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2019 AANS R&D Priorities

Results from December 7th 2018 Workshop

Isabelle Tremblay, Ph.D.
R&D Coordinator
How far did you travel for R&D Workshop

- less than 20 km
- 21-100 km
- 101-250 km
- 251-400 km
- more than 400 km
Top 3 roles that you want AANS to focus on

- Advocating with gov agencies
- Community engagement with municipalities
- R&D initiatives
- Finding market/sales for your products
- Convening/facilitating educational programs for members
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Growers

Academia/Consultants

Government
Develop an online market place for Sea Farmers products

Develop new services to members (e.g. branding service)

Coordinating and engaging research projects

Atl Canada inshore water quality monitoring (historic data)

Continue and enhance relationships between industry, research & communities

Organize and coordinate beach clean up events with industry members

Develop new services to members (e.g. branding service)

Develop an online market place for Sea Farmers products

Top 3 activities you want AANS to focus on

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Percentage

Top 3 activities you want AANS to focus on

Organize and coordinate beach clean up events with industry members

AANS Community Engagement Scoping

Continue and enhance relationships between industry, research & communities

Atl Canada inshore water quality monitoring (historic data)

Coordinating and engaging research projects

Develop new services to members (e.g. branding service)

Develop an online market place for Sea Farmers products

Percentage

0 5 10 15 20 25 30 35
Online market place for SF products
New services to members
Coordinating and engaging research projects
Atl Canada inshore water quality monitoring
Relationships between stakeholders
AANS Community Engagement Scoping
Beach clean up events with SF

Top 3 activities you want AANS to focus on

- Growers
- Academia/Consultants
- Government

Percentage

Percentage

Percentage
2019 R&D Priorities determination

• Breakout groups (per species)
  • determine **TOP 2 R&D priorities for 2019**
  • determine the **STEPS for 2 priorities**

• LUNCH

• Breakout groups (per sector)
  • determine **TOP 2 R&D priorities for 2019**
  • determine the **STEPS for 2 priorities**

Data compilation (December 2018)
Rainbow trout

1. **Egg source – key constraint - there is currently a single source for eggs.**
   - Strategy should be to continue to carry on initiative to develop a framework for broodstock program & alternative egg sources.
     - Determine what is available and benchmark the strains – include commercially available strains and local strains
     - Assess constraints & possibilities
     - Explore Pan-Atlantic approach to increase critical mass to support program
     - Other activities within the program

2. **Early maturation**
   - Anticipating that breeding program will reduce this issue

3. **Availability of year round trout sites instead of seasonal**
   - Initiatives are underway
Striped Bass

1. **Broodstock** – key constraint - need to develop both a short term and long term strategy to address it
   a. **Short term strategy** : Carry on plans already underway
      i. develop best management practices for existing fish with broodstock potential
      ii. conversation with DFO re. possibility of obtaining wild eggs & mature fish - recognizing that industry needs longer term plans than reliance on wild

   a. **Long term strategy:**
      i. Follow similar course of action as what is being done for trout regarding development of a broodstock and breeding program. – GORP?

2. **Nursery space** – nursery phase required for first winter
   a. Need to ensure there is a home for fish produced this spring
      • Continue to pursue licence requirements
Atlantic Salmon

1. **Access to New Sites/Increasing Production on Current Sites**
   - Need to consider containment management technologies
   - Timelines for licensing (delays from network partners; incl. feds)
     - Better communication & resources within feds
   - Broodstock access & seed source = land based operators
   - Developing SOPs for current activities on the farm
     - Mostly for smaller operators (limited capacity)

2. **Changing Oceanic Conditions**
   - Monitoring
   - Modelling to predict changing conditions
   - Better understanding on how these changes will affect operations
   - Develop mitigation strategies

3. **Workforce/Recruitment**
   - Attract and retain skilled workers
Eels

1. Environment
   - Develop clear regulations for land-based operations (incl. eel, striped bass, hatcheries, etc.)
     - Clear effluent targets (e.g. N, P, drug)
   - Technologies to treat nutrients/drugs
     - R&D to remove nutrients from liquid effluent
     - Drug removal from solid/liquid waste
   - Site selection
     - Heat source, water in effluent, etc.

2. RAS (recirculating aquaculture systems) technologies
   - Stable oxygen/flow delivery
   - Heat recovery
   - Disease management within RAS
     - Treatment options
Mussel

1. **Duck predation** – difficult to find a solution
   - Look at technologies and techniques used other countries
   - Develop new technologies and techniques to grow mussels in protected gears (e.g. netting)
   - Funding support for testing all that

2. **Biofouling** – continues to be an issue, however, presents a larger pain point for smaller operators (loss of industry in NS)
   - Research and investment in:
     - equipment, ex. spraying gear
     - farming techniques, ex. Liming
Oyster

1. Access to Capital
   • Support for new entrants to promote industry growth.
     • Creation of a government “bridge” funding & funding to pay farm workers during business establishment (until ROI allow farm to be self-supporting).
     • Business training to SMEs operator: “How to expand and scale up operations to establish higher production values while covering existing operating expenses”.

2. Secure Seed Supply
   • Commercial scale hatchery
     • Industry supported and possibly be run through a partnership (administered by the AANS?).
     • Production focused on industry supply, but also requirement for genetic and broodstock programs.
   • Spat collection of wild oyster sets
     • Spatfall monitoring program as in other provinces.
   • Concern for disease (introductions and transfers), as well as bacterial infection.
     • More investments for bacterial monitoring, testing, treatment and controls.
     • Increase awareness: product safety, safe food handling practices and product safety.

3. Environmental monitoring
   • Increased environmental monitoring at the operational, or lease level.
     • The data would provide information for “Why did things go wrong?”.
       • pH, temperature, DO, Salinity, chlorophyll a, ice cover, etc.
1. **Biofouling – tunicates**
   - Further R&D into net coatings and growing strategies – Knowledge transfer

2. **Seed supply - one seed supplier in the province**
   - Diversifying seed supply
   - Wild spat collection - Access to spat sorting equipment (e.g. Uni Ste. Anne)

3. **Need for mechanization to grow scallop sector**
   - Look at R&D technology used in scallop industry in Japan
   - Apply to funding agencies to bring in these technologies

4. **Toxins and closures**
   - HAB events: frequency, timing etc. = closure problems
   - Potential for species specific testing (CFIA testing for closures)?

5. **Access and cost of basic scallop farming equipment**
   - No local supplier, need to get it from Asia = high shipping costs

6. **Expansion of scallop farming industry**
   - Long learning curve with scallop farming
Seaweed

1. **Can it be grown?**
   - How much can be grown?
   - Are the sites which have been selected the best options?
   - Cost of production?
   - Best inoculation site/option?
   - Time and personnel requirements?

2. **Market exploration:**
   - Regulatory requirements for various products and locations of sale
   - Any value to obtaining certifications like MSC/ASC?
   - Development of multiple products to use 100% of resource; explore blended products
   - Costing
   - Volume requirements
   - Ability/need to create a collaboration like Maine Seaweed Exchange
1. **Labour and workforce**
   - This is a LABOUR problem, not a skilled worker problem: find and retain workers

2. **Social licence and community engagement**
   - Interactions between aquaculture and lobster and wild salmon – need study on a local scale (NB ≠NS)
   - Need good education campaigns to educate public
   - *Marketing Campaign* – current/updated vision of aquaculture
   - Go into communities and talk about the positive impact of aquaculture
   - Local Sea Farmers must champion for themselves - Hire local and engage with their local communities

3. **Global Climate Change and Technology**
   - New tools and technologies to help deal with climate change impact
     - More consistent monitoring of water (e.g. temperature, salinity) is needed
       - All sites: where farms and where NO farms
   - Data management and data mining
     - Must have a system to manage them and people available to interpret it

4. **Containment**
   - Marine cages - Need equipment specifically for the ocean conditions of NS
   - Land based facilities – Need for clear regulations and guidelines
Shellfish Sector

1. Environmental monitoring
   a. Need to improve the monitoring at the lease level (e.g. temperature, salinity, etc.)

2. Food safety
   a. Improved testing is required
      • Turn around for product testing is too slow (e.g. Vp testing)
      • Intensity of env. testing is not high enough – testing temporally & spatially
   b. More consistent application of food safety standards – product sold within NS vs outside NS
   c. Make QMP easier to implement – Template for shellfish processors would be useful.

3. Operational funding
   a. Funding for capital generally easy, but not to fund operating costs –
      • Serious constraint to grow business since there is a lag between initial investment and cash flow
      • May be useful if an approved lease could be used as security for loan

4. Introduction & Transfer constraints – getting worse
   a. Seems to be a lack of science based decision making because the science has not been completed and takes a long time to complete e.g. for effective risk assessment (e.g. restrictions to shellfish movements due to MSX, Malpeque disease)

5. Mechanization

6. Labour – attract and retain workers
   a. expand LAMPSS program to extend to all youths – not just University students
Next steps

1. Communicate/distribute 2019 R&D Priorities to stakeholders
2. Facilitate priorities alignment with stakeholders
3. Organize species specific workshop/roundtable to develop partnership and initiatives to address identified priorities

Moving forward

• R&D Priorities:
  − short term vs long term
• Need for long term vision/planning to achieve goal
  − Aquaculture Business Development Plan?