing people to pay if they don't want to participate, etc.
    - Existing Resources: Educate other towns on what options are available to increase harvester participation. Some towns that made conservation voluntary have gone

back to required hours for lack of participation. Milbridge shifted currency from hours to activities.

2. Track predator abundance
    - Implementation: Develop survey protocols, database and report out, repeat state-wide surveys like green crab trapping to monitor trends. Can DMR coordinate all the ongoing efforts to collect these data, and perhaps prioritize all the activities to determine collective impact? Bring all partners together to get a shared understanding and identify gaps. Also, consider a balance between data collection and actual mitigation measures against predation (switch from counting to killing). Track how many towns have the special license for crab trapping. How many individuals hold commercial green crab licenses?
    - Existing Resources: DMR, Manomet, and Downeast Institute are monitoring green crabs. Municipalities may request to be added to DMR's green crab trapping special license, when the trapping is related to shellfish conservation and the trapped crabs are not sold.
3. Evaluation of wild seed transplant activities
    - Implementation: Assess flat before and after seed transplant to see if it improves the resource. Towns need the transplant and relay permit to conduct this activity. Share practices for quantitative and qualitative approaches to pre- and post-assessment. Need for research priorities discussion.
    - Existing Resources: Brunswick has done this with quahogs. Georgetown has also transplanted adult quahogs. Examples of several towns stopping this activity for multiple reasons. Milbridge relayed from closed flats - waited 6 months after, per regulations. Educate other towns by sharing best practices around seeding and transplanting. See the Casco Bay Regional Shellfish Working Group's - Conservation Activity Summary Document.
4. Use brushing to increase seed sets.
    - Implementation: Consider what materials are used, for example, conifers create a refuge for green crabs and hardwood can result in fewer green crabs because there are fewer hiding places. The area/location of brushing is an important consideration as well - location in the intertidal, sediment type, and proximity to eelgrass. Also, the placement (and space between) brushing, plus the size of the brush are also considerations. If towns conduct this activity, assessing the outcome of this is important.
    - Existing Resources: Share best practices of sediment, location in the intertidal, placement, size, and materials with respect to effectiveness. Downeast Institute has conducted research on brushing.
5. Plan and evaluate conservation activities.
    - Implementation: Develop a map of the town mudflats, plan activities (inputs and outcomes/outputs), and then monitor their success, document and share with towns or regional groups.
    - Existing Resources: The state has these data from towns' annual management reviews (inputs, but not outputs). Outputs should be added to the following year's annual reports.
6. Provide an assessment of the effectiveness of conservation activities.
    - Implementation: Refer to the Municipal Conservation Activity Summary.

- Existing Resources: Municipal Shellfish Conservation Activity Summary

7. Increase/support quahog seeding efforts.
    - Implementation: Quahogs are perhaps more predator resistant, abundance is increasing with warming waters, and they can be more valuable than soft-shell clams (market dependent). The legislative process might be able to help facilitate this. Towns that have quahogs in their ordinance can oversee conservation.
    - Existing Resources: Quahog management and conservation guidance document; Maine Shellfish Handbook
8. Develop new supply streams to increase hatchery seed capacity for conservation projects.
    - Implementation: Provide more reliable seed sources for transplants/seeding. Also, increase education around the rules/regulations around sourcing seed within Maine and out-of-state. Can the state subsidize (or manage) a hatchery and/or seed for the public resource? Can towns and/or the state provide business/tax incentives or infrastructure for private hatcheries?
    - Existing Resources: Currently only private hatcheries - and only 'approved' hatcheries (can be out of state if they meet requirements and get a permit from DMR). Quahog seed specifically cannot be brought in from out-of-state hatcheries. Example - Gouldsboro shellfish hatchery. Towns can also consider spat collection boxes.
9. Re-evaluate, or describe municipal aquaculture leasing responsibility more in terms of liability associated with individual towns.
    - Implementation: Regulatory and ordinances changes
    - Existing Resources: Brunswick example - statute allows towns to have authority over leasing, but then they take on legal liability, and applicants still need to go through state leasing process.

Shellfish Management

1. Evaluate the content of annual shellfish management review reports.
    - Implementation: Revise annual reports to make them easier to fill out but also collect relevant data that can be used and presented to the public, including a count of summonses so enforcement can be highlighted. Also, support data management to improve data accessibility.
    - Existing Resources: The form has been updated before, and a few groups have been working towards this and conducted a survey. The results of the survey should be shared. College of the Atlantic is also working on this.
2. Strengthen and support the roles of municipal wardens in shellfish programs.
    - Implementation: Strengthen leadership role and meeting facilitation, guidance around the job description, management plan (report), etc. Consider capacity limitations as well.
    - Existing Resources: DMR-sponsored warden training
3. Improve landings data.
    - Implementation: The State can provide dealer data but not on a fine scale, towns can require reporting and obtain data on a finer scale and could implement an alpha-numeric system to increase reporting accuracy. Towns would like some details about

the highest production areas for landings to focus their conservation and management activities in those areas. However, confidentiality rules limit state dissemination of local data. Harvester reporting could address this. Can towns request confidential data through a non-disclosure agreement?

- Existing Resources: Some towns require harvester reporting. The State has a landings portal that displays shellfish landings data. There are 4-5 towns that have harvester-reported data.

4. Allow harvesters to self-regulate based on resource availability.
    - Implementation: Open licensing, the market dictates harvest effort - local decision.
    - Existing Resources: TBD
5. Define shellfish committee structure.
    - Implementation: Change the statute to require shellfish committees if you have an ordinance. Also consider defining minimum and diverse representation (types of membership, with at least one harvester or a minimum # of harvesters). Harvesters' representation in decision-making is important. Ordinances would then reflect any changes to state regulations.
    - Existing Resources: The Frenchman Bay Regional Shellfish Committee is affected by an ethics ordinance that recuses harvesters from discussions/voting with conflict of interest.
6. Prioritize issues/projects for municipal shellfish programs.
    - Implementation: Develop a shellfish management plan that prioritizes issues and focuses on the most important first. Separate from the ordinance. This is required by state regulation, but in practice, many towns consider the ordinance and/or annual management review to meet this requirement. Could develop a model shellfish management plan as a template.
    - Existing Resources: In 2023, DMR developed a Shellfish Management Plan template, available here.
7. Towns should consider how minimum and maximum size limits would support the local resources.
    - Implementation: Towns should consider a recommendation to set a maximum size in their ordinances to increase survival and productivity
    - Existing Resources: TBD
8. Improve planning for resource management.
    - Implementation: Develop resource management plans that look towards the future, schedule conservation activities, assess results, conduct resource assessments, rotate flats, adjust licensing, etc. Create a template that towns can tailor and share with other towns. Like town comprehensive plans (10-year forecast), looking at specific shellfish flats and water quality, etc.
    - Existing Resources: In statute, shellfish management plans were required in order to have an approved ordinance, but the requirement was lost. In 2023, the State will require towns to have a shellfish management plan.

Technical Assistance

1. Increase direct communication between shellfish committees and DMR.
    - Implementation: Institute regular regional meetings (DMR), increase DMR staffing levels, increase DMR attendance at town shellfish meetings, committee chairs/warden or marine resource conservation officer communicate with DMR on a regular basis. Towns can also invite area biologists and water quality staff to meetings. DMR staff should reach out to the towns at least annually to attend a meeting.
    - Existing Resources: DMR instituted regional meetings on at least an annual basis. The staff has increased by three for 2023. As of 2023, DMR staff are expected to reach out to towns monthly to ask if there is a meeting agenda item that would be helpful for them to be at the meeting for. DMR staff are expected to attend a minimum of one shellfish committee meeting per town, per year, and more as requested by the committee for a specific issue (not an open invitation).
2. Improve public perception of the shellfish industry.
    - Implementation: Landowner appreciation events, face-to-face interactions, town planning/zoning, education materials, community listening sessions, and media (local or regional news)
    - Existing Resources:
3. Increase communication on social media (e.g., Facebook, etc.) to keep harvesters informed.
    - Implementation: DMR and towns develop social media accounts and establish strong system of keeping them updated and relevant.
    - Existing Resources: Lubec has a clam bulletin Facebook page where they post meetings, topics, licenses, etc. Georges River Regional shellfish program posts similar information online for all five towns.
4. Public relations effort to help citizens view shellfish fisheries as part of the community v. "other".
    - Implementation: Secure funding and hire a marketing group to develop materials and events. See examples of lobster and buy Maine lobster. Marketing the industry and not just the product.
    - Existing Resources: Maine Won't Wait - Seafood Promotion Council - in development (SEA Maine). DMR - Seafood from Maine website. ShAC - got approval to use Maine quality seal - for any certified seafood dealer. Participation in Yarmouth Clam Festival.
5. Increase regional cooperation in informal ways.
    - Implementation: Create times and places for regions to come together to discuss shellfish conservation and management.
    - Existing Resources: DMR regional meetings are happening annually. The Casco Bay Regional Shellfish Working Group convenes meetings in southern Maine. Downeast Maine has regional meetings as well.
6. Develop handouts for recreational diggers.
    - Implementation: Develop education materials including QR codes for closures, licensing, identification, limits, etc. Consider having town clerks distribute materials alongside license applications.

- Existing Resources: Downeast towns have distributed this information in the past with licenses (Pembroke, Perry, Eastport). Lubec is working on a one-pager that has a map, shows where closed areas are, and distributes with licenses.

7. Increase shellfish education in local school curriculums.
    - Implementation: Develop programs to engage students at all levels to increase awareness of the shellfish industry and highlight it as a potential profession. Potential funding sources (TBD) for purchasing boots to get children on the mudflats, for example, $2,000, and then Hamilton Marine donated boots. Can curriculum be shared from existing programs with students?
    - Existing Resources: Harpswell is working with high school students. Kennebec Estuary Land Trust worked with elementary students. Brunswick High School has worked with their Marine Resource Committee. Freeport Middle School works with the Downeast Institute and the Clam Committee. Georges River works with Herring Gut and students (all ages) on pollution sources. GMRI and Manomet have a community science curriculum for green crab data. Lubec has taken trips with summer school children. Gouldsboro and Schoodic Institute have done a lot of conservation and management projects with students.

Data and Information

1. Provide more environmental information on factors such as nutrient levels, temperatures, salinity, river flow measurements, etc. This data can be collected (using standard protocols) from increased measurements during current water quality testing or providing funds for municipalities to take similar biological measurements.
    - Implementation: Purchasing new monitoring equipment, setting up a database, providing additional training, and coordinating with other organizations (i.e., nonprofits and academia) that may already be collecting this information. The State provides information to towns on conditional closure areas (rainfall), and other general information. Identify funding resources.
    - Existing Resources: Georges River hydrodynamic modeling and flow (U Maine/Gabby Hillyer). Lauren Ross - Working with Waldoboro on Medomak River hydrodynamic modeling. Towns have been working with PCR testing and partnering with UNH/academia to conduct testing. Maine Sea Grant has helped fund eDNA testing. Some information is included in the Maine Shellfish Handbook. Yarmouth WWTP has worked with their Shellfish Committee on water quality testing. MSLN developed a water quality decision tree to help towns mitigate pollution.
2. Provide model language for comprehensive plans.
    - Implementation: Provide model language that would include shellfish management and conservation
    - Existing Resources: Regional councils of governments/economic development corporations could support the development of model language.
3. DMR should conduct statewide stock assessments on a regular basis and share the information with municipal shellfish programs.
    - Implementation: Develop capacity for more state-wide resource assessment work for all species, find funding and workforce, and provide state stock status reports. DMR can also synthesize information towns provide and share back out.

- Existing Resources: DMR continues to assess shellfish in open areas.

4. Increase stock assessment efforts by towns.
    - Implementation: DMR should provide training for resource assessments. Identify where towns can find people to help conduct surveys (partnerships). Identify funding sources to conduct surveys (if they need to outsource a contractor to do the work).
    - Existing Resources: Some towns are trending more towards stock enhancement (seeding), and away from stock assessment.

Enhancing Effectiveness of Shellfish Committees

1. Allowing shellfish conservation committees to work more directly with the state (rather than going through town councils/boards of selectmen).
    - Implementation: Town ordinance change that defines governance and decision-making authority between the committee and/or town council/board of selectmen.
    - Existing Resources: TBD
2. Increase harvester participation **at** shellfish committee meetings.
    - Implementation: Incentivize participation (e.g., offer conservation hours towards required #), outreach, engagement, offer food, contentious issues, limit length, schedule regular meetings in advance, take the busy season off, post agendas early, etc. Recognize different levels of value participants see from attending them. Consider remote participation (hybrid virtual meetings or televised meetings). Also, consider the potential impacts of participation from the buy-out of conservation hours. Send out agendas in advance.
    - Existing Resources: TBD
3. Increase harvester participation **on** shellfish committees.
    - Implementation: Incentivize membership, require a certain number of harvester seats on the committee, and validate harvester input/local knowledge. Could review the rationale for participation to better understand why they attend meetings. Ethics ordinances that some towns have conflicted with the co-management model. Explore other avenues to connect with harvesters one-on-one and outside of formal town committee meetings. Send out agendas in advance.
    - Existing Resources: TBD
4. Providing resources and training for shellfish committees to learn key skills for running productive meetings.
    - Implementation: Provide learning opportunities on running good meetings, including different perspectives, filling out paperwork, changing ordinances, etc. Regional marine resource scientists could also serve this role. The Maine Shellfish Handbook also has some basic information included. Town-nominating committees could also provide training as they onboard new members to committees.
    - Existing Resources: The Maine Municipal Association offers this training for planning boards, which could be extended to shellfish committees. Maine Sea Grant has facilitation trainings (Kristen Grant).
5. Encourage committee participation from younger harvesters.
    - Implementation: Ordinance change to require student license holders to attend meetings, offer conservation points on a volunteer basis (taking Dept. of Labor

regulations into consideration), etc. At the state level, could require meeting attendance (local, regional, or state) as part of their state license.
    - Existing Resources: TBD
6. Educating shellfish conservation committees on the responsibilities of managing the resource and introducing them to the information and tools to achieve this.
    - Implementation: Develop training materials and delivery mechanisms (e.g., online trainings, area biologist presentations, workbooks/guides, etc.). As a precursor, clarify roles and responsibilities between the State and town programs. Offer training to town clerks and any town council/selectman liaisons to shellfish committees.
    - Existing Resources: The Maine Shellfish Handbook is one resource. Maine Sea Grant mailed two copies to each town with a shellfish program in Spring 2022.
7. Engage selectboard/town council in shellfish management.
    - Implementation: Establish a position for a selectman/town council member to serve as a liaison on the shellfish committee. Provide training if necessary.
    - Existing Resources: Many towns are already using this model.
8. Develop leadership in municipal shellfish programs.
    - Implementation: Offer educational opportunities/training, mentors, guidance, etc. Consider diversity in forms of leadership and how it can show up in different ways (e.g., at meetings or behind the scenes).
    - Existing Resources: TBD
9. Ensure shellfish committee composition emphasizes wild harvesters.
    - Implementation: Structure shellfish committee membership to ensure wild harvesters are well represented, quorums could require shellfish harvesters to be present. Ordinance changes could reflect these values.
    - Existing Resources: TBD

Water Quality

1. Improve coordination between DMR water quality sampling and town efforts.
    - Implementation: Institute regular regional meetings, increase DMR staffing levels, increase DMR attendance at town shellfish meetings, and initiate new prioritization efforts. Regional scientists and water quality staff could attend town meetings to share data/trends and information from water quality testing labs. Towns can also conduct their own fecal coliform (P90) water quality testing (although they may not be aware of this possibility). Educate towns on options for collecting/testing water samples.
    - Existing Resources: DMR has initiated regional meetings, increased staffing, and regular attendance of water quality and science staff at town meetings. Some towns are conducting their own water quality testing.
2. Improve coordination with municipal officials to solve pollution problems.
    - Implementation: Meetings to involve town officials (Licensed Plumbing Inspector), DMR staff, other state officials (DEP and/or DACF, DHHS), work plans or taskforces to solve problems. Increase communication among all involved parties.
    - Existing Resources: MSLN Water Quality Decision Support Tree guide provides information on how to improve coordination.

3. Plan community efforts to improve water quality.
    - Implementation: Hold meetings and events to involve town officials, DMR staff, other state officials, citizens, non-profits, students, etc. Create work plans or taskforces to solve problems, paint drains, and engage citizen scientists. Prioritize identifying land uses and actions that directly address water quality closures.
    - Existing Resources: Georges River is doing this now with five towns, focused on dog waste. Waldoboro has also done similar work.
4. Conduct shoreline clean-ups.
    - Implementation: Improves relationships/perceptions, helps preserve access, and can be a community event.
    - Existing Resources: Many towns conduct shoreline clean-ups.
5. Incentivize landowners to maintain septic systems and remove overboard discharges.
    - Implementation: Secure funding for grants to remove OBDs and repair septic systems, institute tax rebates for regular maintenance, and require periodic inspections. Ordinance changes could address septic inspections and permits. Also, raising awareness of public reporting of water quality issues.
    - Existing Resources: The Department of Environmental Protection (DEP) Small Community Grants program sometimes has money for septic maintenance. Some towns in southern Maine do have ordinances around pumping out septic systems regularly in the shoreland zone and requiring permits to perform maintenance. The Department of Health and Human Services and DEP have regulations around failing septic systems.
6. Educate up-river towns about pollution impacts downstream.
    - Implementation: Provide education materials, presentations, etc., to towns upstream of shellfish flats, and develop incentives for them to reduce pollution sources. Towns should increase coordination with DMR water quality staff (perhaps to conduct upstream testing).
    - Existing Resources: TBD
7. Consider the impacts of contaminants like PFAS from industrial sites on shellfish flats.
    - Implementation: Conduct pilot testing of shellfish meats and mudflats, and carefully consider remediation options.
    - Existing Resources: DEP is looking into PFAS and has tested multiple species of shellfish and finfish. Initial Maine DEP data on PFAS in shellfish are available in the 2023 SWAT report. The Federal Environmental Protection Agency and Food and Drug Administration are also looking at shellfish.
8. Towns can conduct independent shoreline sanitation surveys, water testing, and pollution tracking.
    - Implementation: Towns and the State should communicate and collaborate to ensure pollution sources are addressed and mitigated. The State can help towns secure funding, identify subject-matter experts, and identify labs to test water samples.
    - Existing Resources: TBD
9. Training citizens, including harvesters, landowners, and municipal officials, to recognize sources of pollution.
    - Implementation: DEP and local communities provide training and standard reporting protocols. Identify options to recruit people to participate.

- Existing Resources: TBD

10. Educate citizens, municipal officials, etc. about wildlife and domestic animal waste.
    - Implementation: Develop educational materials, policy guidelines, best management practices, etc. Post on town websites and present during town meetings. Prioritize water quality mitigation (i.e., wildlife sources are challenging to track and mitigate vs. domestic animals). Wildlife - focus on deterrence and habitat vs. removal.
    - Existing Resources: TBD
11. Clarity about who to contact/involve regarding pollution issues.
    - Implementation: Refer to a flow chart in the Water Quality Decision Support Tree developed by the Maine Shellfish Learning Network. Build out materials to provide to towns and supply printed versions.
    - Existing Resources: Water Quality Decision Support
12. Increase involvement of local Code Enforcement Officers (CEOs) in pollution/water quality issues.
    - Implementation: CEOs and Licensed Plumbing Inspectors should have job descriptions/duties that emphasize the importance of water quality for shellfish harvest areas. The State Fire Marshall Office has authority over code enforcement training.
    - Existing Resources: TBD
13. Establish a priority system for reopening flats.
    - Implementation: DMR solicits priorities from towns and drafts investigative reports. Towns mitigate pollution sources. Identify outreach options to increase understanding of the process in towns. Consider establishing a more formal process where towns and the state can coordinate on closed mudflats. Perhaps identify the process that towns are using to address these issues (and consider other factors, e.g., resource status). Town involvement in testing helps educate and empower towns in the process.
    - Existing Resources: This process is happening in some towns; other towns may not have a full understanding. Water quality staff from DMR will start attending town meetings on an annual basis.
14. Establish guidelines around lab results (especially water quality)
    - Implementation: Create and post guidance on how town-collected water tests can be used and from which labs. Towns should coordinate directly with DMR on the process, as there are nuances depending on the testing/desired outcomes.
    - Existing Resources: DMR has a list of approved labs.

Enforcement

1. Clarify roles between DMR Marine Patrol Officers and municipal wardens.
    - Implementation: Provide clear job descriptions and a handbook to municipal wardens, and increase content at warden training events. Initial shellfish warden training duration and recertification could be increased. Conflict of interest is also a consideration with municipal shellfish wardens and individuals who apply for certification (e.g., harvesters). Some towns are hiring county sheriff's offices to provide enforcement.
    - Existing Resources: See animal control certification for reference.