

Needs identified for the RI Shellfish Management Plan
(Issues Identified at Restoration Scoping Session)

1) There is a need to improve shellfish management through increased sharing of information *(24 individual/ 14 industry = 38 votes)*

- ➔ **Coordination between the DEM, CRMC, DOH, NOAA and other agencies; protocols for data sharing** *(11 individual/ 8 industry = 19 votes)*
- ➔ **Funding for NRCS Program (utilizes commercial aquaculturist's seed product)** *(5 individual/ 1 industry = 6 votes)*
- ➔ **Education component to demonstrate value/safety to the public (regarding restoration and oyster gardening)** *(4 individual/ 1 industry = 5 votes)*
- ➔ **Water quality – definitions and consistency in management; why closures, etc – better communication** (Issue identified at Wild Harvest Scoping Session) *(1 individual/ 1 industry = 2 votes)*
- ➔ **Reach down to K-12 in education** *(1 individual/ 1 industry = 2 votes)*
- ➔ **Local community education of regulations and science** *(1 individual/ 0 industry = 1 votes)*
- ➔ **Create use maps – to address use conflicts, diggers to know where leases are located, etc.** *(0 individual/ 1 industry = 1 votes)*
- ➔ **Ensure industry and management share common goals – “are on the same page”;**
understand needs of management and industry concurrently when managing resources
(Issue identified at Wild Harvest Scoping Session) *(0 individual/ 1 industry = 1 votes)*
- ➔ **Communication – fishermen send real-time observations to server or somehow keep track of their observations/ info seen on the water** *(1 individual/ 0 industry = 1 votes)*
- ➔ Aquaculture as agriculture – clarify, define
- ➔ Continued collaboration with Narragansett Bay Commission – does good monitoring element
- ➔ Communicate ongoing, existing, and needed research
- ➔ Understanding differing needs of inshore and offshore aquaculture- in and out of Narragansett Bay, i.e. ponds vs. bays
- ➔ Industry-based surveys
- ➔ Better communicating closures (possible GIS tool?)
- ➔ Better signage for pollution closures (Issue identified at Wild Harvest Scoping Session)
- ➔ DEM designated grow-out areas regarding aquaculture production – how are they determined? What do they mean? (issue identified at Aquaculture Scoping Session)
- ➔ Openness for changes in verbiage in the products of the Shellfish Management Plan - Not “will” or “shall” ... rather use, “may” (issue identified at Aquaculture Scoping Session)

- ➔ Emphasize diversity in the sense that this is not a “quahog-centric” project (issue identified at Aquaculture Scoping Session)
- ➔ Engage the general public – ensure public voice is heard – who? How? (Issue identified at Wild Harvest Scoping Session)
- ➔ Addressing diversity (multicultural aspect) of public (Issue identified at Restoration Scoping Session)
- ➔ Engage food distributors, dealers, towns, DOH etc. (Issue identified at Wild Harvest Scoping Session)
- ➔ Involve dealers more; dealers input into winter harvest schedules (Issue identified at Wild Harvest Scoping Session)
- ➔ Need for a Recreational harvest Scoping Session (Issue identified at Wild Harvest Scoping Session)
- ➔ Knowledge transfer between generations (Issue identified at Wild Harvest Scoping Session)
- ➔ Lack of recruitment (people) into shellfishing – there is no next generation (Issue identified at Wild Harvest Scoping Session)
- ➔ Fishermen’s knowledge and expertise is considered AND compensated in this process – how? (Issue identified at Wild Harvest Scoping Session)
- ➔ Clarify goals of industry and management – reasonable time frame (Issue identified at Wild Harvest Scoping Session)
- ➔ Look at Puget Sound MP as example (maybe Baird Symposium, invite them to speak?) (Issue identified at Restoration Scoping session)
- ➔ NOAA funding – How to interface with the National Shellfish Initiative (Issue identified at Restoration Scoping session)

2) **There is a need to identify the role economic valuation plays in shellfish management** (8 individual/ 11 industry = 19 votes)

- ➔ **Develop facility in Jerusalem to support aquaculture in the state** (issue identified at Aquaculture Scoping Session – can pertain to restoration and/or wild harvest as well) (1 individual/ 5 industry = 6 votes)
- ➔ **Cost/ Benefit Analysis – Closed waters, use conflicts, best use of space (research)** (3 individual/ 1 industry = 4 votes)
- ➔ **Role of shellfish in ecotourism** (1 individual/ 3 industry = 4 votes)
- ➔ **Public-private seed hatchery for RI** (issue identified at Aquaculture Scoping Session) (0 individual/ 1 industry = 1 votes) Hatchery – to support restoration (2 individual/ 1 industry = 3 votes)
- ➔ **Value of recreational shellfishing in RI (research)** (1 individual/ 0 industry = 1 votes)
- ➔ Direct marketing of products

- Role of shellfish in economic growth of RI
- Address living wage
- Value of species-specific fisheries (fisheries)
- Cost/Benefit of doing shellfish stock relay out of restricted water (Issue identified at Restoration Scoping Session)

3) There is a need to better understand the biological processes of our shellfish resources (16 individual/ 16 industry = 32 votes)

- **Seeding and transplants – MOU for seeding; how to maximize seeding biomass** (7 individual/ 3 industry = 10 votes)
- **Identify spawner sanctuaries based on environmental characteristics** (1 individual/ 7 industry = 8 votes)
- **Substrate enhancement – clutching** (2 individual/ 3 industry = 5 votes)
- **Disease resistance** (issue identified at Aquaculture Scoping Session) (2 individual/ 1 industry = 3 votes)
- **Maintain genetic diversity of shellfish stocks** (0 individual/ 1 industry = 1 votes)
- **Whelks in general; also not currently covered in biotoxin closures** (issue identified at Aquaculture Scoping Session) (1 individual/ 0 industry = 1 votes)
- **Spatial management - What scale are we operating on? Treat different areas differently; areas with size classes that have little/no value – how to address** (Issue identified at Wild harvest Scoping Session). (1 individual/ 0 industry = 1 votes)
- **Shellfish stock assessment at a reasonable scalar level (research)** (1 individual/ 0 industry = 1 votes)
- **Concerns about using wild stock for aquaculture** (Issue identified at Wild Harvest Scoping Session) (1 individual/ 0 industry = 1 votes)
- **Develop baselines for the evaluation of restoration projects** (research) – historic high as baseline? Is this realistic? (comment added at Restoration Scoping Session) (0 individual/ 1 industry = 1 votes)
- Minimum size issues (aquaculture)
- Understand brood stock characteristics necessary to maintain stocks
- Research to address whether working a shellfish area aerates the ground (research)
- Market research for spider crabs (Issue identified at Wild Harvest Scoping Session)
- Sparse science concerning spawner sanctuaries and brood stocks; enhancement? (research) (Issue identified at Restoration Scoping Session)

- Can't rely on natural recruitment; manage like running a farm (Issue identified at Restoration Scoping Session)

4) There is a need to understand the ecosystem-wide interactions with shellfish management (1 industry votes for whole topic/ 14 individual/16 industry = 21 votes)

- **Shellfish restoration for water quality purposes in enclosed waters** (6 individual/ 7 industry = 13 votes)
- **Management of Invasive Species** (3 individual/ 0 industry = 3 votes)
- **Link the restoration of water quality to habitat restoration and how this will improve the industry; link water quality to restoration efforts 1st** (0 individual/ 3 industry = 3 votes)
- **Nitrogen reduction – impacts on shellfish resources** (Issue identified at Wild Harvest Scoping Session) (1 individual/ 1 industry = 2 votes)
- **Effects of ocean acidification** (Issue identified at Wild Harvest Scoping Session and before) (1 individual/ 1 industry = 2 votes)
- **What is effective restoration? What are the numbers?** (1 individual/ 1 industry = 2 votes)
- **Perpetual management for ecological health and sustainability** (0 individual/ 2 industry = 2 votes)
- **Hydrodynamics – part of siting spawner sanctuaries** (1 individual/ 1 industry = 2 votes)
Incorporation of hydrodynamic information research)
- **Climate change (research)** – how is climate-based ocean acidification occurring, etc. (elaborated in at Restoration Scoping Session) (1 individual/ 0 industry = 1 votes)
- Ecological impacts from aquaculture (issue identified at Aquaculture Scoping Session)
- Predator management – i.e. abundance of sea stars affecting shellfish, spider crab abundance (after lobster decline?)
- Predation – can we use predator control to increase clam numbers? (research)

5) There is a need to identify and minimize various risks to shellfish resources and mitigate those risks(2 individual/ 4 industry = 6 votes)

- **Management of closures due to human health risks (research)** (1 individual/ 2 industry = 3 votes)
- **Upwellers in prohibited waters** (1 individual/ 0 industry = 1 votes)
- **Water quality in enclosed waters** (ex. Narragansett Bay) (0 individual/ 1 industry = 1 votes)
- **Sanitation due to effects from birds, i.e. cormorants and Canadian Geese – issue with water quality in Narrow River watershed** (0 individual/ 1 industry = 1 votes)

- Time/Temp *Vibrio* issues (issue identified at Aquaculture Scoping Session)
- Consistency of shellfish reporting and transport requirements
- Harmful algal blooms
- Management of invasive species
- Disease resistance (issue identified at Aquaculture Scoping Session)
- Build the capacity of state agencies to minimize risk
- Consumer education, esp. those who are vulnerable health-wise
- Issues of transplants, contamination, temperature “abuse”
- Harvest to plate temperature changes and effective cooling procedures (research)
- Time releasing of effluents (research)
- Dredging and marinas

6) **There is a need to examine and determine effectiveness of existing policy and investigate alternative strategies for improved management** (15 individual/ 19 industry = 34 votes)

- **Enforcement – funding?** (5 individual/ 10 industry = 15 votes) **Adequate enforcement (i.e. web cams, deputies, etc.)** (1 individual/ 1 industry = 2 votes)
- **Seeding and transplants – MOU for seeding; how to maximize seeding biomass** (3 individual/ 2 industry = 5 votes)
- **Funding – identify how plan can be funded (all issues need a sustainable funding source)** (1 individual/ 1 industry = 2 votes)
- **Organize existing Laws** (1 individual/ 1 industry = 2 votes)
- **Licensing issues – cost, regulations, due date, capacity, exit/entry ratios, ‘use it or lose it’** (0 individual/ 2 industry = 2 votes)
- **Identify spawner sanctuaries based on environmental characteristics** (0 individual/ 2 industry = 2 votes)
- **Possible explore creating new management structures** (issue identified at Aquaculture Scoping Session) (1 individual/ 0 industry = 1 votes)
- **Role of restoration and enhancement vs. “put & take”** (1 individual/ 0 industry = 1 votes)
- **Treating aquaculture as agriculture – Right to Farm** (1 individual/ 0 industry = 1 votes)
- **NSSP – reasonable rules? – with regard to restoration, ensure “best management” practices (elaborated on at Restoration Scoping Session) Relationship between commercial harvesters and NSSP** (1 individual/ 0 industry = 1 votes)
- Use conflicts – create use maps
- Sustainable funding source or disease monitoring survey work (Issue identified at Restoration Scoping Session)

- Aquaculture as agriculture – clarify, define, Right to farm
- Need a vision for where we want to be (issue identified at Aquaculture Scoping Session)
- Nurseries/ Upwellers in prohibited waters
- Limits of space for aquaculture (issue identified at Aquaculture Scoping Session)
- Activities in conditional waters – how to appropriately go about this (issue identified at Aquaculture Scoping Session)
- Climate change and Sea Level Rise - Anticipate changes to the environment
- Recreational shellfishing - Permanent closures, conflicts, restoration
- Development of “economic development zones”
- Division of shellfish management areas – examine, re-evaluate
- Further development of Spatial Tools – EcoPath, EcoSpace, etc. (research)
- Social carrying capacity (issue identified at Aquaculture Scoping Session)
- Biological carrying capacity (issue identified at Aquaculture Scoping Session)
- Organize existing laws
- Consistency of health certifications
- Treating aquaculture as agriculture, Right to Farm
- Accessibility - recreational and commercial access to fishing areas
- Preserve working waterfront access – marina’s pushing out commercial boats (Issue identified at Restoration Scoping Session)
- Reclassify waters at federal level - \$30M+ is coming from restricted waters (specific to CT) (elaborated on at Restoration Scoping Session)
- Identify possible ‘economic development zones’
- Climate change (research)
- Accessibility- most Right of Ways are gone – public access issues make recreational harvest challenging
- Fair dockage prices (Issue identified at Wild Harvest Scoping Session)
- Identify opportunities for aquaculture with existing infrastructure – public/private (issue identified at Aquaculture Scoping Session)
- Review and justify management area and/or pollution closures (i.e. Green Hill Pond, Watch Hill) (Issue identified at Wild Harvest Scoping Session)
- Fishermen input into management process, equal say, and continues into future management regulations and implementation - (Issue identified at Wild Harvest Scoping Session, was discussed specific to conch fishery but applies across all species)
- Climate change and Sea Level Rise – Anticipate changes to the environment

- ➔ Recreation shellfishing – permanent closures, conflicts, restoration
- ➔ Development of “economic development zones”
- ➔ Division of Shellfish Management Areas – examine, re-evaluate
- ➔ Further development of Spatial Tools – EcoPath, EcoSpace, etc (research)
- ➔ Social carrying capacity (Issue Identified at Aquaculture Scoping Session)
- ➔ Biological carrying capacity (Issue Identified at Aquaculture Scoping Session)
- ➔ Consistency of health certifications
- ➔ Accessibility – recreational and commercial access to fishing areas
- ➔ How does NOAA MSP Initiative tie into what we’re doing? – RI is part of this process; citizens aren’t informed but concerned (Issue identified at Restoration Scoping Session)
- ➔ Need to think outside management boxes – give DEM tools to do more, manage independent of areas (Issue identified at Restoration Scoping Session)
- ➔ Define what species to restore and to what levels (Issue identified at Restoration Scoping Session)
- ➔ Think into the future of the SMP – other prospective species? (Issue identified at Restoration Scoping Session)
- ➔ Oyster Gardening – great initiative (Issue identified at Restoration Scoping Session)