

Sustainable Seafood

“SUSTAINABILITY IN THE HOSPITALITY INDUSRTY” Kelmscott SHS Farm Site

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WAFIC

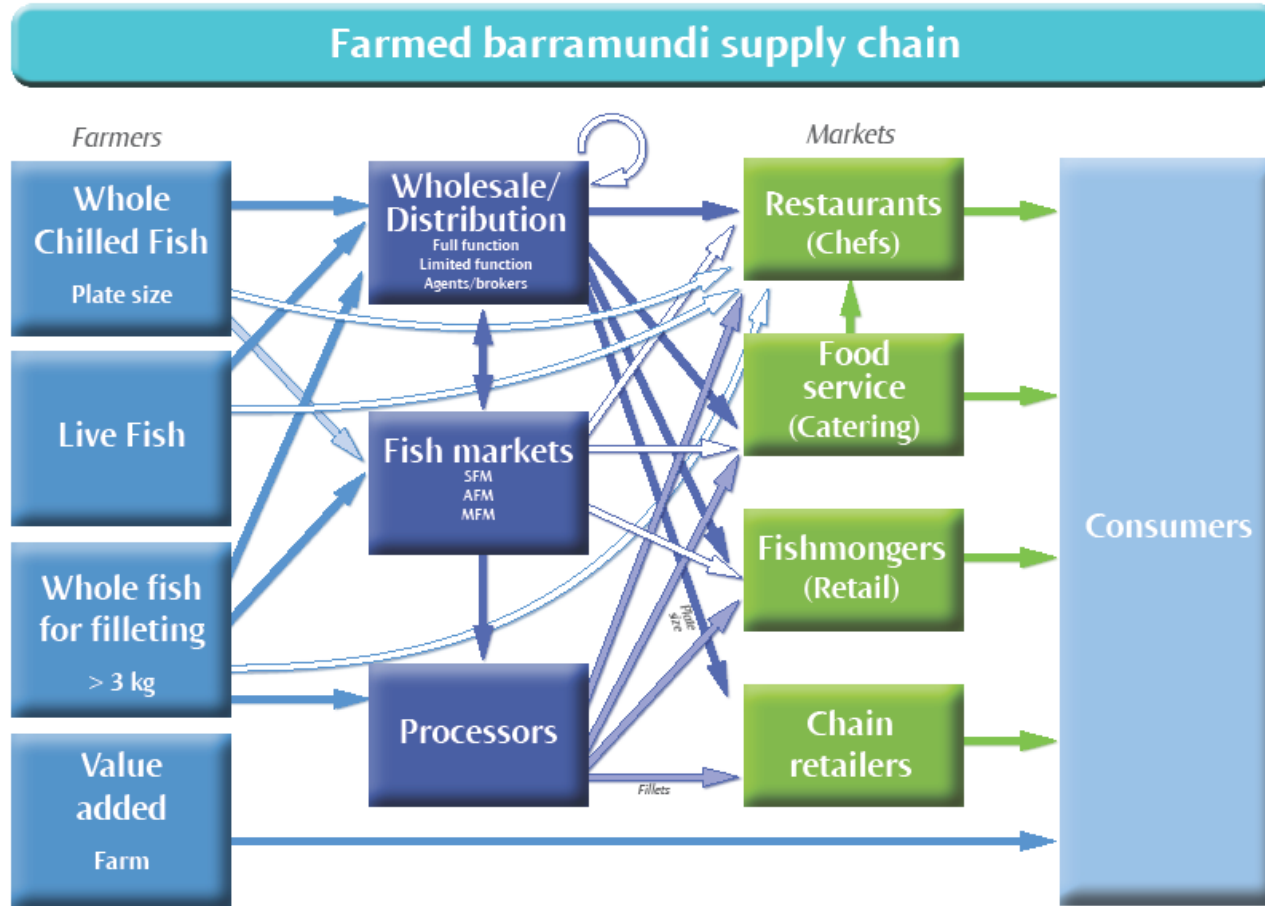


Australian Government
Fisheries Research and
Development Corporation



CESSH
CENTRE OF EXCELLENCE
SCIENCE SEAFOOD HEALTH

Map the Chain: Australian Farmed Barramundi



What is “Sustainable Seafood”

FAO Definition: Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs

TODAYS TALK

A. Areas of “Seafood Sustainability”

- Sustainable Commercial Fishing and Aquaculture Practices
- Using as much as we can of our harvestable resource
- Sustaining our local Commercial Fishing and Aquaculture industries

B. EDUCATION: Existing resources, Development of new ones and How you can help

1. Sustainable Commercial Fishing and Aquaculture Practices

Australian fisheries and Aquaculture are acknowledged internationally to be very well managed.

But positive perceptions by the community of commercial fishing are around 28% (FRDC commissioned surveys).

FRDC Research Priority : Ensuring that Australian fishing and aquaculture products are sustainable and acknowledged to be so!!

2. Using as much as we can of our harvestable seafood resource

- a. Australia and its Oceanic neighbours New Zealand and North America have the unfortunate title of being the worst food wasters in the world (Gustavsson *et al.* 2011), wasting 1,520 Kcal/capita/day compared to Europeans at 748 Kcal/capita/day and Southeast Asians at 414 Kcal/capita/day (Lipinski *et al.* 2013).
- b. Geographical reality of Australia
- Small population, disparate
 - Large distances
 - Seafood production is relatively small scale
 - much of it wild harvest.
 - Some on board processing
 - Land-based operations are mostly quite low tonnage, multi-species, few really large tonnage operations.



Food loss and food waste

1. Seafood Pre-Consumer “Loss”

- Underutilised species
- Seafood processing waste
- Supply chain management/optimisation
- By-catch
- Aquaculture Production Loss

2. Consumer “Waste”



Australian seafood loss/waste

(Gustavsson *et al.* 2011)

Food loss Area	Specifics
1. Agricultural Production (12%) \$286 million	<ul style="list-style-type: none">• “Underutilised” species (not harvested)• By-Catch• Aquaculture Losses? (disease/nutrition, predation)
2. Post-Harvest Handling and Storage (whole product) (1%)	<ul style="list-style-type: none">• Drip loss• Spoilage/Shelf-life reduction
3. Processing and Packaging (5%)	<ul style="list-style-type: none">• Edible portion loss
	<ul style="list-style-type: none">• non-edible portion loss
4. Retail and Distribution (9%) (SUPPLY CHAIN)	<ul style="list-style-type: none">• Drip loss• Spoilage/Shelf-life reduction• Fails food safety/other criteria
5. Consumption (~34%)	<ul style="list-style-type: none">• Not eaten at meal• Spoilage• Lack of knowledge/confidence

Seafood Loss:

Developing opportunities for underutilised species

Underutilised Species = can be harvested but are not!!

- Challenging on board/fishing logistics
- Low market value
 - not economic to harvest due to poor market knowledge/consumer perceptions or non-competitive with similar products
- Difficult to handle
 - fragile , short shelf-life, hard to process
- May be harvested but directed to low value products
 - pet food, bait, aquaculture feed



Case Study 1: Australian Salmon



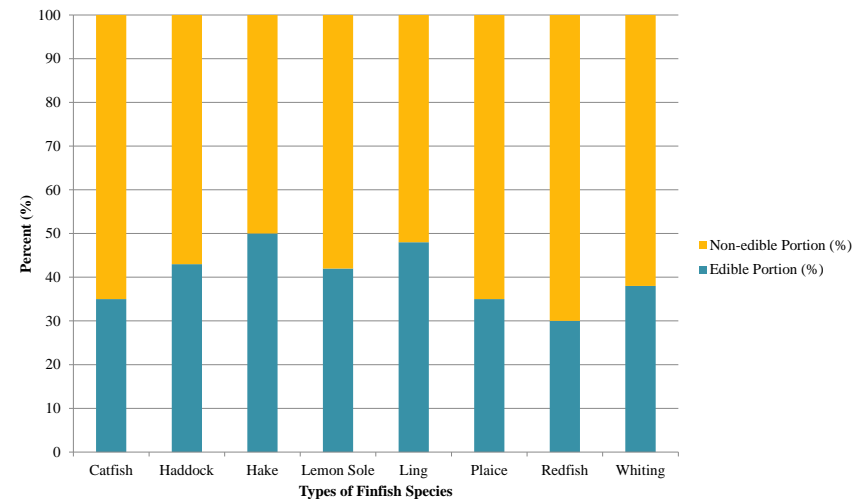
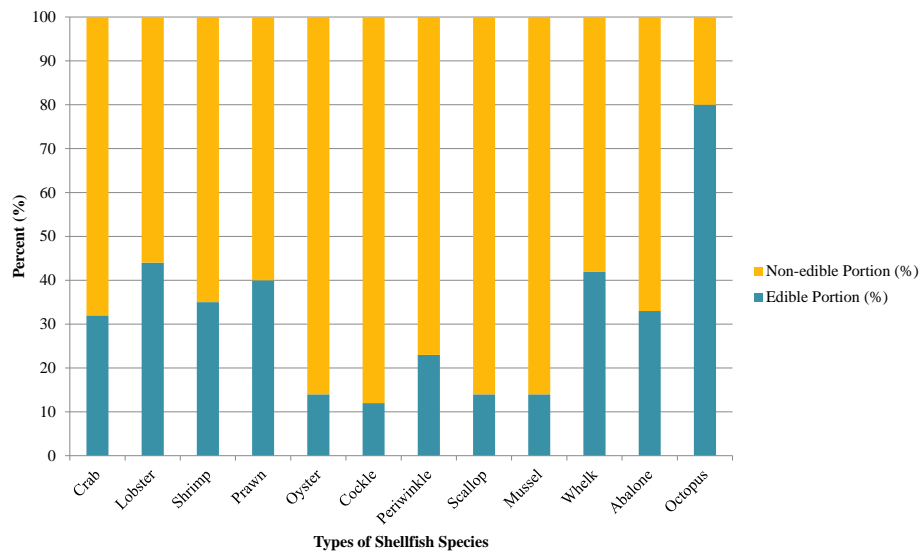
(“Mother-in-laws” fish”)

1. Quality samples prepared and samples despatched to domestic and international markets
 - Quality samples harvested , processed, frozen
 - Korea, Thailand, China, Taiwan, domestic markets
2. Value add products and assessment
 - Smoked, canned, cakes.
 - Premium pet food investigation
3. New approaches to manage supply and quality
4. Industry collaboration, commitment leads to next steps



Developing opportunities for seafood processing waste (“trimmings”)

(Non-edible/non-edible; multiple species) estimated at >100,000 tonnes per year.



Current status: waste, at cost to processor, goes to landfill, fertilizer or pet food

Tuna Case study

SAMPI (Port Lincoln)

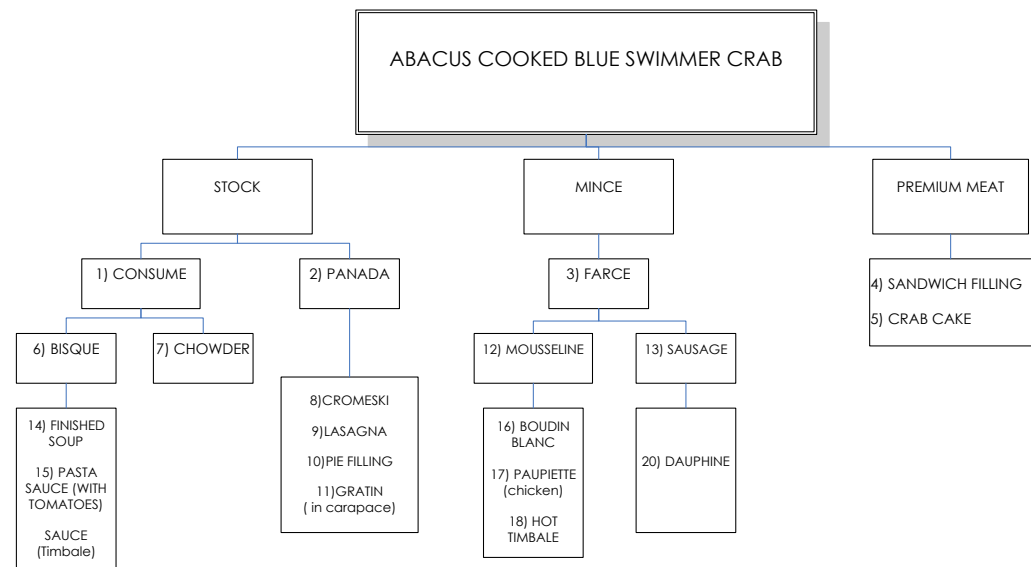
- SAMPI converts (by acid hydrolysis) 1500 tonnes of Port Lincoln fish waste per year into organic fertiliser, fish bait, livestock feed and aqua feed
- Currently undertaking improvements to their process to enter higher value pharmaceutical and pet food markets (oil, hydrolysate, bone powder)
- Alternative is land fill (cost of \$250000/year)



Blue Swimmer Crabs case study

New value-add food sources from Blue Swimmer Crab by-product: Accelerated NPD (Value Chain Analysis)

- Step 1 and 2: Commitment and understand the chain



Blue Swimmer crab case study

New value-add food sources from Blue Swimmer Crab by-product: Accelerated NPD

Step 3: Secondary Consultation

How would you use this product?

What do you think is a reasonable portion size/serving size for this product?

☐ 100 mL ☐ 200 mL ☐ 250 mL ☐ 300 mL

What volume would you prefer the product to come in?

☐ 500mL ☐ 1 L ☐ 2 L ☐ 5 L

What type of packaging would you prefer the product to come in?

☐ Plastic tub ☐ Resealable Doy Pouch ☐ Cardboard carton

How much are you willing to pay for a 250 mL portion?

Less than \$3.50 ☐ \$3.50 - \$4.00 ☐ \$4.00 - \$4.50 ☐ \$4.50 - \$5.00 ☐ More than \$5.00 ☐

How likely are you to purchase this product?

Definitely Not ☐ Probably Not ☐ May/May Not ☐ Probably ☐ Definitely ☐

How applicable is this product to your business?

Definitely Not ☐ Probably Not ☐ May/May Not ☐ Probably ☐ Definitely ☐

Additional Comments:

Product: Bisque

We are trialling an innovative new product development process to ensure a successful outcome is reached when the product hits the market. This a project funded by the Seafood CRC. The methodology is being trialled using Abacus Crab products, but it is expected the principles applied can be directly transferrable to other sectors.

Please mark the horizontal scale with a vertical dash (|) to correspond with your preference on the scale

Dislike Extremely Like Extremely

Appearance |_____|

Aroma |_____|

Flavour |_____|

Texture |_____|

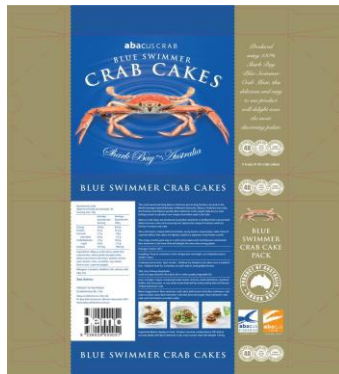
Overall |_____|



Blue Swimmer Crab case study

New value-add food sources from Blue Swimmer Crab by-product: Accelerated NPD

Step 4 and 5: Implement and Evaluate

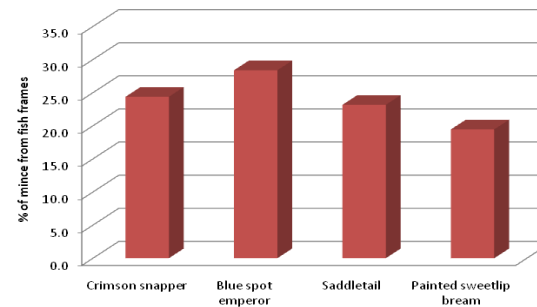


- 1.2 million crab cakes sold to food service market between Sept 11 2011 and March 2014
- Sales ongoing
- Retail pack launched in April 2014

Fish frames case study

Seafood Waste transformation to produce products for the Institutional catering market

1. Cold set binding of extracted mince from finfish frames, crustacean extracts (raw crab) and underutilised species (leatherjacket/shark)

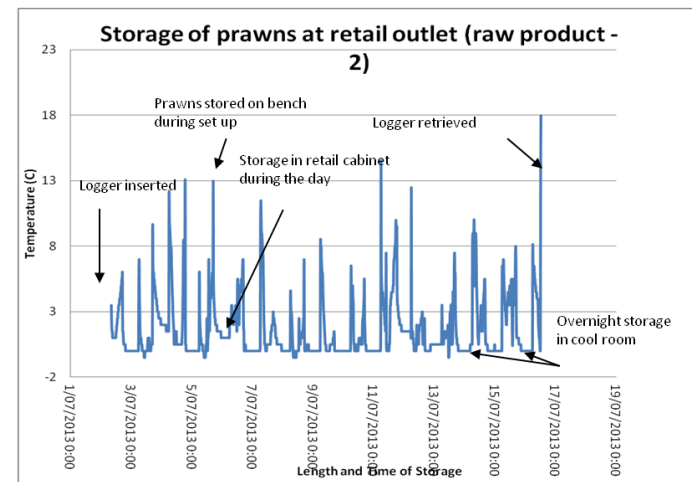
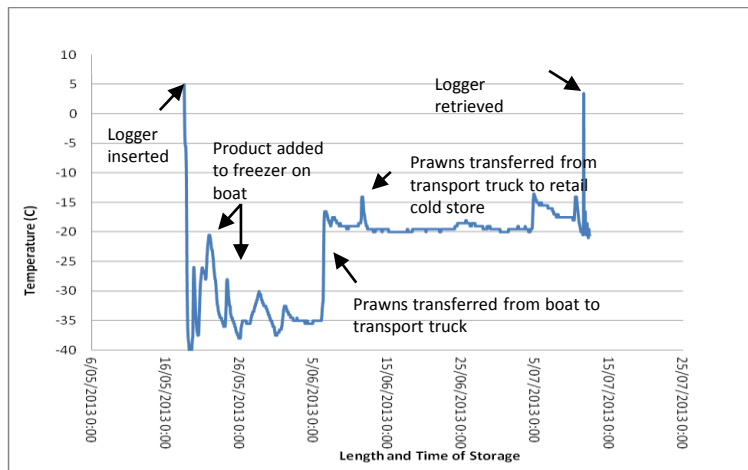
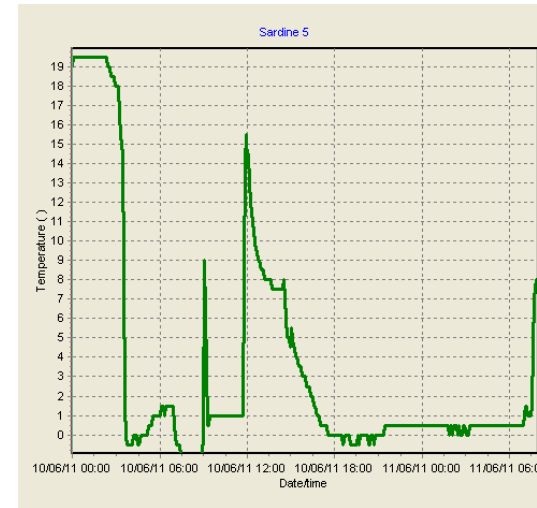
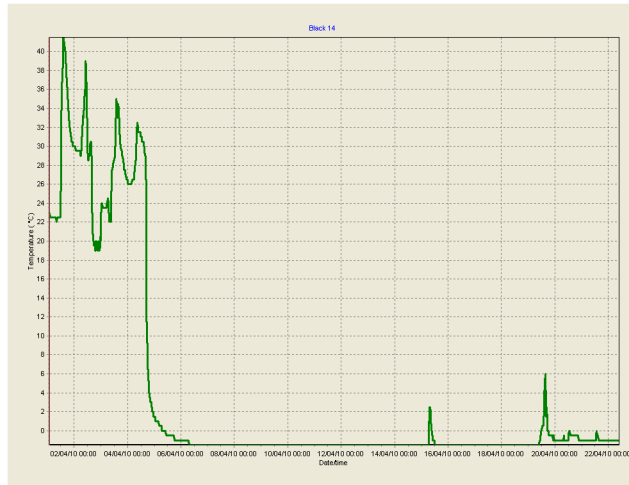


2. High Moisture extrusion of (lower quality) mince extracted from finfish frames

Supply Chain Temperature Monitoring



Temperature logging: on board and processing/transport



3. Sustaining our local Commercial Fishing and Aquaculture industries

Many of our local fisheries are struggling, and yet they deliver the majority of our local seafood for consumption. And regional employment and tourism.



Challenge 1: Profitability

- **Economic return of existing products/markets v costs to stay in operation**
 - Beach prices may be stagnant or dropping (competition from other protein sources/forms, competition from imports)
 - Operating costs are increasing (diesel, licenses, freight, bait etc.)
 - Lifestyle or profit
- **Impact on operating fisheries**
 - Working for less income (and associated life impacts)
 - Stop fishing (“underutilised species”)



Challenge 2: Lacking Support

- Management agency support (using current models based on GVP)
 - “Undervalued by using the usual metrics” (AFMF workshop 2014)
 - Recognition of other benefits of these fisheries (e.g. social, regional development, local supply)
 - Recognition of future potential of these fisheries
- Representative support
- Research/economic development support
- Community Support
 - “Operate in areas where there is strong recreational interest and the chance of conflict is relatively high”*
 - (AFMF workshop 2014)



Challenge 3: Resource Access

Challenge 4: Small business Realities

- **Time and energy** for operations
- **Time and energy** for all other business issues
 - E.g. Fisheries regulations, compliance and governance, food safety, labelling
- **Time and energy** to organise new directions
 - How do I access resources and expertise for the things I want to do?
 - E.g. Collaboration, marketing & promotion, value-adding
- **Succession planning**
 - What about the long term?
 - Will the kids want to stay in the business?



Education about Seafood and the Seafood Industry

PROJECT 1: Chef Training Videos

Chef survey Results

- Lack of information about seafood
- Lack of confidence about seafood
- Little time with seafood
- Consumer surveys say same thing



Our Videos

Species: sardines, rock lobster, prawns, barramundi, snapper, oysters, crabs and cephalopods.

What they contain: description of supply chain, species, seasonality, nutrition, best practice receival and storage (Pete Manifis), preparation (Josh Catalano) and cooking (Don Hancey).

How were they trialled: with apprentice chefs training at WCIT.

Education about Seafood and the Seafood Industry

PROJECT 2: Resource for Home Economics teaching (TER and vocational)

AIM: To develop, implement and evaluate a “whole of chain” seafood resource for food science and nutrition teachers (Home Economics) to deliver to students (VET and TEE).

- **building knowledge and understanding, leading to support, about seafood and WA's seafood supply chains**
- **Seafood industry as a career choice (and the range of careers this could encompass)**

CESSH School Education Learning Experiences

1. Science Teachers (STAWA)

Personal Development Days/fora/ conferences.



2. Science Students Yrs 6-9 (Wongan Hills)

3. HEIA National Conference

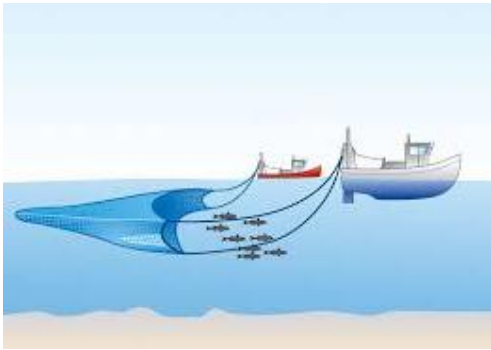
4. WA HEIA PD days

5. Meetings with DoF re joint education program.



Fisheries vs. Aquaculture

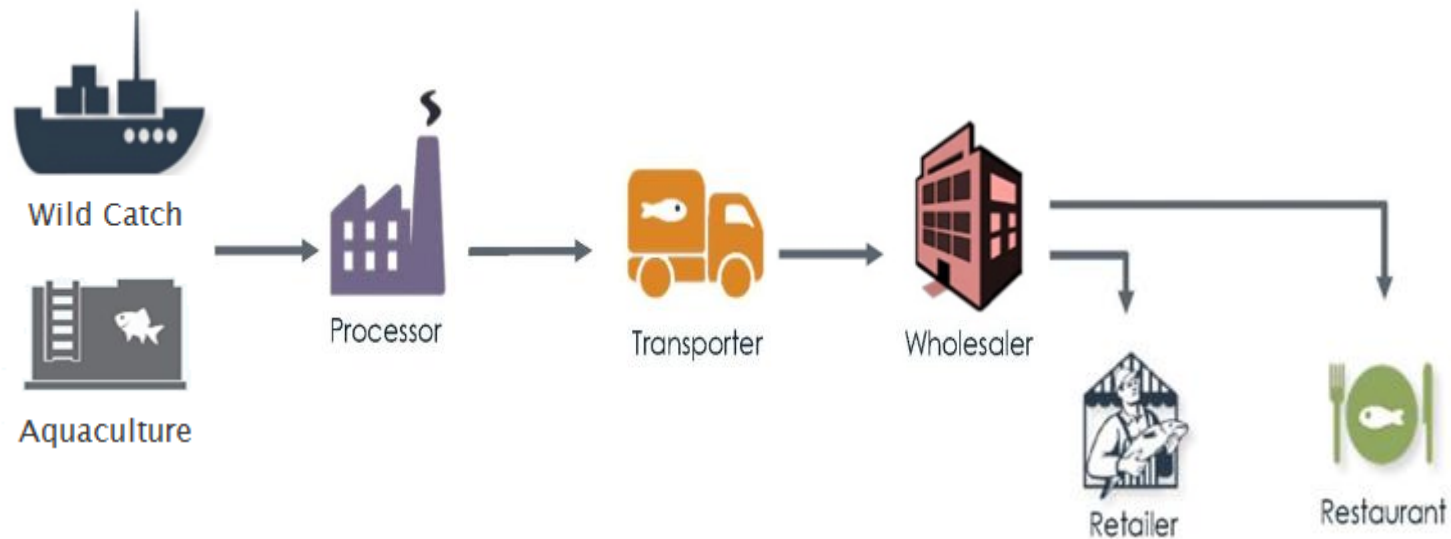
Fisheries = catching seafood in the wild



Aquaculture = ‘Fish Farming’



How does seafood get from the ocean or farm to my plate?



The Seafood Supply Chain

Career Options?



Wholesaler

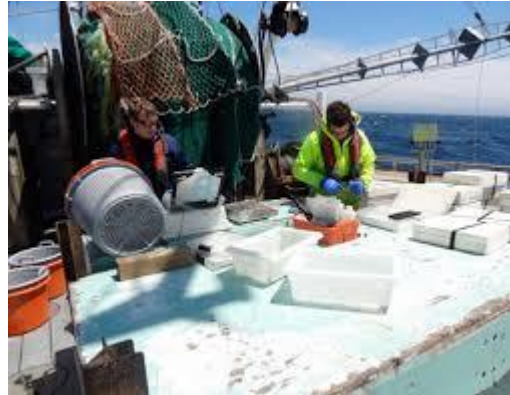


Retailer



Restaurant

- Health and nutrition
- Shelf life and storage
- Food safety and quality
- Presentation
- Consumer research
- Product innovation



Proposal

- 1. Seafood workbook/handbook for Aligned students (VET and TER)**
- 2. Supply of other Resources to support a one hour session that teachers can deliver (including assessment)**
- 3. Annual “Seafood” PD day for HEIA members**
 - To deliver the handbook/resource (TEE and vocational)**
 - Hear from other seafood industry**

**Please fill in the survey so we can
try to produce what you need.**

THANK YOU AND QUESTIONS?

