

## Casco Bay Regional Shellfish Working Group Meeting Summary

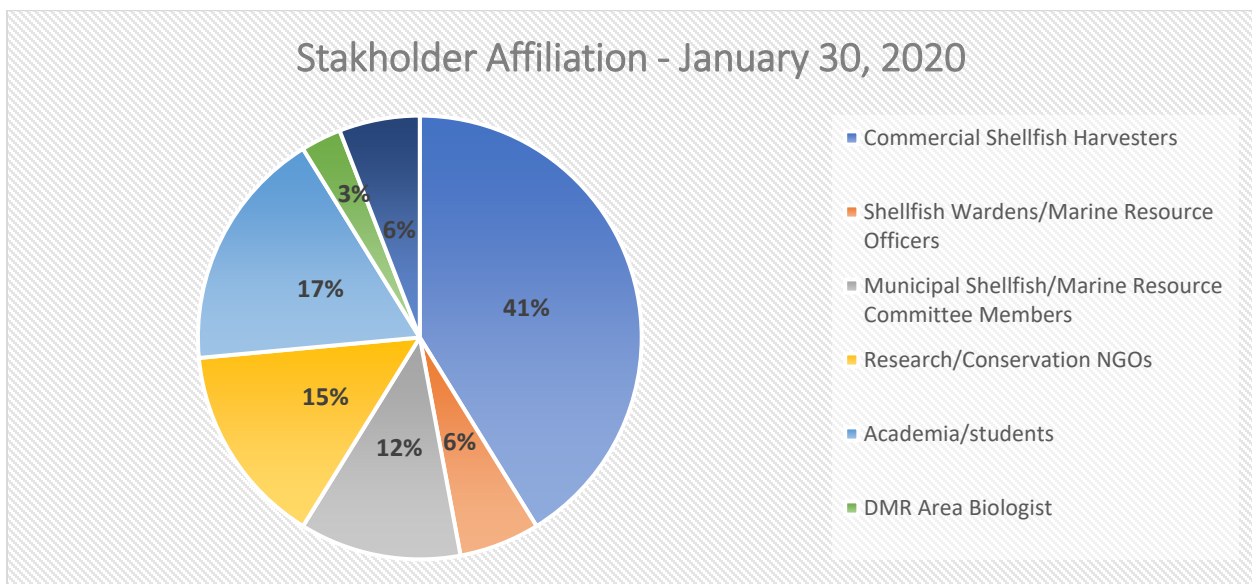
**Date:** January 30, 2020

**Location:** Merrill Memorial Library, Yarmouth, Maine

**Time:** 4:30-7:30 PM



**Attendees:** Phil Gray, Weston Watts, Mark Green, Caitlin Cleaver, Paul Plummer, Judy Colby-George, Marissa McMahan, Ari Leach, Charles Tetreau, Dan Deveraux, Kevin Oliver, Nate Orff, Curtis Bohlen, Susan Olcott, Hank Adams, Isaac Burtis, David Wilson, Scott Moody, Jr., Scott Rouillard, Joe Delano, Corey Wentworth, Jesse Harrimen, Keith Fletcher, Ruth Indrick, Lily Nygren, Sam Nygren, Ben Tupper, Carissa Aoki, Francis Eanes, Natalie Moon, Sophia Miller, Josie Carter, Anne Hayden, and Jessica Joyce. The primary affiliation of stakeholders is included in Figure 1. While some attendees had multiple affiliations, for example, recreational or commercial harvesters who are municipal committee members, or shellfish harvesters who are also shellfish dealers, only the primary affiliation is listed.



**Figure 1. Stakeholder Affiliation (as identified during introductions, n=34).**

### Introductions and Background

The meeting commenced with introductions and a review of the agenda. Jessica Joyce also reviewed the purpose, goals, and objectives for the Casco Bay Regional Shellfish Working Group (CBRSWG). The purpose is to Collaboratively address pressing issues facing the shellfish community, sharing expertise and best practices for management, conservation, research, and monitoring across towns and stakeholders in Casco Bay.

- The short-term goal is to equip municipalities with the knowledge and experience to manage their wild intertidal shellfish resources in the changing Casco Bay ecosystem, through providing a forum for sharing information, resources, and tools.
- The long-term goal is for the Working Group to help protect the health of intertidal ecosystems, sustaining shellfish resources and the jobs that depend on these fisheries.

### **Town Sharing**

During this agenda item, one representative from each town shared the current focus of their committee, and any updates since the last meeting in November.

Harpswell: Harpswell planted 340,000 quahog seed over 1,000 yards of shore, and will see how it worked in spring 2020. They are hoping to purchase more seed, and also applied for a grant to purchase an upweller for the town.

Yarmouth: Yarmouth is working on a project to analyze pollution sources in an effort to open up more shellfish flats. Yarmouth is also trying to determine more productive ways to increase harvester participation in conservation programs.

Freeport: The Committee has been talking a lot about access, and submitted a proposal to the Shellfish Restoration and Resilience Program to evaluate intertidal access points. Freeport is also discussing areas that naturally collect seed, and how to transfer seed to areas that haven't been doing well. A study looking at the effects of harvesting quahogs in cold temperatures is ongoing, and results will be available late spring 2020.

Scarborough: Scarborough has reached out to the Downeast institute, regarding utilization of seed collection (or recruitment) boxes. They are also talking about license allocations and medical waivers for people not doing conservation due to medical issues.

Brunswick: The Marine Resource Committee (MRC) is discussing their student program; how it is growing, and ways to manage it, including how much is being harvested by students. They are also discussing how to allocate licenses. They are planning to grow quahog seed to broadcast on the flats, pending the award of funding from grant proposals. Brunswick is going through a comprehensive planning project, which is strengthening the relationships between the Town Council and the MRC. They have an application for an intertidal aquaculture LPA, and are figuring out how to move forward with these leases in general. They are coordinating with Harpswell to recommend the Navy conduct a Natural Resource Damage Assessment as the first step to cleaning up contaminated shellfish flats around the former Naval Air Station in Brunswick. Brunswick also noted the proposed legislation at the state level that would regulate air boat noise (i.e., changes to maximum decibels for noise levels, and separating air boat regulations from other motor boats). A public hearing was scheduled on February 12<sup>th</sup> in Augusta.

Georgetown: Georgetown recently completed a comprehensive planning process that addressed intertidal access issues (putting boats in and accessing mud flats) as well as overboard discharge issues. Georgetown does not have a naturally occurring quahog population, and the clam population has been in decline (*the harvesters commented it was one of the worst years in a while*), so they are pursuing efforts to diversify income with oysters and other aquaculture techniques. Last year they received funding from the Shellfish Restoration and Resilience Program to transplant adult quahogs to hopefully start a population, and they will have results later this year.

Cumberland: Cumberland has been talking a lot about green crabs, and the decline in soft-shell clams. Broad Cove really only has quahogs, as other species are mostly gone. They have done some crab trapping projects but not on a large scale, and are discussing license allocations.

No representatives were present at this meeting from Chebeague, West Bath, or Phippsburg, although Chebeague and Phippsburg are represented on the Steering Committee.

### **Presentations**

At the November 2019 CBRSWG meeting, participants recommended a number of topics of interest. Of those topics, the Steering Committee invited two speakers to give brief presentations on their work in the shellfish industry and what municipalities can do to address these topics.

#### *The Green Crab Fishery and Markets, Dr. Marissa McMahan (Manomet)*

- Crab fishers in Venice, Italy sell soft-shell green crabs for as much as \$55 USD/pound.
- Manomet is conducting research on adapting the soft-shell green crab fishery in the U.S.
- Molting for males occurs in May-July, and Manomet has developed methodology to determine pre-molting signs. They built affordable 'crab condos' with 4 mm mesh oyster bags and hog rings that can be stacked in a lobster crate and allow you to keep over 100 crabs individually housed per crate at the dock until they molt. However, only ~15% of catch is pre-molt, even at the height of the season.
- For this pilot project, they caught ~100 crabs a week from June – July in 2018 and 2019.
- They sold crabs to local restaurants for \$3/each, or about \$25-\$30/pound, and restaurants sold them for \$9/crab, selling out every time.
- Manomet is monitoring five subtidal and four intertidal sites for molting crabs, and many other organizations are trapping and/or collecting data on green crabs as well as water quality/temperature monitoring.
  - These data could be used as a tool for municipal shellfish programs, students, and researchers. They compiled a map (see Figure 1) for the Kennebec region, but it could expand and data could be compiled to create an interactive website.
- Manomet is hosting a soft-shell training workshop on **June 20<sup>th</sup>, from 9-12 pm** at the Back River Boat Yard in Georgetown. Contact Marissa for more information: [mmcmahan@manomet.org](mailto:mmcmahan@manomet.org), or (207)837-5987

*Ocean Acidification: a brief overview, Dr. Mark Green (St. Joseph's College)*

- Increasing atmospheric carbon dioxide is causing the surface ocean to become more acidic.
- There has been a significant increase in acid (decrease in pH) in your lifetime and it is changing faster than at any time during the last 60,000,000 years (at least).
- The coastal ocean is acidifying even faster and represents a look into the future. Maine is particularly vulnerable.
- It's getting more difficult for some marine organisms to make shell material (but it's not all about clams) and the cascade effect through marine ecosystems could be severe.
- The window of conditions sufficient for natural bivalve larvae will continue to close. Recruitment will become less and less predictable.
- Multi-trophic farms and hatcheries and buffering (seaweeds and shells) can mitigate poor water chemistry on a VERY small local level (see Figure 2).
- The slow and relentless increase in atmospheric and surface ocean CO<sub>2</sub> continues. There is only one real solution to overcome the looming disaster that is OA, which is to reduce greenhouse gas emissions.
- In summer of 2020, Dr. Green will be conducting research on the impacts on pH levels on shellfish from utilizing various quantities and sizes of crushed oyster shells in the intertidal, and will be looking for community participation in Casco Bay.

*Panel Discussion*

- One recreational harvester and shellfish committee member asked what to do with green crabs? The bait market is out of Rhode Island, so if you can find transportation, they accept large volumes.
- There was a discussion around whether there have been any efforts to rename the 'green crab' so it sounds more appealing from a marketing perspective, for example, 'emerald crab'.
- There was a discussion around recycling oyster shells to buffer the pH of intertidal mudflats; a 1-year curing process is required to ensure shells don't carry any disease or pests. There is an ongoing shell recycling pilot program with Portland restaurants, the Maine Coastal Program, Casco Bay Estuary Partnership, and Eco Maine. Municipalities have tried smaller programs as well, but there are a number of steps and permits required because shells are considered biological waste.
- There was a question around whether soft-shell clams and quahog shells would work the same as oyster shells for buffering pH.
- There was a question about whether green crabs affect quahogs as much as soft-shell clams. While quahogs seem less vulnerable to green crabs once they reach a certain size, soft-shell clams seem to be vulnerable at every size.

**Small Groups**

Participants were offered four different topics to discuss in small groups for ~45-minutes, and then the facilitators reported out key outcomes for a large group discussion, based on specific questions. The topics included:

A. Best practices for managing multiple species in town shellfish programs – quahogs, soft-shells, oysters, and razor clams.

B. Educating town council members on the shellfish resource, industry, and management/budget process.

C. Develop conservation projects that directly benefit the shellfish resources, along with monitoring protocols for municipalities to utilize for their harvester conservation hours.

D. Database of municipal conservation activities, ordinance revisions, and contact information.

#### A. Multispecies management

- **What are towns already doing (or would like support on)?**
  - Brunswick conducts surveys for both soft-shell clams and quahogs, and will share a report on their survey techniques, developed by MER Assessment.
  - As towns add species into their ordinances, they don't necessarily add licenses, which can be problematic.
  - Before adding a new species to a municipal ordinance, DMR would like to see results of a survey to confirm that the species is present. However, Georgetown was able to add quahogs into their ordinance without naturally occurring quahogs as they needed to add them in order to transplant adult quahogs and implement a conservation closure.
- **How can the WG offer support?**
  - Develop guidance on conservation projects to test during the process of adding species to your ordinance, for example, relay and transplant adult quahogs around the mudflats before they spawn to 'reseed' areas with low productivity.
    - This requires a transfer relay permit from the DMR.
  - Share resources from other towns addressing similar issues:
    - The Brunswick MRC has discussed the potential to have endorsements on licenses for each species, so you'd check off what species you're going to harvest that year. This addresses latent effort and better aligns resource availability with the number of people harvesting. This method could also involve species-specific reporting.
    - Brunswick requires reporting for their student licensing program.
  - → Ultimately, there are resources available from certain towns who are actively managing multiple species and discussing new measures. The CBRSWG will compile these resources (*e.g. licensing, surveys, reporting, budget considerations*) and develop a 'how to' guide for towns asking for guidance on best practices for managing mixed species.
- **Who?** CBRSWG, working with municipalities and DMR.
- **When?** Starting now and continuing through the next year.

### B. Town Council Outreach and Education

- **What** are the issues: educating the town councils about the importance of the shellfish industry in our towns, including history, economic impact, what clamming is, what areas are closed/open, cultural heritage, total acreage of the flats, and role of fishermen as our eyes and ears on the mud flats in a changing ecosystem. Include regional and state context. Note shared responsibility for taking care of Casco Bay.
  - Expand beyond just town council members to include members of the planning board, rivers and coastal water commission, harbor commission, as well as other committees/boards that have alignment with the working waterfront.
  - Ensure shellfish industry considerations are included in the municipal comprehensive planning process.
  - Perhaps developing a training session for the shellfish/marine resource committee liaisons, so they can better represent the harvesters.
  - Make this a two way process: it is good for marine resource committees to know what the town council does and is working on.
- **How can the WG offer support?** Develop presentations or a new councilor orientation package, since new members are elected for two years. Provide training on how to get on the town council agenda and how to time presentation in consideration of the annual license allocation process, survey results, town budgeting process, etc. A regional expert could deliver the presentations. Tie presentations to town council action items – what do you want the town council to do? Consider a range of communication methods: PowerPoint presentations, videos, reports, etc.
  - Provide an overview or reference document for town websites.
- **Who is going to do this?** Member of the CBRSWG, college students, and other schools doing community-based projects.
- **When:** It would take at least six months, because of schedule challenges during the summer, so it would be ready around September – October 2020.

### C. Conservation projects

- **What types are projects are towns already conducting?**
  - Brushing studies to increase clam settlement, catching and removing ribbon worms, predator protection netting, reseeding, green crab trapping, recruitment boxes, and plastic trash removal.
- **What types of projects would towns like to start or revise current practices?**
  - 1. A survey workshop for towns to get together and create a common methodology to conduct surveys that aligns with variable growth/distribution of clams (vs. a grid survey).

- i. Include quarterly surveys at every cove from head of cove to water's edge to document any changes, influx in predators, etc.
- 2. Identifying better methods to catch and remove ribbon worms.
  - i. Would like to learn more about ribbon worms overall, and how best to manage the population.
- 3. Assess clam resources using recruitment boxes, or develop a different method that would be more reflective of the actual amount of spat in water column/mud.
  - i. For example, design floating bags to collect spat and identify the timing and amount of spawning clams in a specific area, and pair with water monitoring.
  - ii. Water temperature monitoring for spat: looking at what already exists for resources/research (Bowdoin college, Friends of Casco Bay and others are already collecting water quality info) and piggybacking off of these efforts.
- 4. Evaluate/map the loss of mussel bars and beds, and identify options for restoration.
- 5. Create a floating raft with water monitoring station (pH, salinity, temperature), and spat collection baskets.
  - i. Would be owned by the municipality to collect data and monitor multiple locations. Data would be used to correlate with changes in shellfish populations.
- 6. Design a study evaluating mud chemistry and potential impacts on shellfish habitat and predation.
- 7. Design projects to increase or start a quahog population (through growing spat and reseeding and/or transplanting adult quahogs).
- 8. Develop a municipal recycling program for clamming gloves and other marine debris that is found on the shore. For example, you can get free boxes from [Terracycle.com](http://Terracycle.com) and then mail them back the company for recycling.
- 9. Create ledges with oyster shell recycling, as more shell stock is found around ledges; however, this may create ideal conditions for predators.
- 10. Developing protocols within municipalities to stay current on p90 scores, and recognize a failing site before an entire area is reclassified.
- 11. Discussing ways to increase harvester participation at shellfish/marine resource committee meetings and conservation activities.
- **Who?** Multiple partners will work on up to five of these projects, including researchers, municipal shellfish committee members, harvesters, and academia.
- **When?** After the Steering Committee selects the five projects, work will commence at a staggered rate, with some starting immediately, and others starting in 3-6 months. Work will continue over the next year.

#### D. Municipal Shellfish Database

- **What information would be helpful to compile and what is the geographic scope?**

- Start small in scope (Casco Bay), and conduct a needs assessment to determine what towns are interested in knowing/contributing.
  - i. Identify different harvest areas that are a priority to protect, include information about harvesting closures, locations of aquaculture leases, species harvested, types and numbers of licenses, landings over time, conservation practices and requirements, etc.
  - ii. Identify what resources are available through towns, private companies (e.g. GIS and data management), and volunteers for surveys.
  - iii. Survey potential users to ask what relevant info they would like to have and are willing to provide.
- **How would this information be shared and updated?**
  - An interactive web platform with map that is 'open' for continual updating even though one person/group will need to be responsible for getting it up and running, and updating it while it gains momentum.
  - Develop an app that would allow in-the-field updating of the web platform in real time.
- **Who will develop and maintain the database?**
  - First choose the platform- what are the needs? What info will be hosted there? Free vs subscription fee-based? Where will it live: the cloud or a server?
  - Who will pay for a subscription for the platform and server?
  - Potential institutional partners? GIS expert in municipality to host?
  - This WG will provide oversight and momentum, and outsource technical part to GIS experts and students (possibly with an academic institution hosting).
- **When?** First need to answer clarifying questions above.
  - Can start to brainstorm what data should be compiled using an Excel sheet right away.
  - To design an online interface would take 6-12 months.
  - It can be great educational and outreach tool in the long-term.

## Announcements

*The following state funding opportunities will likely open up for proposals spring 2020:*

- **Right of Way Re-discovery Grant Program** - research to help communities find and assert public rights-of-way to the shore. Funding provided under this category can be used for deed and legal research and property surveys."
- **Shore and Harbor Planning Grant** (likely May 2020) – This program provides funding to promote sound waterfront planning, harbor management, and balanced development of shore and harbor areas to improve marine infrastructure and assure access to the shore. Grants of up to \$30,000 are available for municipal and regional projects in coastal towns.
- **Coastal Communities Grant Program** (April 1, 2020) - The coastal community competitive grant program provides funds to towns and regional organizations for projects in the areas of public access, water quality improvement, storm hazard



resiliency, and marine-related economic development.

[https://www.maine.gov/dacf/municipalplanning/financial\\_assistance.shtml](https://www.maine.gov/dacf/municipalplanning/financial_assistance.shtml)

- FMI: <https://www.maine.gov/dmr/mcp/grants/index.html>

#### Shellfish Focus Day, Maine Fishermen's Forum

- **March 5** – Samoset Resort, Rockport Maine (8:30-4:00)
- FMI: <https://mainefishermensforum.org/shellfish-day/>

#### **Next Steps**

- The meeting summary will be emailed and posted online.
- In February, we will finalize the date for the next meeting (March or April)
- Spring/summer 2020 – we will send around a few field work/ site visit opportunities, and will have stipends for harvester participation.

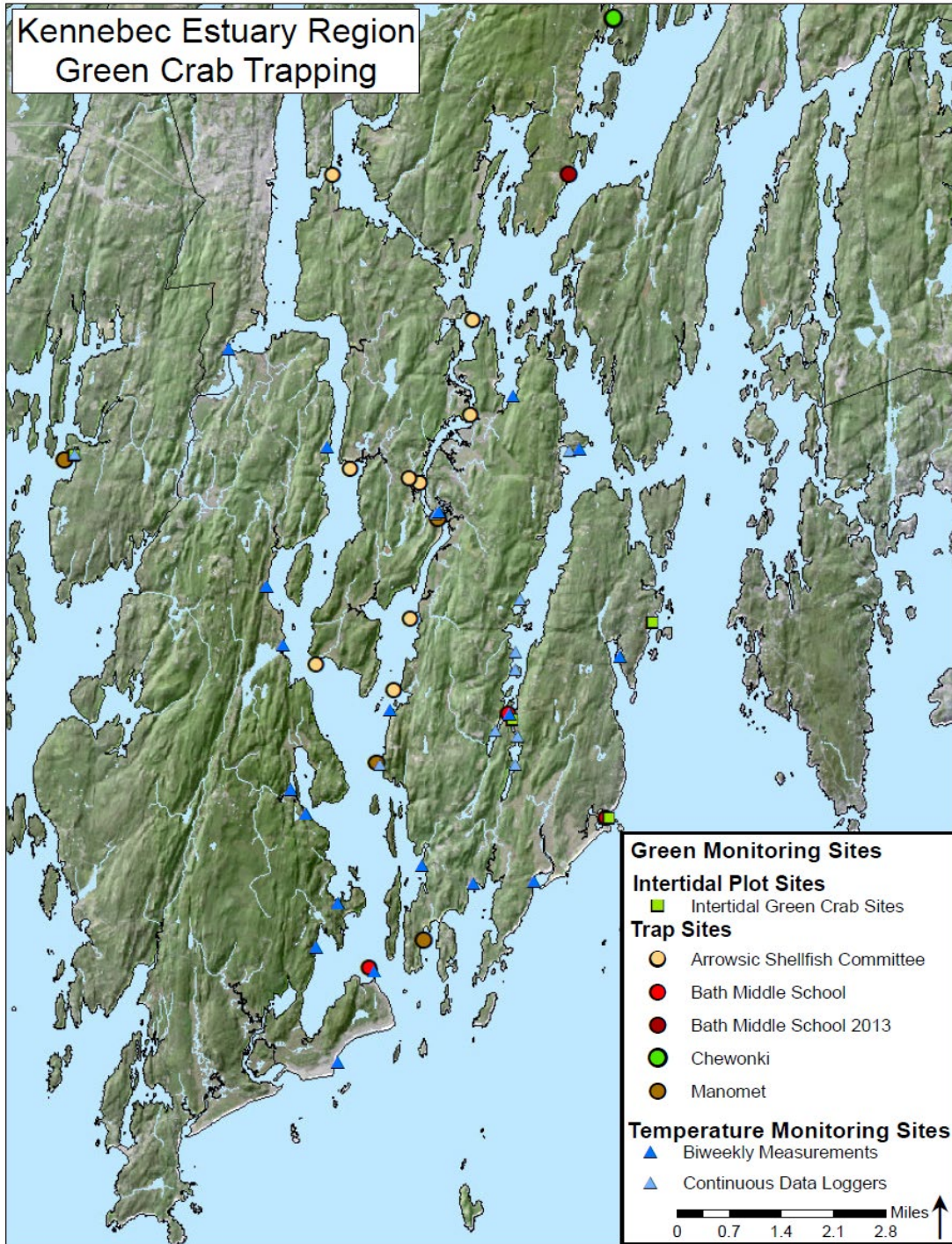
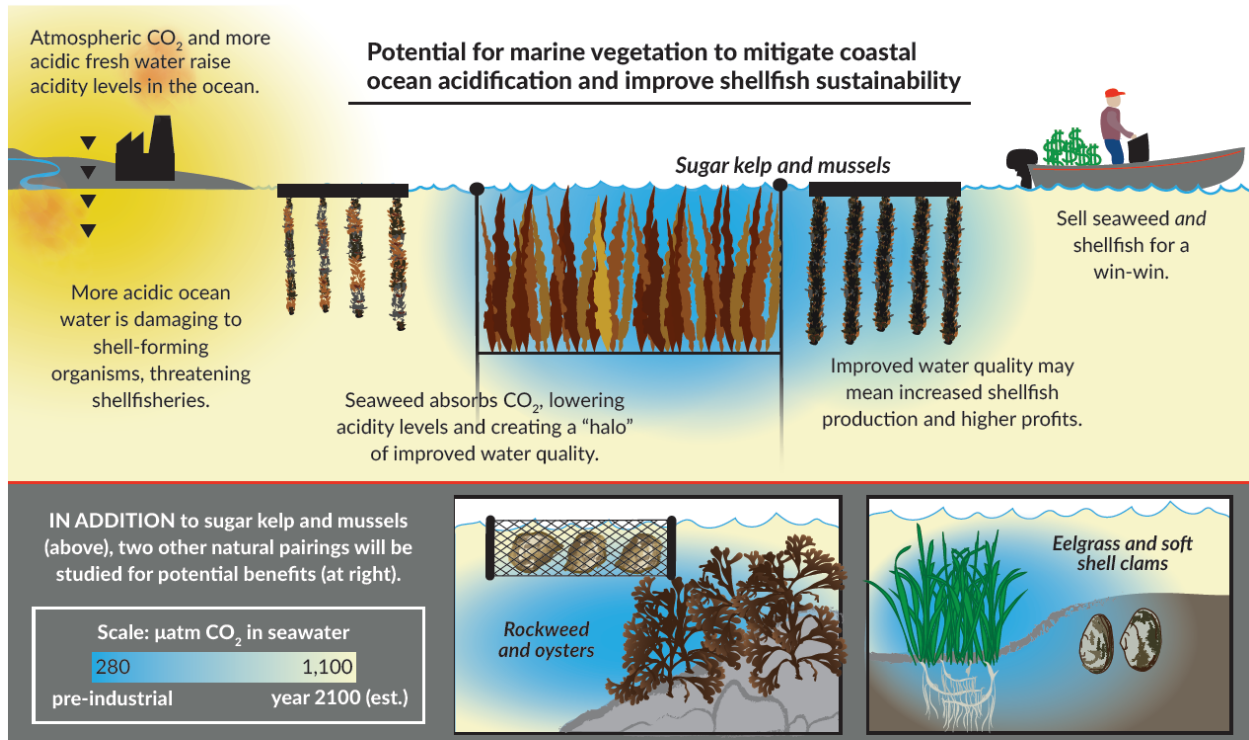


Figure 1. Green Crab Monitoring Sites (Courtesy of Ruth Indrick, Kennebec Estuary Land Trust)



ISLAND INSTITUTE **Bigelow** | Laboratory for Ocean Sciences Contact: Susie Arnold, sarnold@islandinstitute.org

Figure 2. Phytoremediation as an adaption strategy.