University Fishing Industry Programs: An International Review

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Briefly about myself

- Professor of Economics at the University of Alaska Anchorage since 1981
- Spent my career studying
  - Seafood markets and prices
  - Alaska fisheries management
  - Effects of aquaculture on wild fisheries
  - Global seafood industry
- Traveled widely in Alaska and other fishing / aquaculture regions
  - My fifth visit to Iceland
- Extensive interaction with Alaska fishing industry
  - Learning from the industry
  - Helping the industry understand itself
  - Education for the fishing industry is a "two-way street"

I hope to encourage
thinking and discussion about:

*How can universities educate students
for the fishing industry?*

My comments are based on a review I conducted in 2012 of
international university fisheries programs.

Outline

- Why and how I conducted my review

- Why is fishing industry education needed?

- What kinds of education does the fishing industry need?

- What conditions are necessary for university fishing industry programs to succeed?

- How successful are university fishing industry programs in meeting these conditions?

- What challenges do university fishing industry programs face?

- What are strategies for strengthening university fishing industry programs?

Why and how
I conducted my review

My review was motivated by problems with University of Alaska fisheries programs

- Low enrollment
- Poor relationship with fishing industry
    - Lack of faculty expertise relevant to industry
    - Lack of faculty connections with industry
    - Lack of student hiring by industry
    - Lack of political or financial support from industry
    - Perceived lack of benefit to industry

A private foundation sponsored my review.

The foundation wanted to know what could be learned from fisheries programs in other countries.

I focused my review on . . .

- Programs which claimed to educate students for fishing industry careers.
- Programs in countries or regions with fisheries and economies similar to Alaska
  - USA
  - Canada
  - Iceland
  - Norway
  - Scotland
  - Australia
  - New Zealand
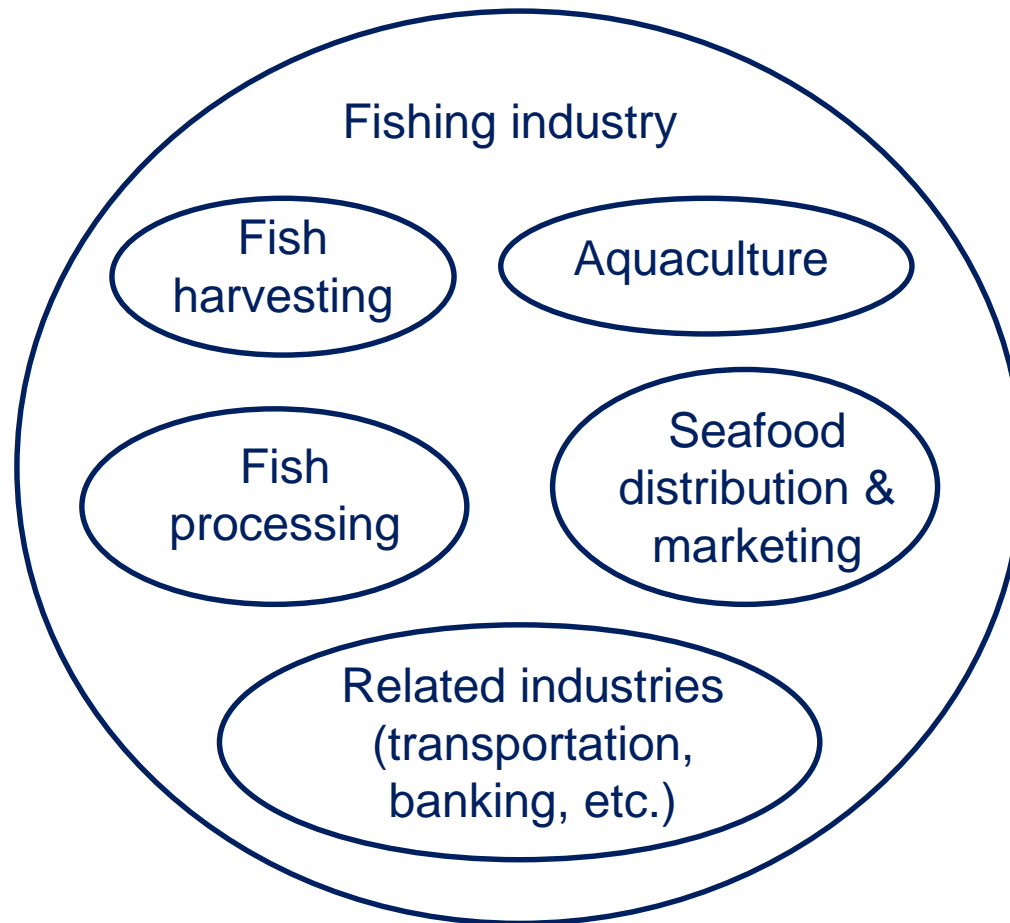
A preliminary and informal review . . .

- Identified programs to visit based on internet research
- Visited only a limited number of countries and programs
- Visited programs for 1-3 days
- Conducted informal interviews with administrators, faculty and students
- No systematic data collection or analysis
- Most programs did not have or share evaluations of their success
- Met with widely varying degrees of interest and assistance

Results of my review

- Little interest from my own university
    - In my review and conclusions
    - In self-examination or change
- But significant interest from others
    - Particularly in Iceland
- The places with the most successful programs
    - Are most interested in the questions
    - Have thought most about the answers

Why is fishing industry education needed?

The "fishing industry":
All the industries in the seafood value chain

Fishing industry

- Fish harvesting
- Aquaculture
- Fish processing
- Seafood distribution & marketing
- Related industries (transportation, banking, etc.)

"fishing industry" = "seafood industry"

The fishing industry is important

- Not everywhere—but in many places
  - Including Iceland and Alaska
- The fishing industry is of major economic importance
  - But less than its potential
- The fishing industry can provide
  - economic benefits
  - good jobs
  - In countries and regions with limited other opportunities

The fishing industry faces significant opportunities and challenges

- Rapid and continuing changes
    - Fishery resources and the environment
    - Technology (harvesting, processing, packaging, etc.)
    - Markets
    - Costs
    - Labor supply
    - Regulations (fisheries management, traceability, etc.)
- Rapid growth of global aquaculture
- Political challenges
    - Fisheries management and allocation
    - Environmental/sustainability issues
    - Social issues
    - Trade issues

In facing opportunities and challenges, the fishing industry will have an increasing need for educated people.

- With both depth and breadth of knowledge
  - Depth in their areas of responsibility
  - Breadth about a complex industry
    - Particularly as they advance to positions of leadership
- On-the-job training and experience will remain important but will no longer be sufficient
- Leaders will need education
  - As a foundation for learning from experience
  - To recognize opportunities and challenges
  - To address increasingly complex issues

Why kinds of education does the fishing industry need?

The industry needs people with both breadth of knowledge over a wide range of subjects and depth of knowledge in particular subjects.

Subject area	Subject
Basic sciences	Marine biology
	Chemistry
	Statistics
Applied sciences	Stock assessment
	Nutrition
	Food safety
	Engineering
Social sciences	Fisheries / resource economics
	Fisheries / resource law
Business	Marketing
	Accounting
	Business administration
	Global fishing & food industries

The industry and universities need to discuss what subjects are important and what breadth and depth are needed.

What conditions are necessary for university fishing industry programs to succeed?

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Mission	-- Clear mission to educate students for the fishing industry -- Understanding and support for the mission by administrators & faculty
Students	-- Sufficient numbers of students for cost-effective program -- Students have adequate academic preparation -- Students interested in fishing industry or related careers -- Current and former students view program positively
Faculty	-- Sufficient numbers and breadth of faculty -- Faculty know their disciplines and the fishing industry -- Faculty have good relationships with the fishing industry -- Professional support and opportunities for faculty -- Faculty view program positively
Instruction	-- High quality instruction -- Appropriate breadth and depth of subjects -- Appropriate required & optional subjects -- Regular interaction with fishing industry

Fishing industry	-- Industry belief in the need for education
	-- Industry support for program
	   -- tours, internships, guest teaching, hosting research projects
	   -- financial support
	-- Regular consultation between program and industry
	   -- Mission, program design
	-- Industry recruits students from the program
	-- Students seek and find employment with the industry

Political support	-- Support of university administrators -- Support of politicians -- Sufficient and stable funding

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How successful are university programs in meeting these conditions?

It is difficult to meet all of the conditions for university fishing industry programs to succeed.

- Relatively few of the programs that I reviewed met all of these conditions
- The most successful programs included:
    - University of Akureyri
    - University of Tromsö
- These programs also face challenges
- It is difficult to stay successful
    - Some programs have succeeded for a while but then weakened

What challenges do university fishing industry programs face?

Most "fisheries" programs are not focused on education for the fishing industry, but rather on fisheries science or fisheries management.

Three different types of "fisheries" programs . . .

Program focus	Examples of careers for which they prepare students	Examples of potential employers
Fisheries science	Fisheries biologist	Universities and research organizations
Fisheries management	Fisheries manager	Fishery management agencies
Fishing industry	Fishing industry specialists and leaders	Fishing industry

"Fisheries science" and "fisheries management" programs focus on a much narrower range of subjects than fishing industry programs need

- Their focus is on
  - basic sciences
  - fisheries resources
  - fisheries and environmental policy
- Narrow view of what questions are important
  - How to protect fish stocks
  - How to control catches
- Lack of interest in broader questions
  - How to achieve an economically successful fishing industry
- Lack of interest in or capacity to teach about
  - Technology
  - Business

Traditional university culture is not supportive of multi-disciplinary programs for industry.

- Faculty tend to be more interested in working with people in their own disciplines than in cooperating with people in other disciplines

- Traditional university culture rewards narrow academic specialization rather than broad practical orientation
  - Promotion, reputation and careers depend on publishing articles in specialized research journals read by other academics

The fishing industry does not have a strong tradition of university fisheries industry education.

- Many current industry leaders had no university education
    - They succeeded through hard work and entrepreneurship
    - They learned from experience
- Even fewer leaders have university "fisheries" education
- University education has not been a requirement for career advancement
    - What has mattered is what you could do

There are no government or industry requirements for university fishing industry education.

- Many university programs are in fields with government education requirements for professional licenses
    - Law
    - Medicine
    - Engineering
    - Architecture
    - Education

Other university programs can provide much
of the university-level education needed by the industry

- Business
- Engineering
- Food sciences
- Law
- Science programs (chemistry, biology, etc.)
- Marine affairs, environmental studies, and resource management programs

Students who complete these programs
may have a broader range of career options

Interest in fishing industry careers has been declining

- Many factors have contributed to the decline
  - Hard work
  - Remote locations
  - Declining social status of fishing industry
  - Negative public perceptions of fishing industry
  - Other more interesting and better-paying career opportunities
- Market research is critical for fishing industry programs!
  - Don't assume that "if we offer it they will come"

What are strategies for strengthening university fishing industry education?

Understand the market!

- Talk with industry about their needs!
- Talk with students about their needs!
- Learn who your competitors are and their strategies

Explore new approaches to teaching

- Distance education
  - Can meet needs of mature, place-based and working students
  - Fully online programs are being offered in aquaculture
  - But difficult to maintain the quality of traditional education
    - Laboratory courses
    - Need for personal interactions with faculty and other students
- Modular education (short, intense courses focused on particular topics)
  - Can meet needs of working students who can't attend full-time university courses
  - Can take advantage of facilities in other locations

Recruit students from other regions and countries

- It is difficult for local populations to support adequate enrollment
- Most successful programs (in any field) attract students nationally and internationally
- Marketing matters for fishing industry programs!

Collaborate with other programs to expand the range and quality of course offerings

- Shared distance education course offerings
- Joint distance education course offerings
- Faculty and student exchanges

Develop new types of programs

- Executive training programs
- Specialized short courses