

# 2018 AANS R&D Priorities

*Results from December 15<sup>th</sup> 2017 Workshop*

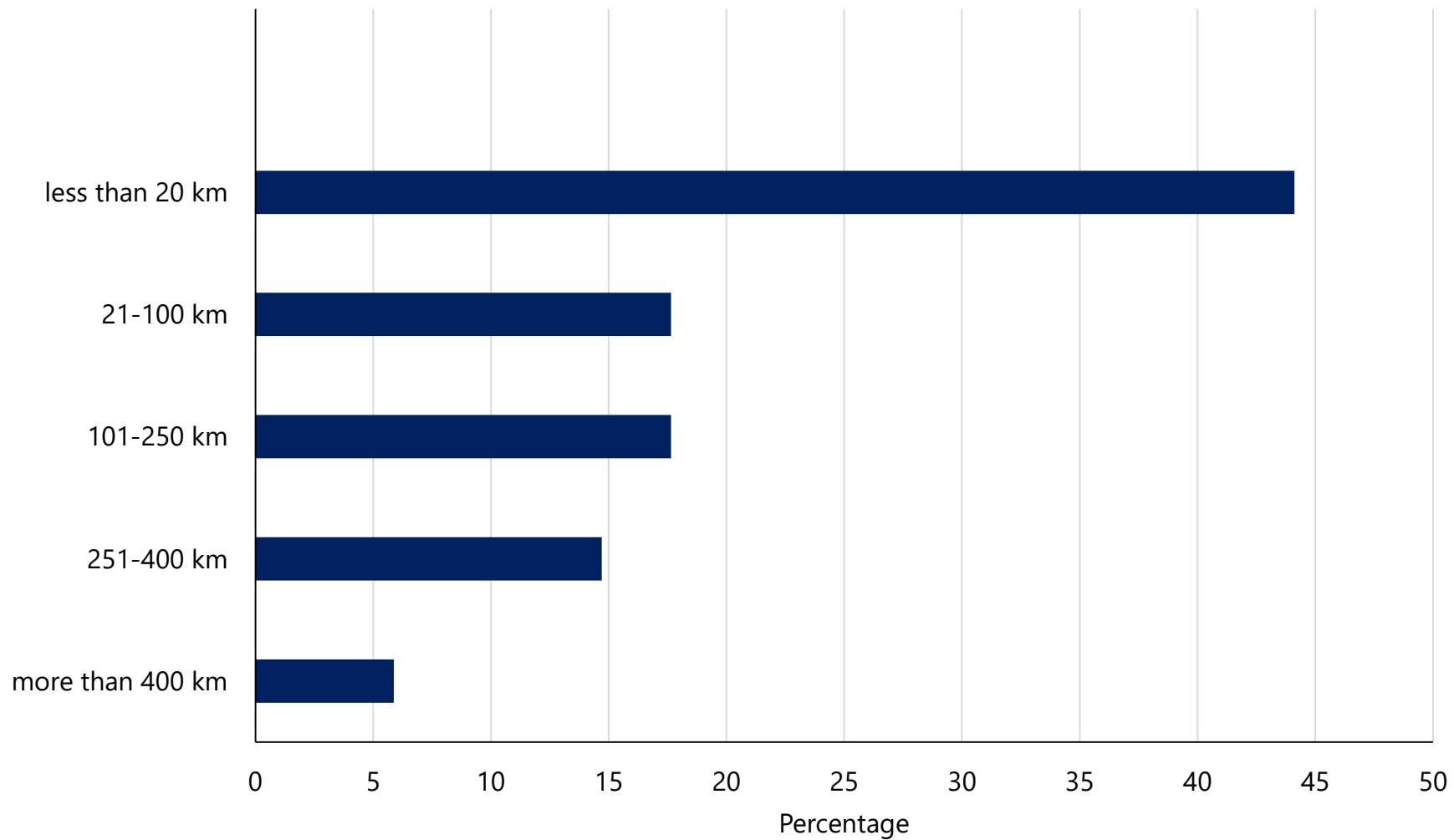
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**MAKING  
WAVES**

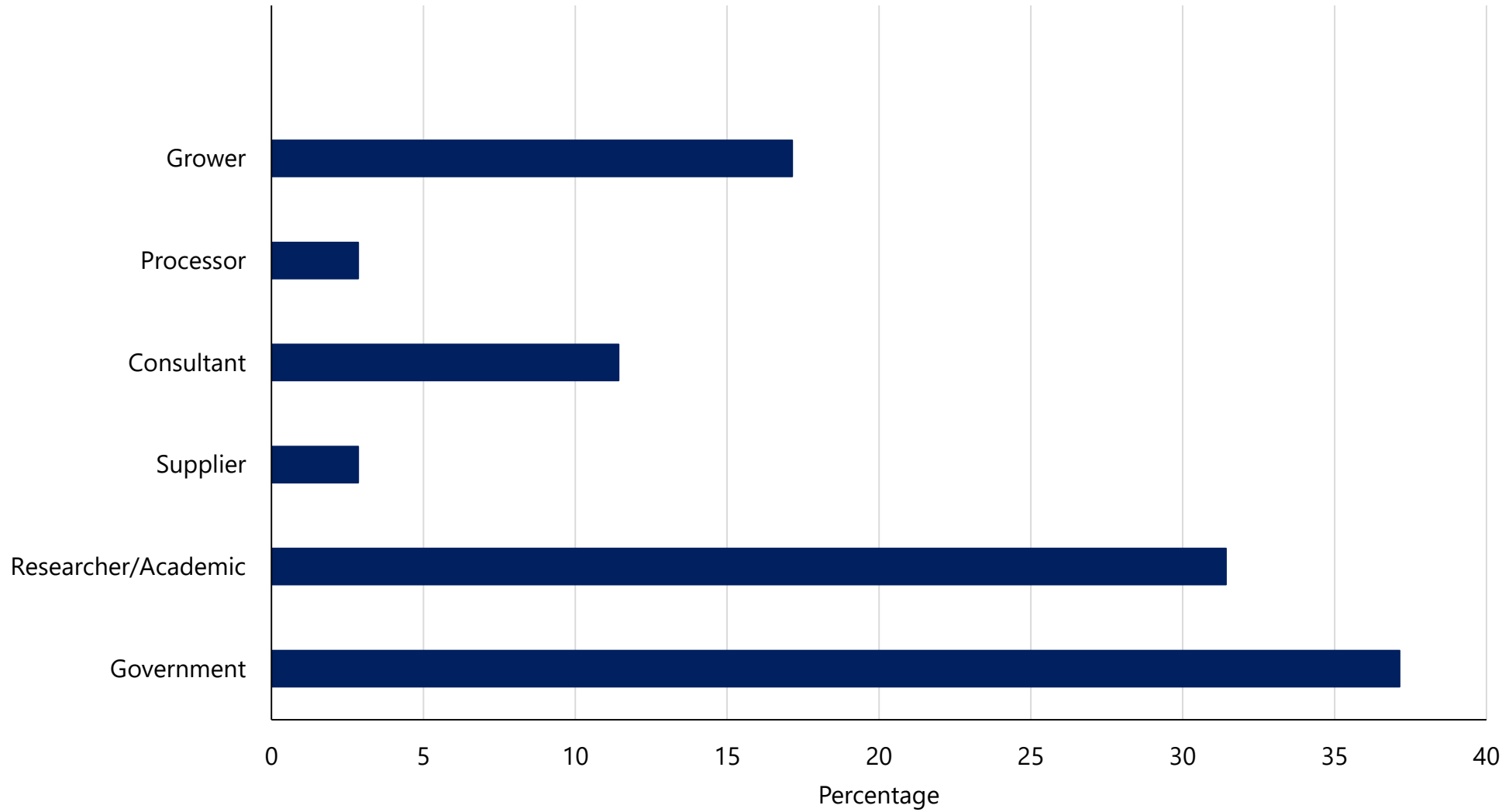
Aquaculture's Next Chapter



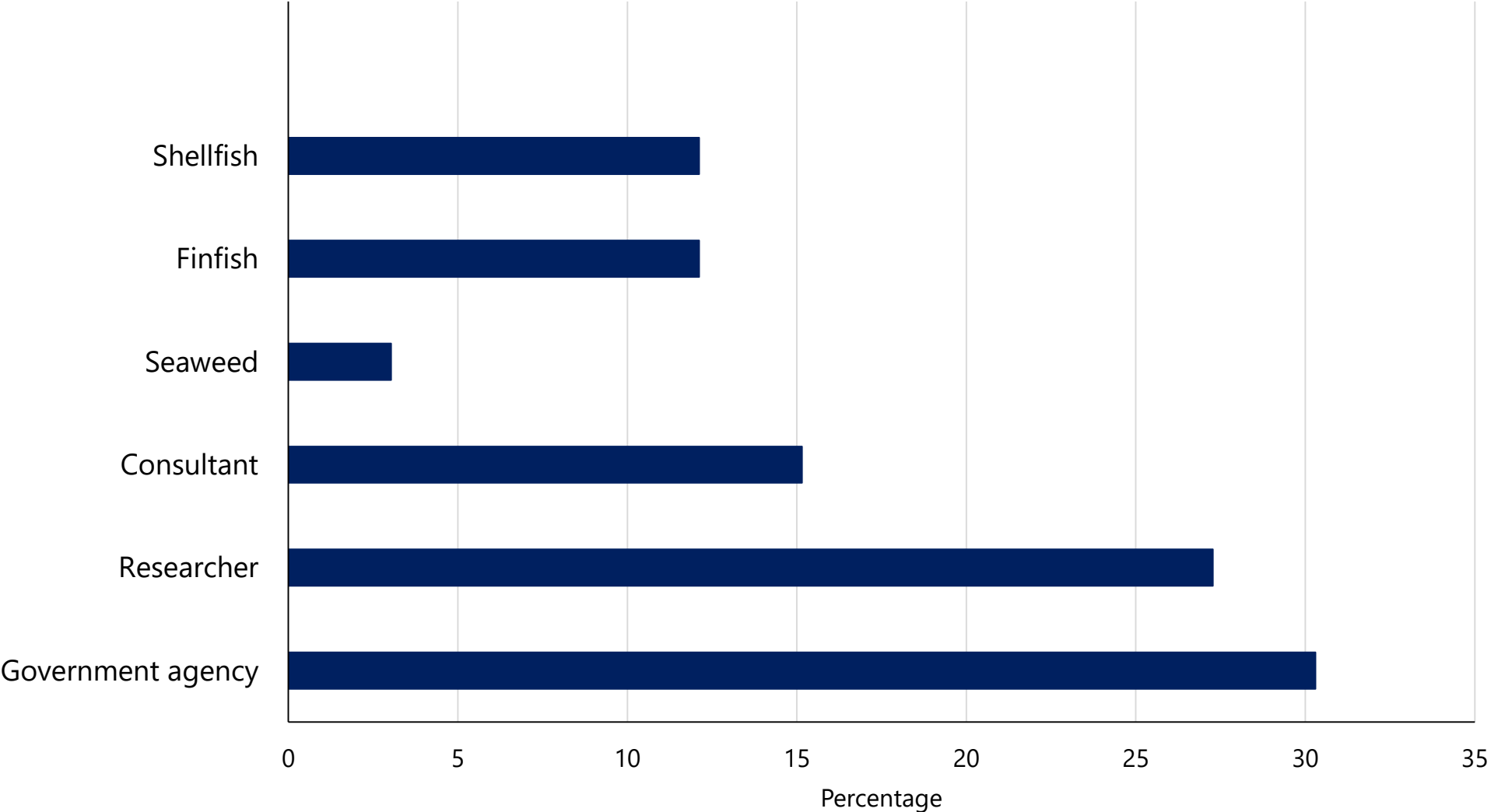
# How far did you travel for R&D Workshop



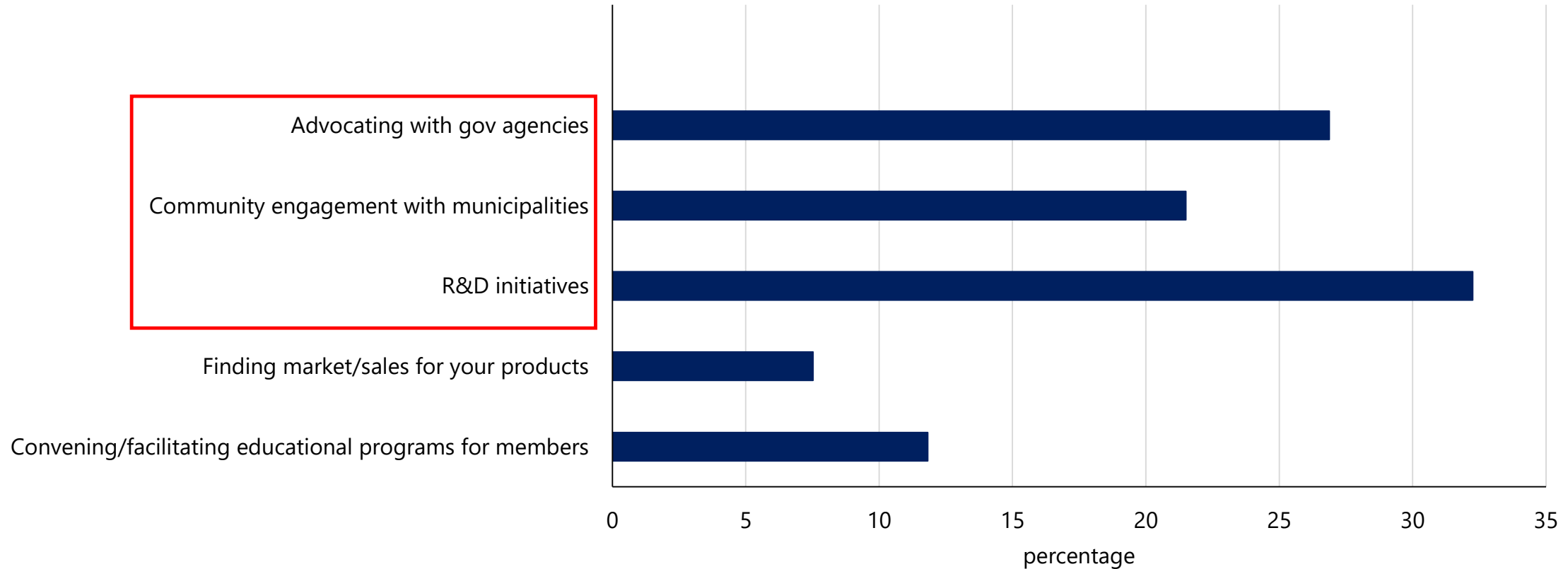
# What is your role in industry



# Which aquaculture sector are you from



## Top 3 roles that you want AANS to focus on

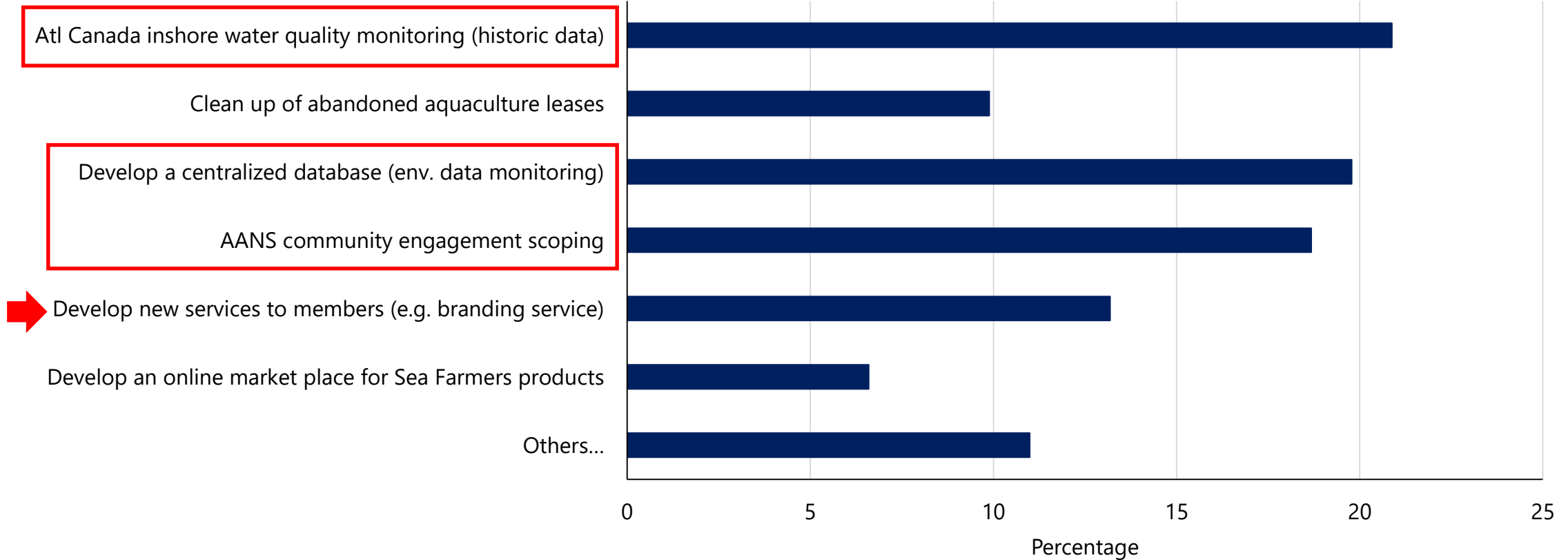


### Other comments:

- Fish Health Service to Industry
- Disease surveillance & management



## Top 3 activities you want AANS to focus on



### Other comments:

- Lobbying government to speed up licensing
- Coordinating and Engaging Research
- Include CSSP water quality monitoring/testing program (to 1<sup>st</sup> activity)



# 2018 R&D Priorities determination



- Breakout groups (per species) to determine **TOP 2 R&D priorities for 2018**
- LUNCH
- Breakout groups (per species) to determine **STEPS for 1<sup>st</sup> priority**
- Breakout groups (per species) to determine **STEPS for 2<sup>nd</sup> priority**
  
- Data compilation (December 2017)
- Cross check with industry (email & phone) (January 2018)



# Rainbow trout



## 1. Egg sources (more than one)

### a. Short term: alternative egg sources

- Get industry partners involvement and cooperation: make plan for egg import
- Get government (federal and provincial) approval and support for egg importation
- ID egg sources for import
- Identify facilities for imported eggs
- ID and get funding sources, include egg producers
- Comparison on strains/stocks

### b. Long term: broodstock program

- Dalhousie University (Aquatron) is interested in moving forward a Steelhead Broodstock Program
  - Possible experts have been identified
  - Identify partners (industry, science, government)
  - Approach funding partners
- Industry driven

## 2. Suitable sites:

### a. Short term:

- Wintering sites
- Working with and backed with industry, academics and government stakeholder to collect relevant data

### b. Long term:

- Industry ID marine sites that have potential to work for business model.



# Striped Bass

## 1. Broodstock:

- a. Facilities: Where to house broodstock?
  - Challenges: Temperature control, fresh water quality, photoperiod
- b. Broodstock availability: Where to get broodstock? Grow them?
  - Broodstock program: start with wild-caught juveniles
    - Cannot spawn wild caught brood for commercial purposes – why? DFO regulations? What are the restrictions?
    - Wild caught need to wait a few months before spawning, get good quality eggs for the 1<sup>st</sup> generation
  - Aquatron?

***Action point: Meet with DFO to discuss regulations on striped bass harvest (eggs/brood and/or collection from wild). Should be initiated by AANS.***

## 2. Access to juveniles:

- a. Nursery space: Space is limited
  - Immediate solution = DAL AC & Aquatron: use both facilities for short-term solution.
  - Explore other possibilities for long-term
- b. Grow out:
  - Re-licensing of ponds for grow-out
  - Locating sites for new artificial ponds
- c. Condition of fish from nursery to grow-out: Need for optimizing this component



# Atlantic Salmon

1. **Community acceptance:** *(Goal: Knowledge for informed decision)*
  - a. Activities: Information sessions, workshop
    - AANS: Leaders
    - Key: Transparency and education
  - b. Research: understand how information is used and drivers (age, distance to the ocean...)
    - Deliverables: Framework for systematic application
    - How to evaluate success???
2. **Business Risk Management:** *(Overarching idea: gather data, predict, and anticipate + ocean technology and modelling)*
  - a. Containment management:
    - Baseline conditions → Modelling → Standards → Mitigate Risk
  - b. Shorten sea water grow-out:
    - Hydrogeology → Saltwater aquifers = hatchery for bigger size smolts production?
  - c. Oxygen:
    - Gather data and predict to inform technology
    - Move forward ongoing initiatives
  - d. Fish health:
    - Gather data (oxygen, emergency warning indicators, behavior, etc.) and operationalize: fish welfare and farm management



# Mussel

## 1. Reliability of spat source:

- a. Do a similar spat monitoring program to PEI:
  - multi-year program designed to test water & conduct plankton towing (spat fall prediction)
  - short period to do this monitoring → 3-4 weeks/year = achievable
- b. Improve access to spat collection licenses:
  - Faster turnaround and more readily accessible from local DFO area offices in NS.
- c. Community involvement & acceptance:
  - Local fisherman to collect and sell spat to growers
- d. Management:
  - Mitigating introduction of invasive species with spat movement
  - Access to a number of different spat sources
- e. Hatchery option:
  - Not a good option due to value issue = mussels aren't worth as much as other species

## 2. Ducks:

- a. Project in St. Anne's Harbour to attract predatory birds (e.g. poles, carcasses, etc.) to the area
- b. Need something that the community will accept and that is cost effective
- c. Evaluation of latest techniques + options for deterrents:
  - E.g. removal of visual cue on leases → sinking buoys
  - Sound makers aren't best option



# Oyster (1<sup>st</sup> priority)



## 1. Seed Production & Redundancy:

### a. Wild set:

- One organization developing committed seed operation
  - Not enough for province
- Can more operators be engaged to collect wild set?
- Develop larvae monitoring program? (e.g. Like in PEI)
- Identify reliable spat setting locations?

### b. Hatchery Production:

*\*One proposal hatchery currently being considered. However, one will not be enough to resolve the problem. Therefore, more hatchery capacity is required.*

- Who?
  - University: Staff: students? Full-time employee? Who funds it?
  - More private hatcheries: Who?
  - Consider importance of native stocks
  - Best methods to apply hatchery seed (e.g. remote setting)

# Oyster (2<sup>nd</sup> priority)

## 2. Health Management:

### a. MSX (Cape Breton):

- Continue ongoing research for MSX resistant strain (long term solution)
- Determine environmental parameters that inhibit MSX (possible immediate management tool)

### b. *Vibrio parahaemolyticus*:

- \**EDUCATION: public, food industry, as well as recreational and wild harvesters.*
  - Develop a booklet describing safe shellfish handling procedures that could be distributed with fishing licenses
- Continue industry driven monitoring program
- Regulation:
  - Develop working group to address regulatory gaps concerning food safety in the province.
  - Change regulations to have all shellfish processed at federally registered plants or at least have assurance of similar control of protocols/procedures for all product

### c. Lease utilization:

- Multiple leases locations with varying conditions can be used as a harvest management plan (e.g. in presence of *Vibrio parahaemolyticus*)
- Environmental monitoring (water quality) to improve lease use



# Scallop

## 1. Seeds:

### a. Hatchery:

- Sea scallop: 1 active hatchery in NS (needs to be supported) and 1 in NB
- Bay Scallop: 1 active hatchery in NB

### b. Spat collection:

- Find good spots for spat collection
- Training on the "how to"

## 2. Tunicates:

- Continue trials with non-toxic anti-fouling coatings
- Investigate about new strategies to mitigate or manage tunicates on nets
- Timing may be a strategy

## Other:

- Shellfish toxin testing to inform area closures: toxin accumulation in scallop vs mussel
- Mechanization for whole scallop washing
- Mechanization for ear hanging
- Access to and selection of new sites for leases



# Seaweed (1<sup>st</sup> priority)

## 1. Growing seaweed from local seed sources:

- a. Identify potential good sites for seaweed cultivation in NS
  - Assessment of existing aquaculture sites
  - Look for potential new aquaculture sites and get experimental lease
- b. Secure participation of more sea farmers partners for seaweed grow trials
- c. Hatchery:
  - Where? Dalhousie University Aquatron? Université Sainte-Anne Cape Breton? Private company?
  - Training/workshop about hatchery practices?
- d. Seaweed grow trials:
  - Density tests (biomass produced, physiological changes of seaweed over season)
  - Test different strains of the same seaweed species: e.g. NS vs Qc
    - Biomass produced
    - Regulation?
  - Site sustainability
- e. Economic viability:
  - Logistics and costs: transportation and deployment of seaweed lines
- f. Capacity development
  - Hatchery
  - Harvesting technologies



# Seaweed (2<sup>nd</sup> priority)

## 2. Market study, commercialization road map for seaweed biomass produced in NS (5 yr plan):

- a. Find funding to conduct market research:
  - Need to secure industry partners to contribute financially
- b. Identify distribution channels & margin expectations at different levels
- c. Understand potential products and volume needs
- d. Development of road map to commercialization of seaweed biomass produced





# Feedback following workshop

1. New format for R&D Prioritization:
  - Greatly appreciated
  - Very productive
  - Clear path moving forward for next year
2. Interest in having more meetings like this, but species specific:
  - 1 or 2 times a year
  - Need for funding to support those workshop/roundtable

## Next steps

1. Communicate/distribute 2018 R&D Priorities to stakeholders
2. Facilitate priorities alignment with stakeholders
3. Organize species specific workshop/roundtable to develop partnership and initiatives

