

Seafood and You: Making Healthy Sustainable Choices

Stony Brook University



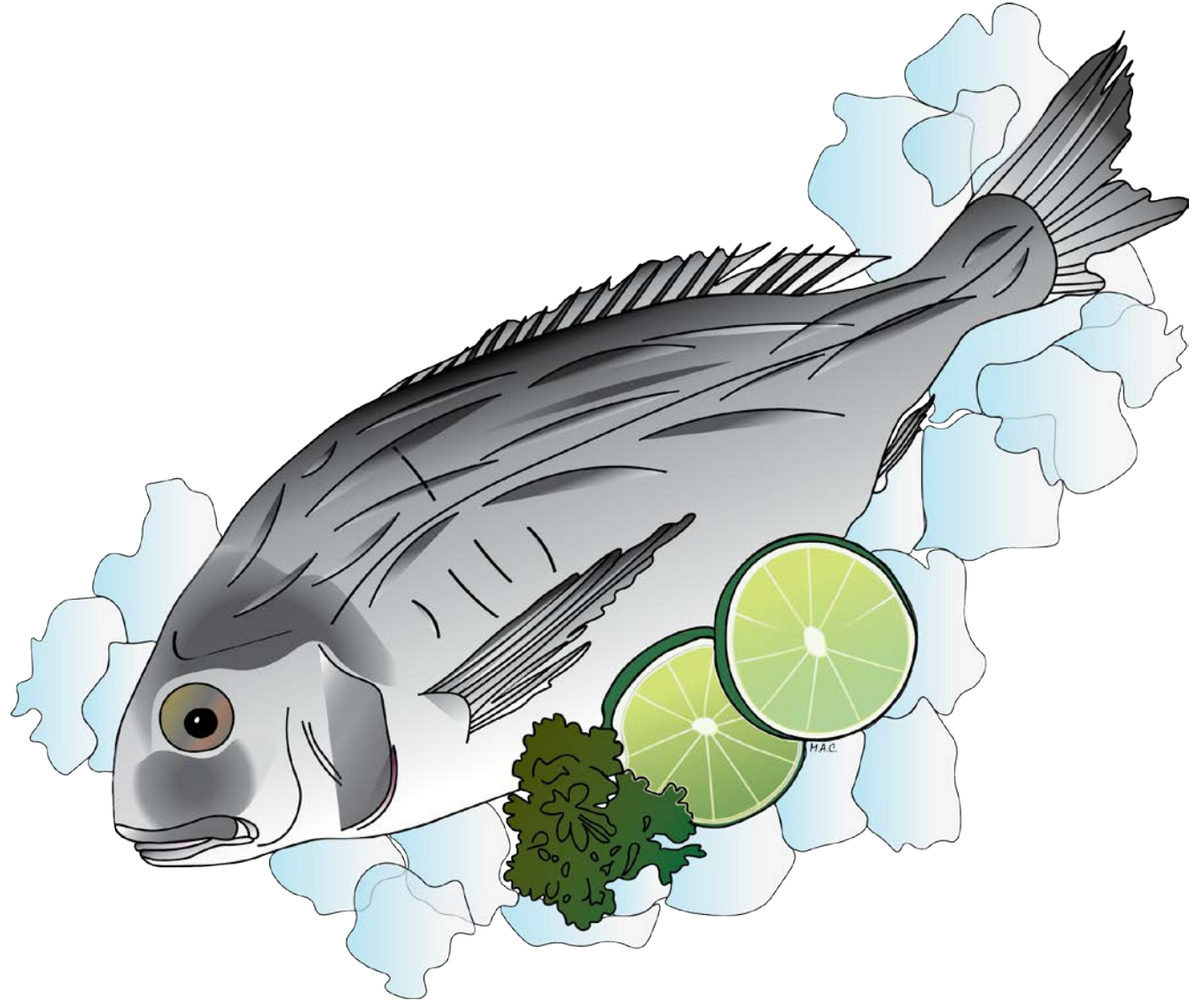
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Seafood Safety and Technology Specialist
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nyseagrant.org/seafood



Outline

Goals

- Healthy Balanced Diet
- Fears
- Source
- Sustainability





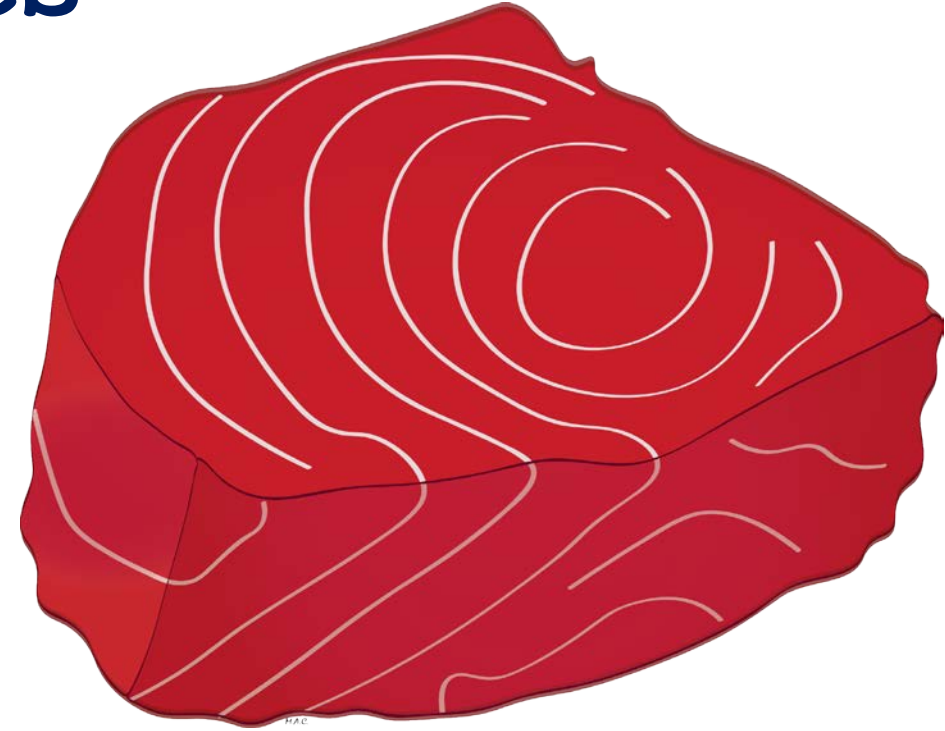
Seafood Nutrition

Delicious and Nutritious

2015 Dietary Guidelines

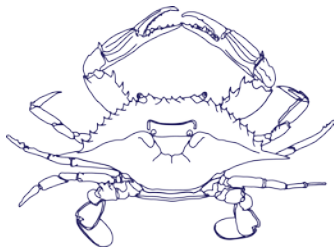
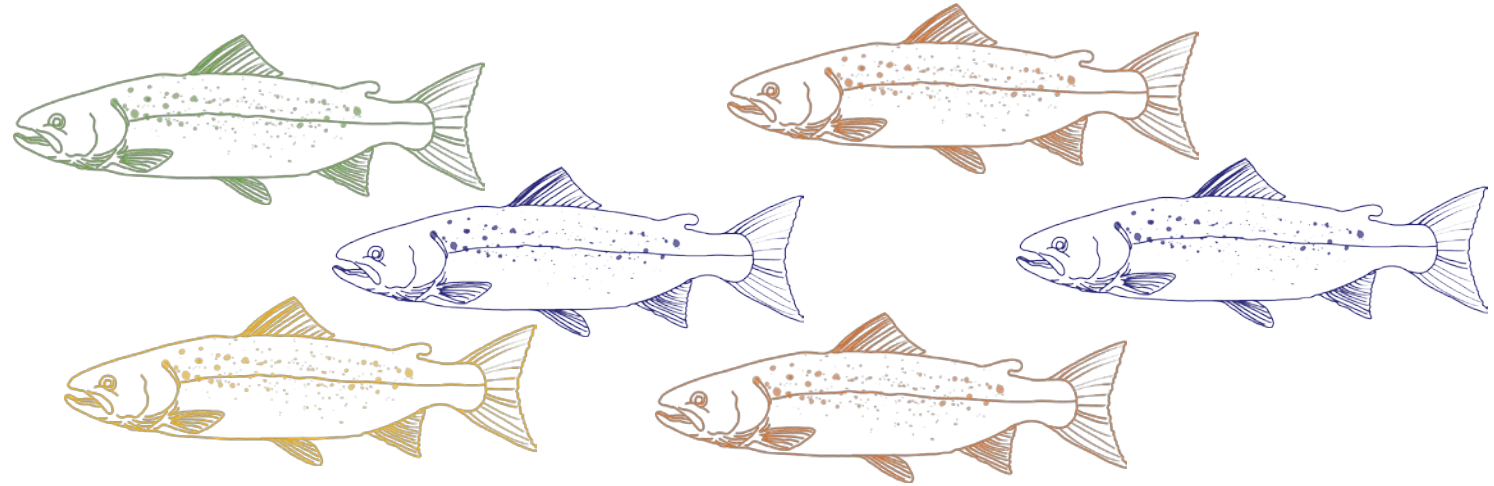
Healthy Eating Pattern

- Eat a variety of vegetables from all subgroups, whole fruits, grains, fat-free or low-fat dairy, oils and protein foods including seafood
- Reduce saturated fats, trans-fats, added sugars and sodium



Diversity

- In 2014 there were over 129 different species of fish caught by U.S. Fishermen.
 - 98 Finfish
 - 31 Shellfish
- Aquaculture
 - 22 (5) Finfish
 - 18 (5) Shellfish



Salmon: 3oz Portion

Protein
19g

**Saturated
Fat**
2g

Fat
11g

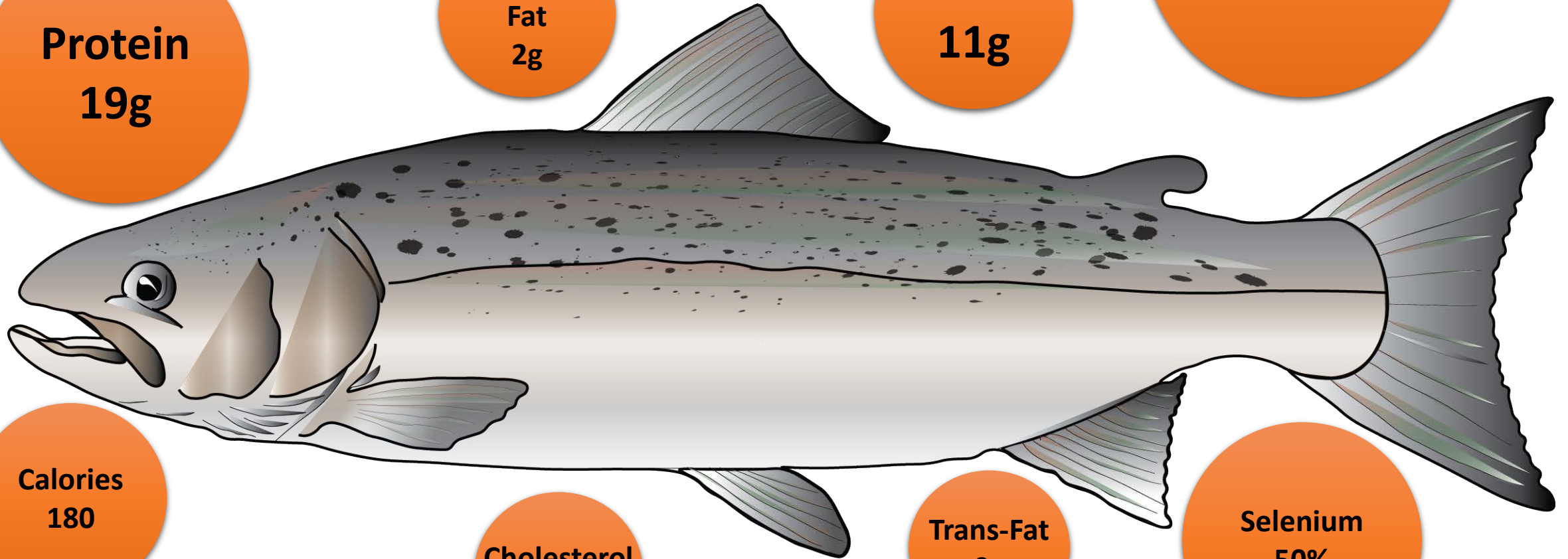
Omega-3
1,800mg

Calories
180

Cholesterol
45mg

Trans-Fat
0g

Selenium
50%

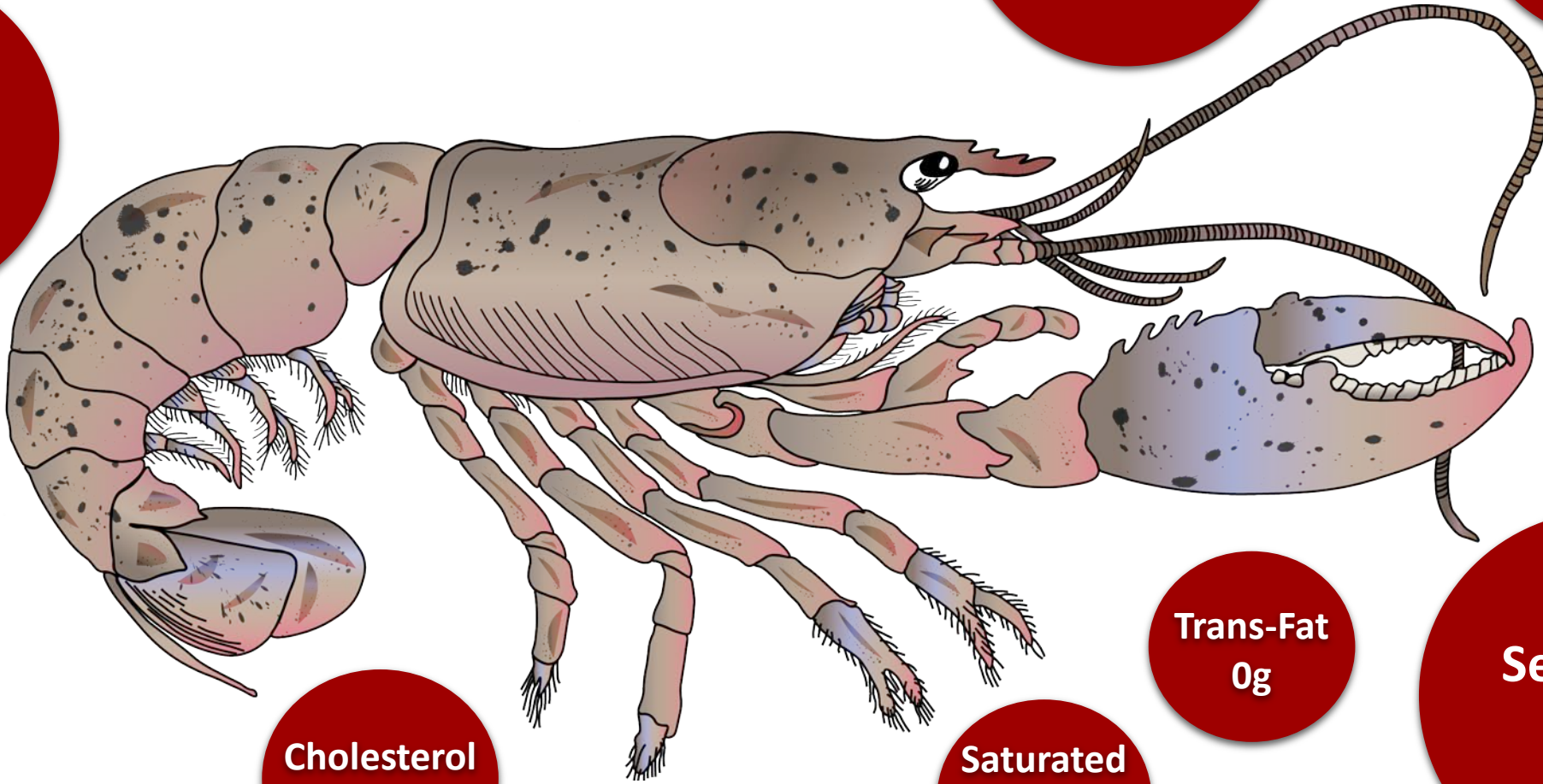


Lobster: 3oz Portion

Protein
16g

Sodium
410mg

Omega-3
170mg



Fat
0.5g

Calories
80

Trans-Fat
0g

Selenium
90%

Cholesterol
125mg

Saturated Fat
0g

Cod: 3 oz Portion

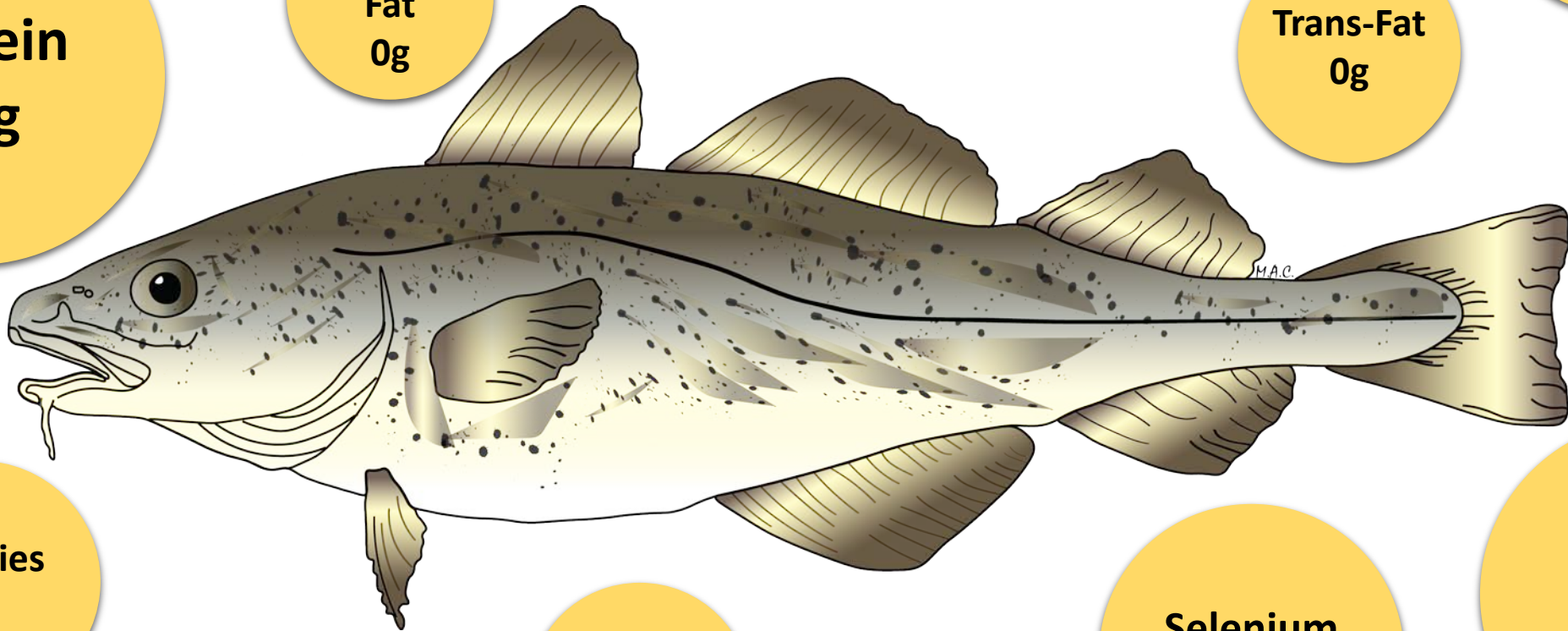
Protein
19g

Saturated Fat
0g

Fat
0.5g

Sodium
65mg

Trans-Fat
0g



Calories
90

Cholesterol
45mg

Selenium
45%

Omega-3
128mg

Shrimp: 3oz portion

Fat
1.5g

Omega-3
238mg

Protein
19g

Sodium
810mg

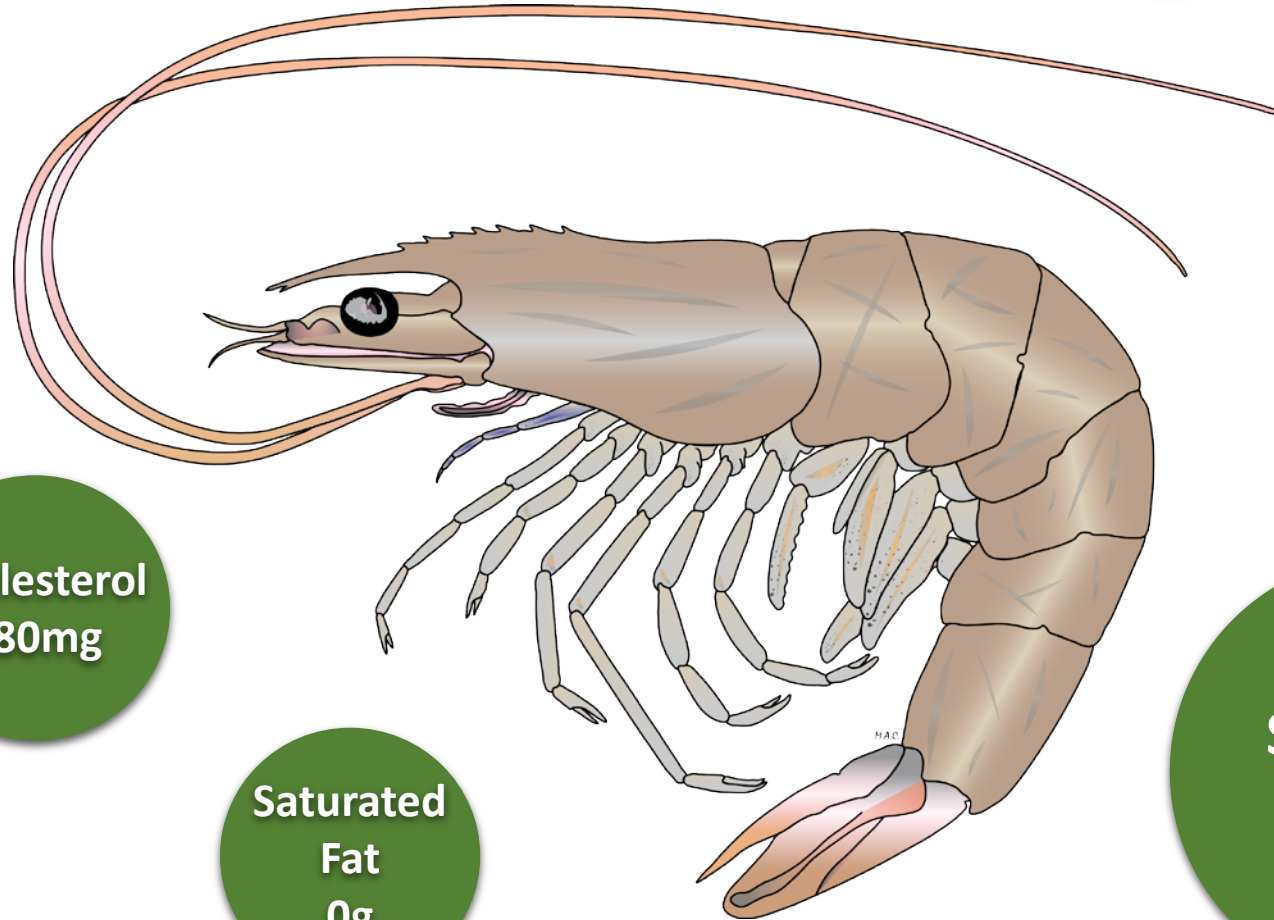
Trans-Fat
0g

Cholesterol
180mg

Calories
100

Saturated
Fat
0g

Selenium
60%



Bottom Line...

High Protein

Good Fats

Immune Boosting

Delicious

Low Calories

Easy to Digest

Heart Healthy

Nutritious

Low Saturated Fats

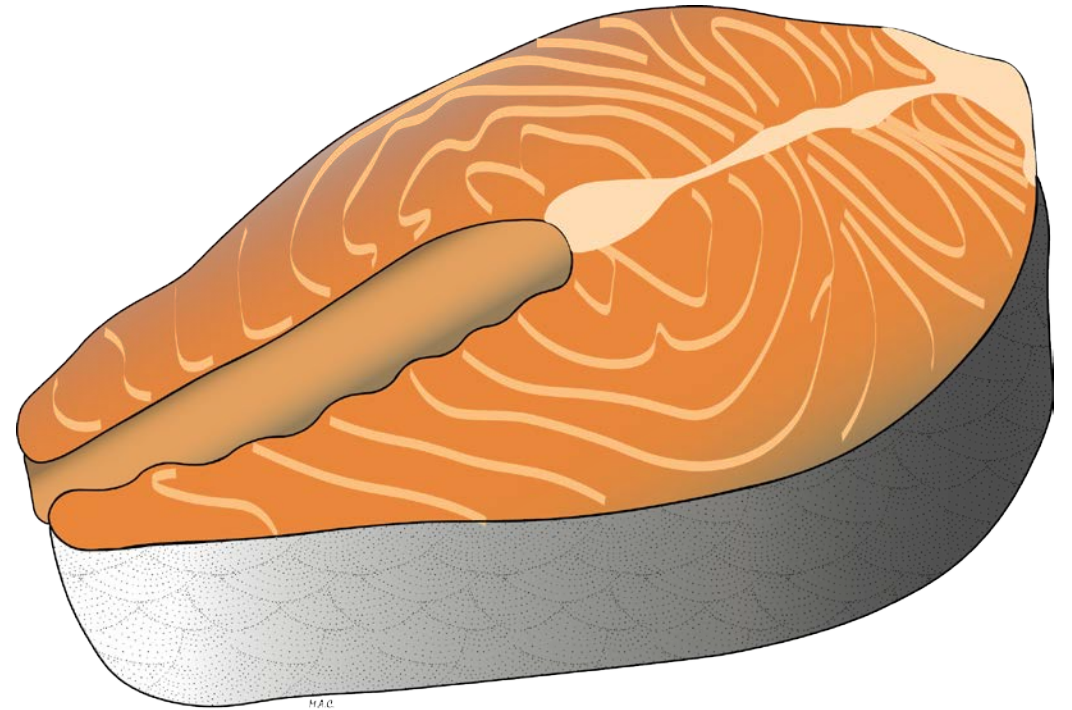
Reduced Risk of Stroke

Reduced Risk of some Cancer

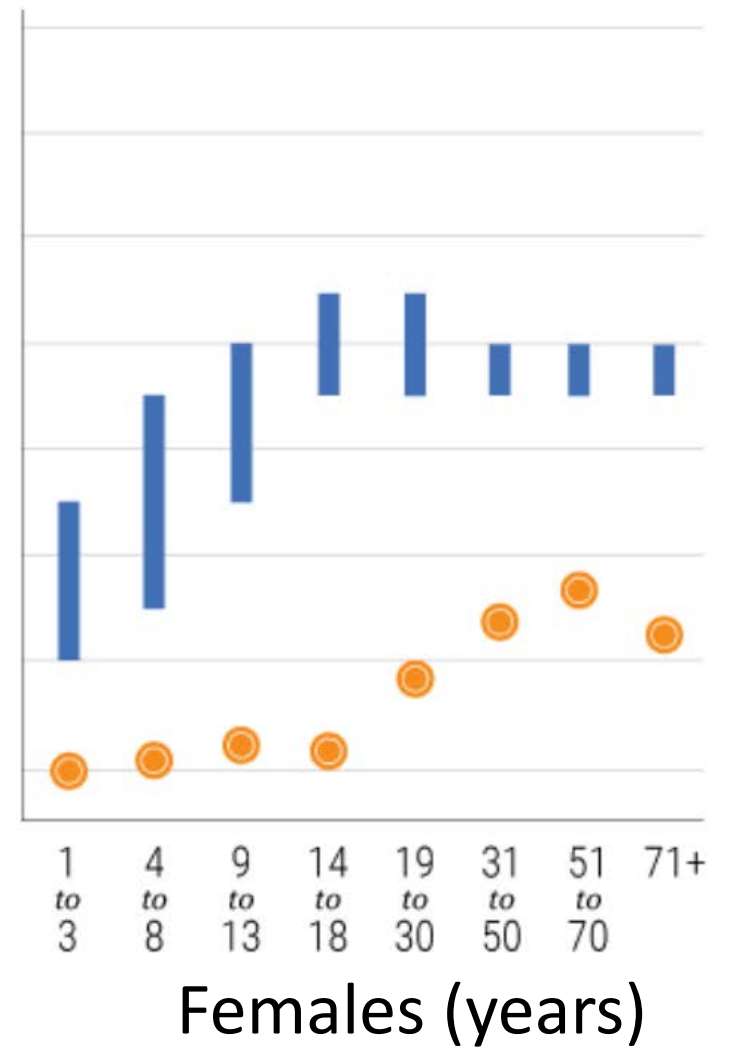
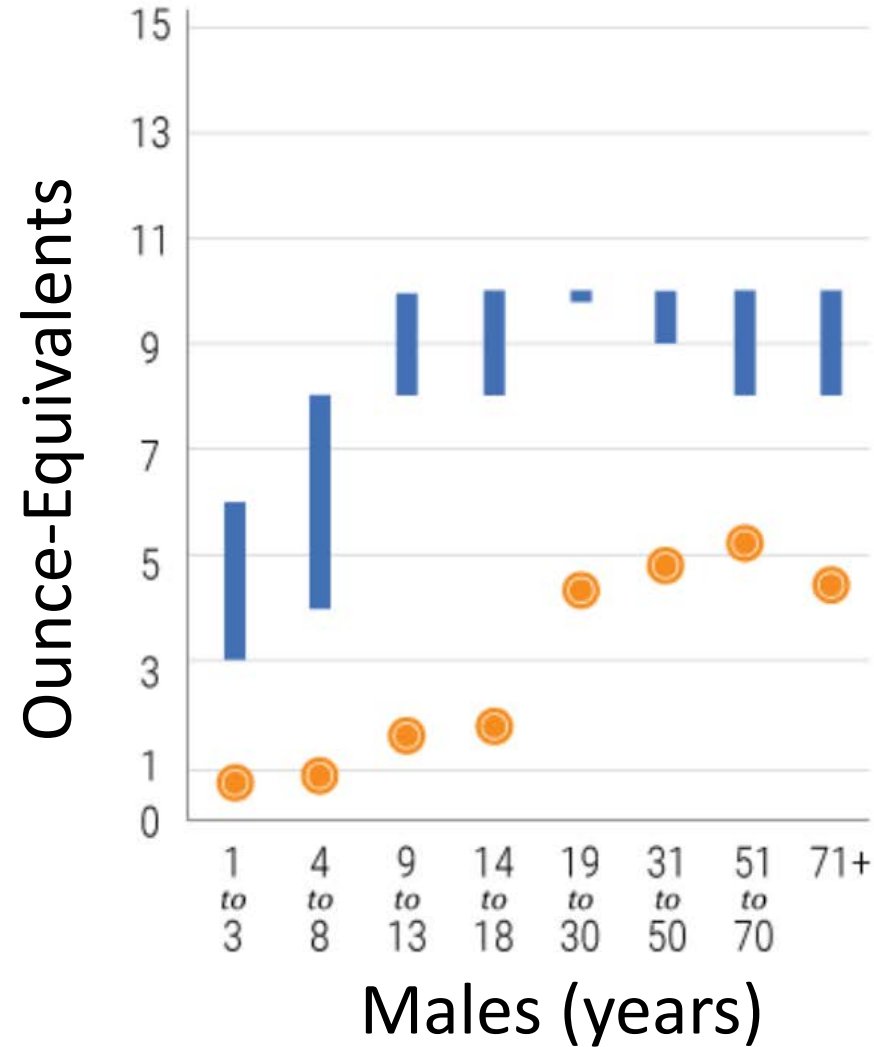
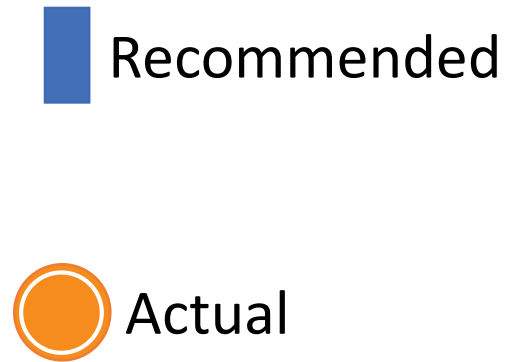
How Much?

6-10 oz
per week

250 mg EPA/DHA a week



Seafood Intake



What's stopping you?

Microorganisms

Toxins

Antibiotics

PCB's

Mercury

Dioxins

Color Added

Want to know more?



Seafood Health Facts: Making Smart Choices
Balancing the Benefits and Risks of Seafood Consumption
Resources for Healthcare Providers and Consumers

www.seafoodhealthfacts.org

Eating on a Budget



MyPlate Quizzes



What's Cooking



10
TIPS

Ten Tip Series



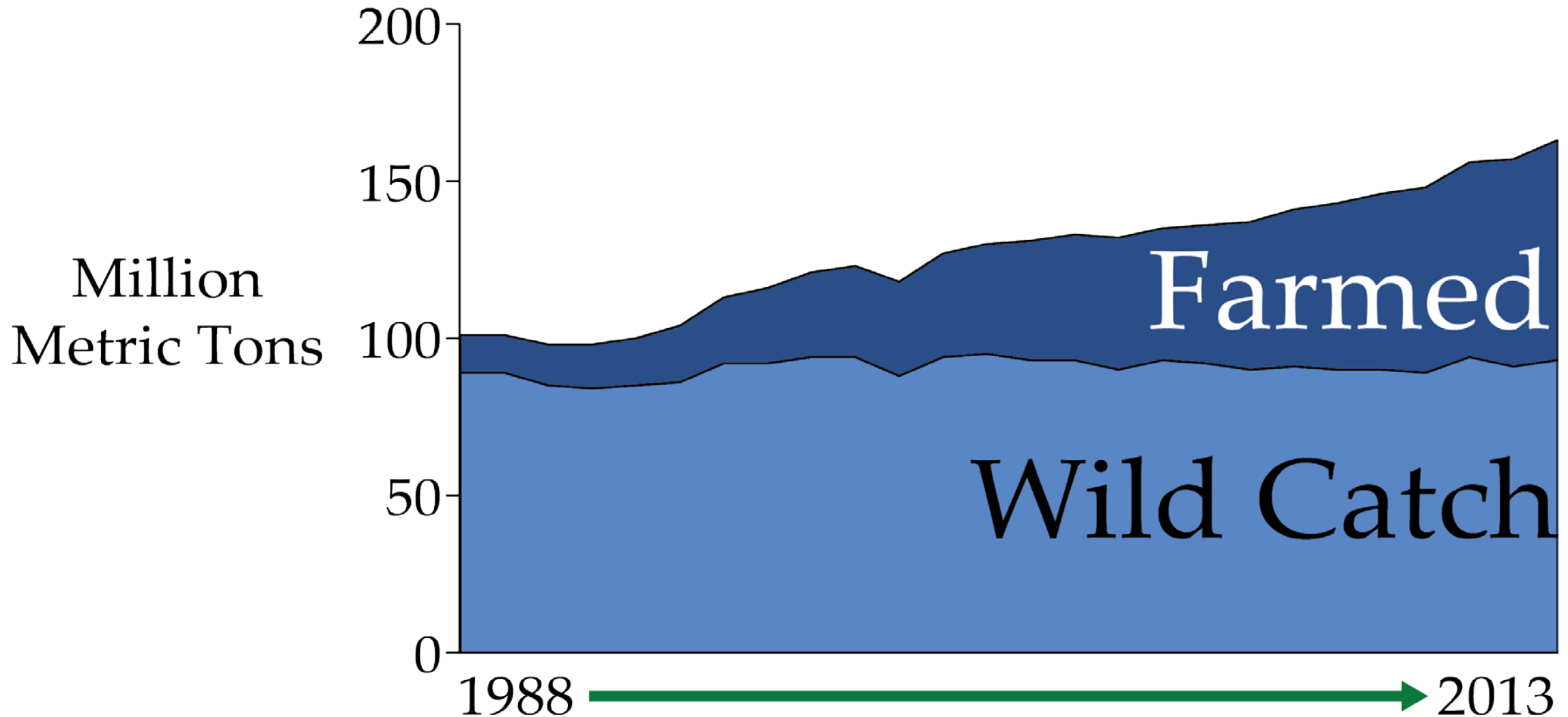
Supertracker

Seafood Source

Ever wonder where your seafood comes from?



World Fish Production



Data from Food and Agricultural Organization of the United Nations (FAO)

Wild Fisheries

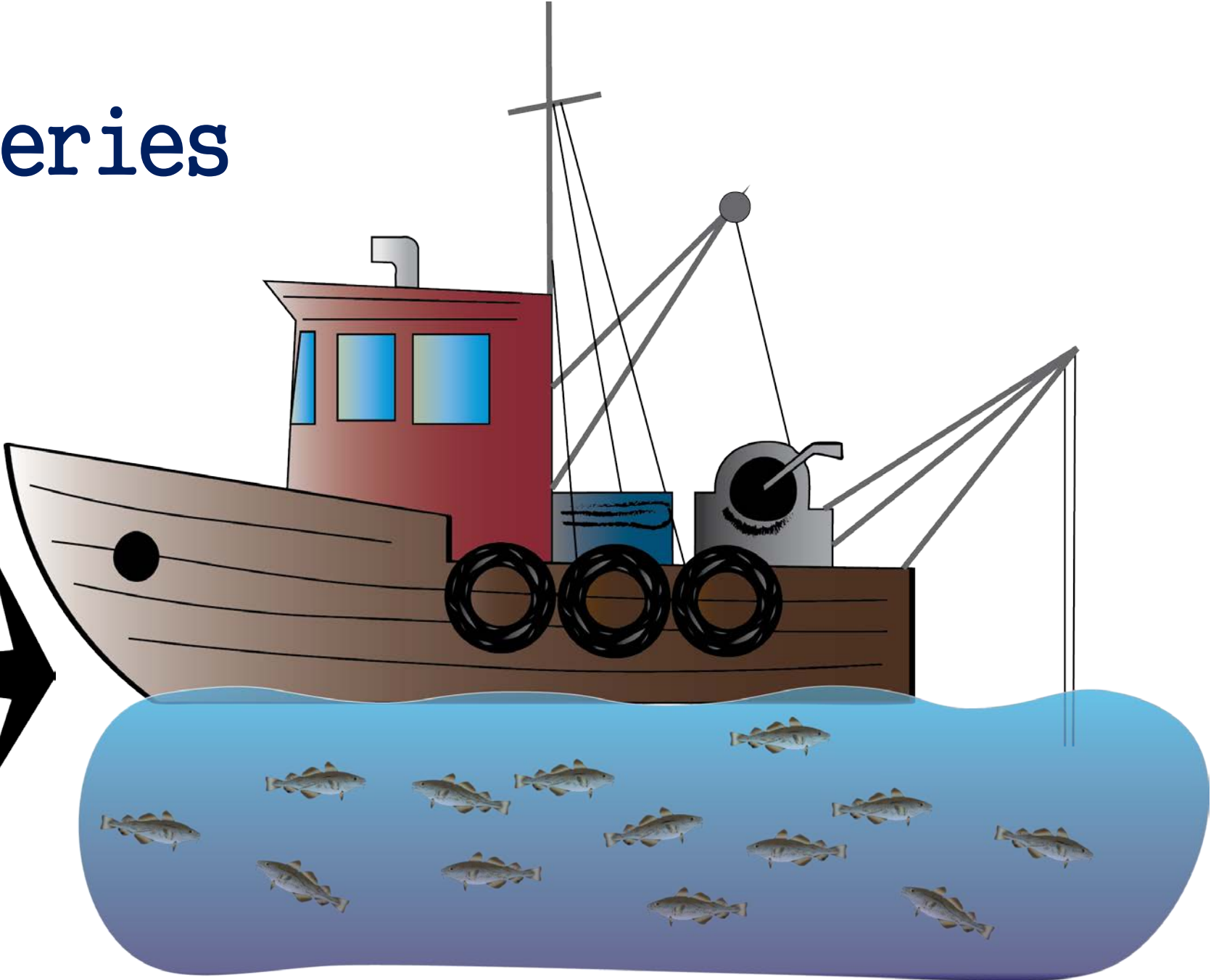
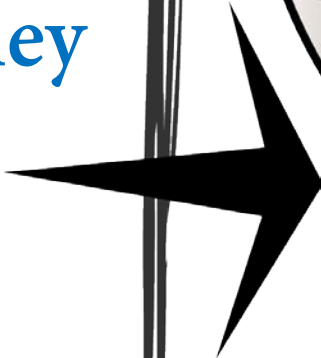
Input

Energy

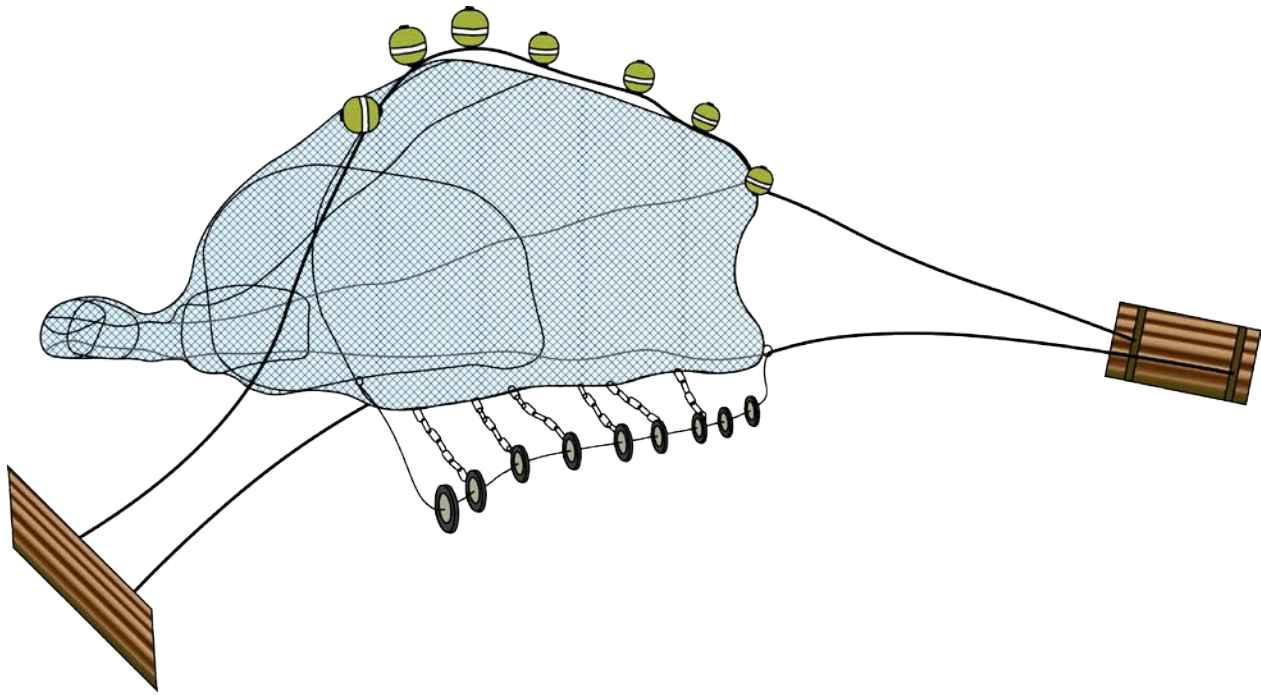
Money

Space

Equipment

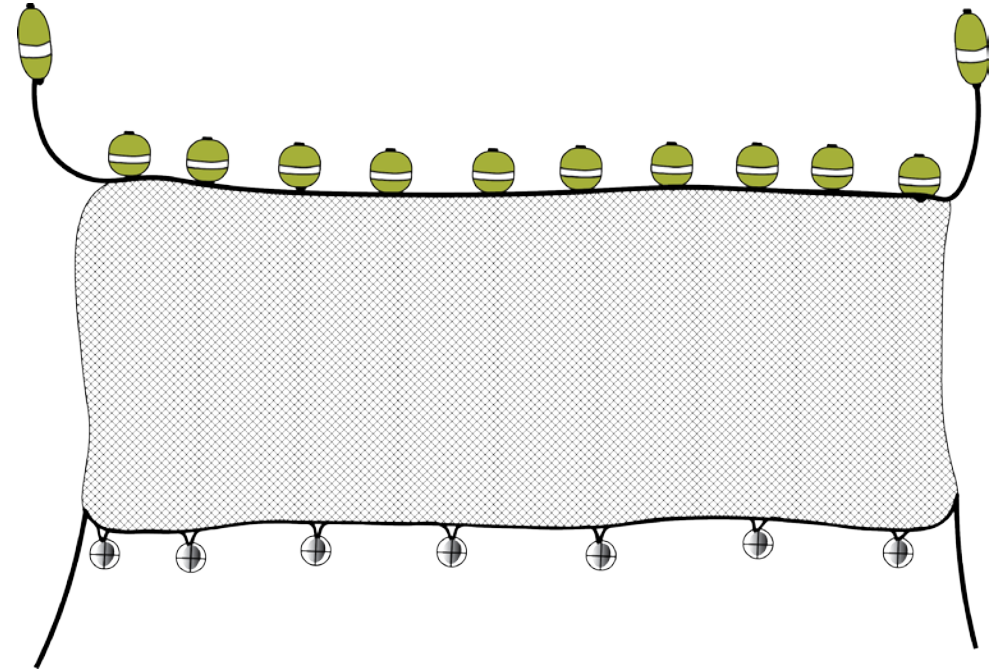


Fishing Methods

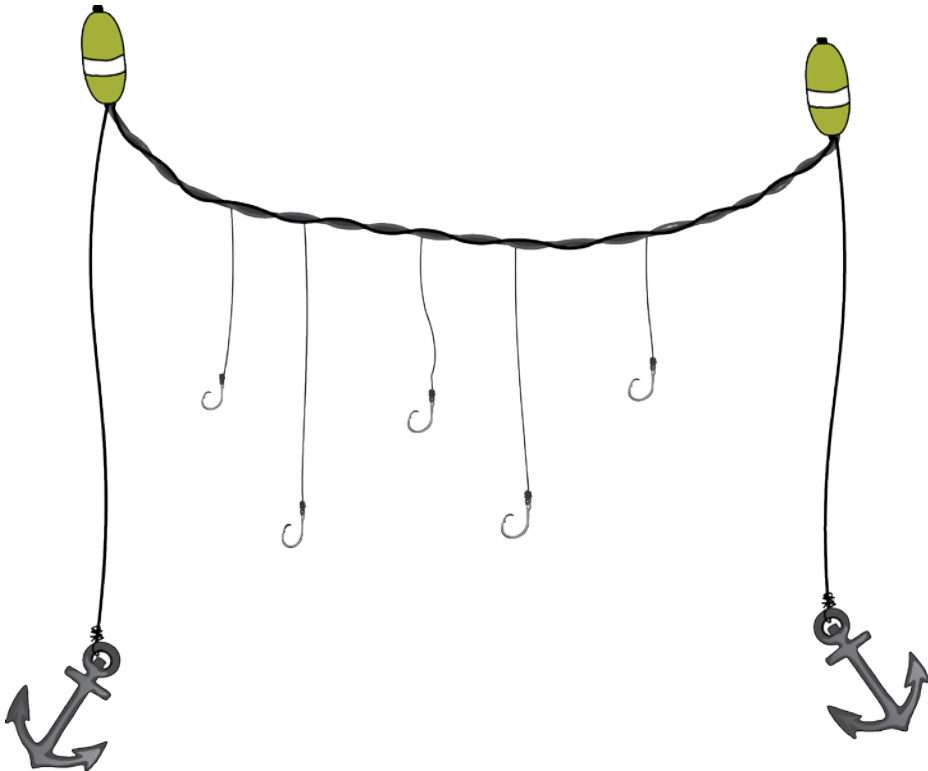


Trawling

Gill Nets

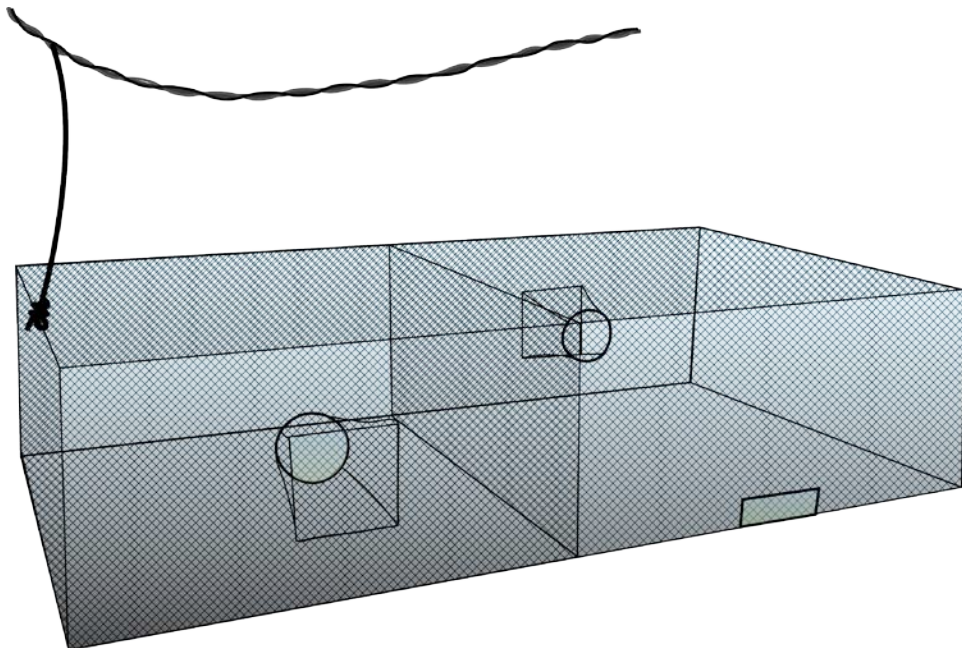


Fishing Methods Continued...



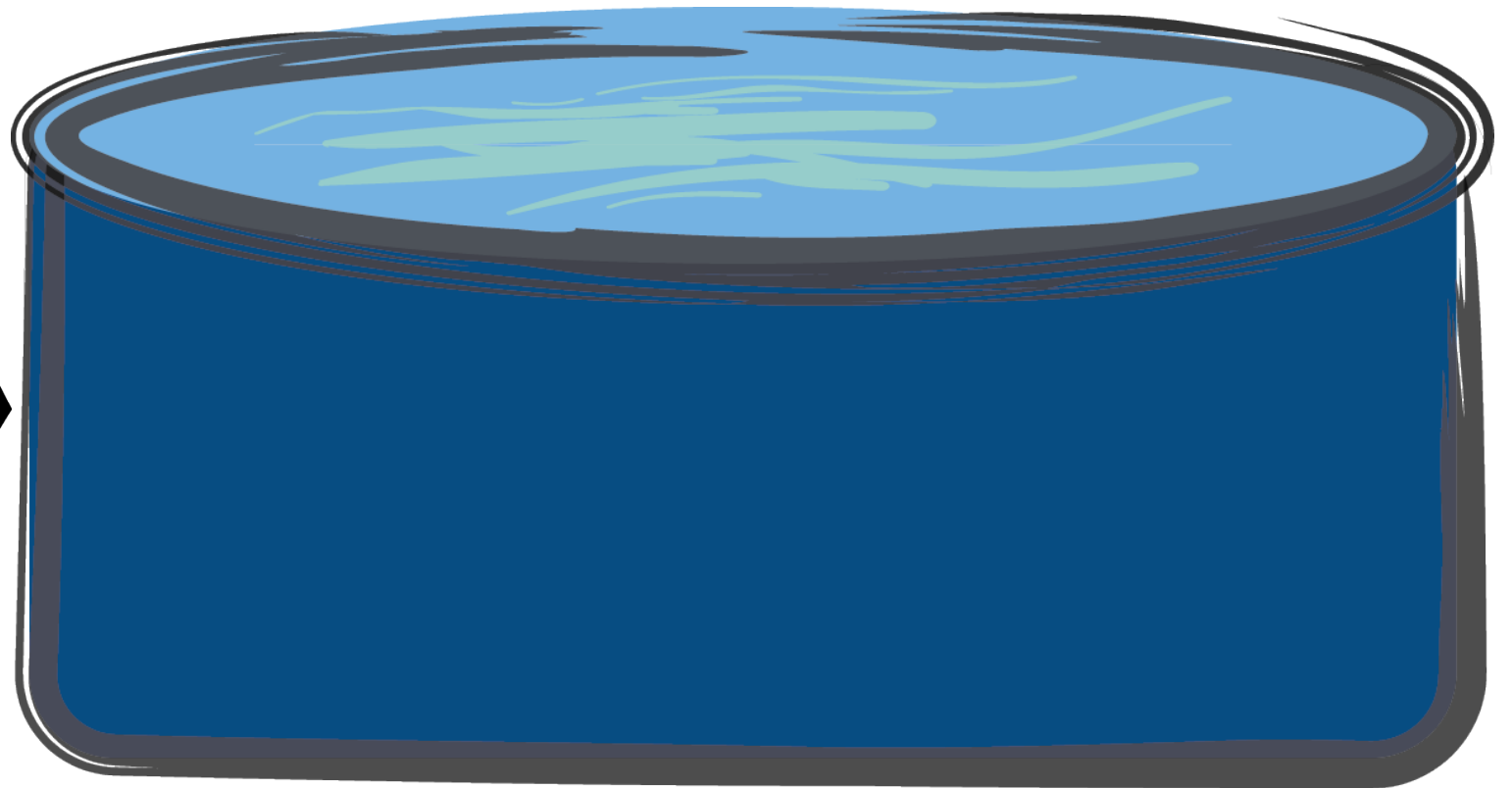
Long Lines

Traps



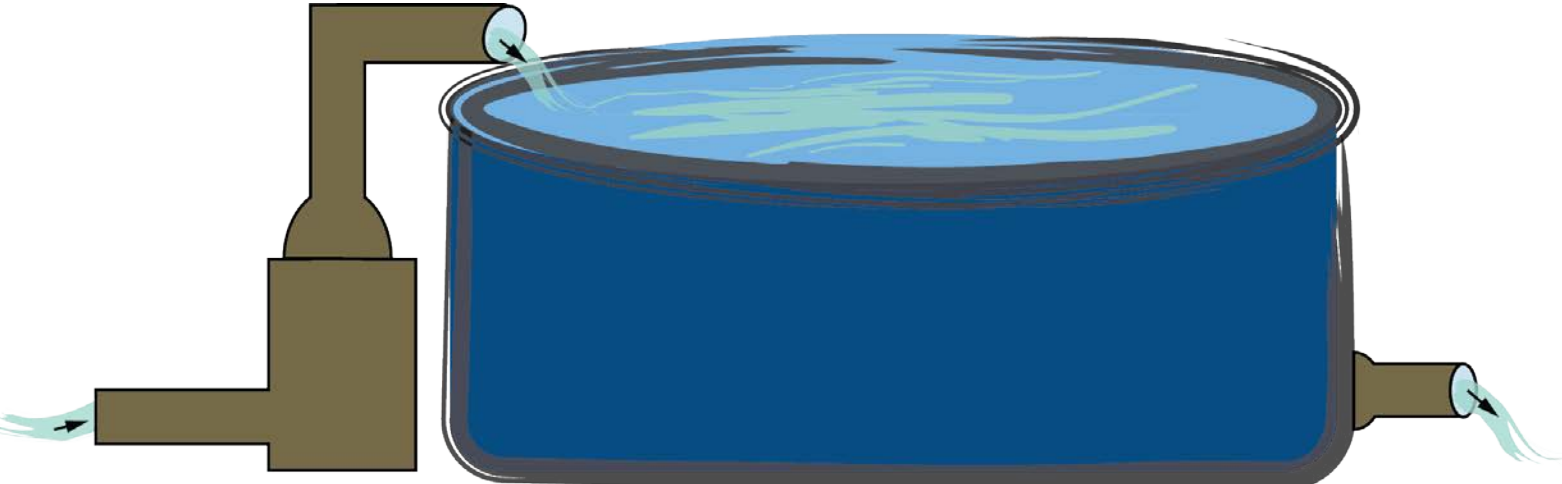
Aquaculture: Food for the Future

Input

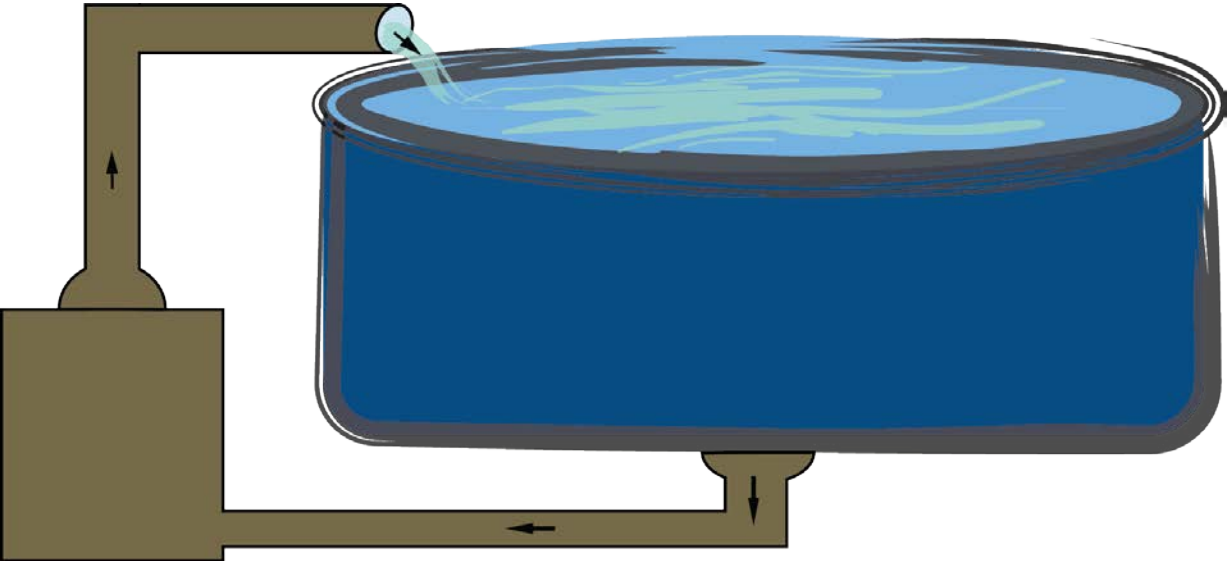


Types of Aquaculture

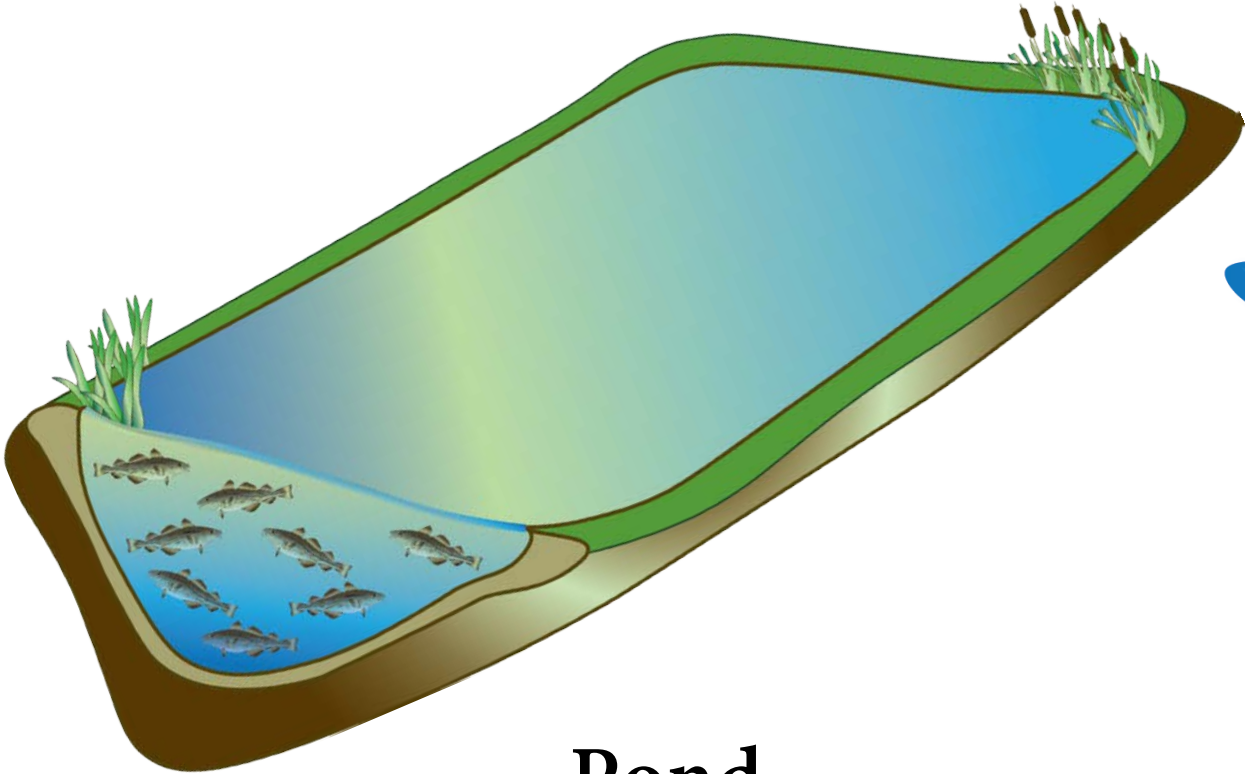
Flow-through



Recirculating

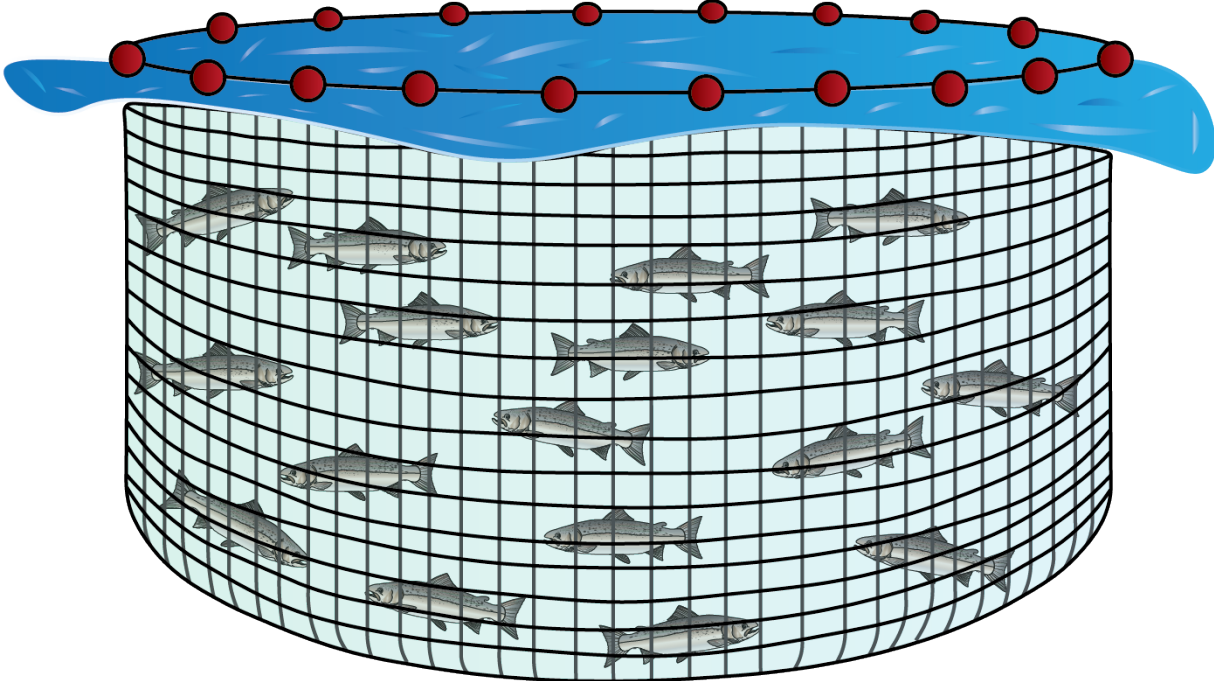


Types of Aquaculture Continued...

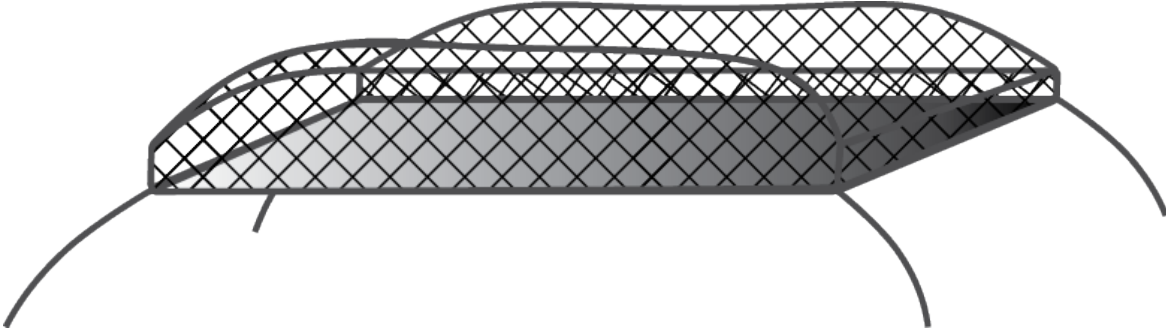


Pond

Open Ocean

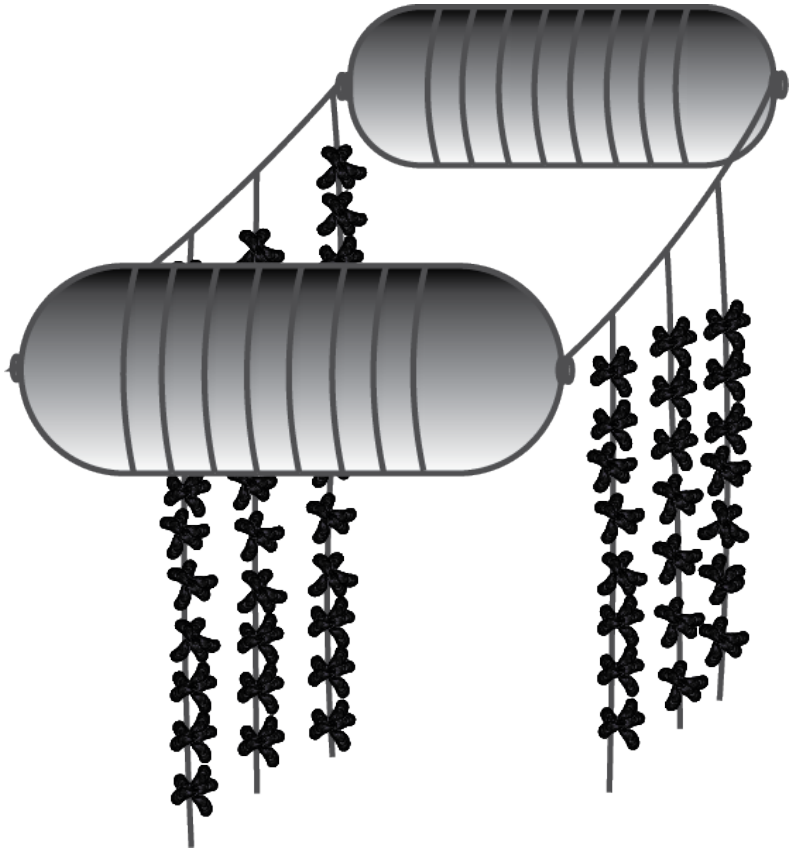


Shellfish Aquaculture



Bag and Rack

Suspended



U.S. Seafood Consumption 2014

Domestic

6%

Imported

94%

Seafood Sustainability

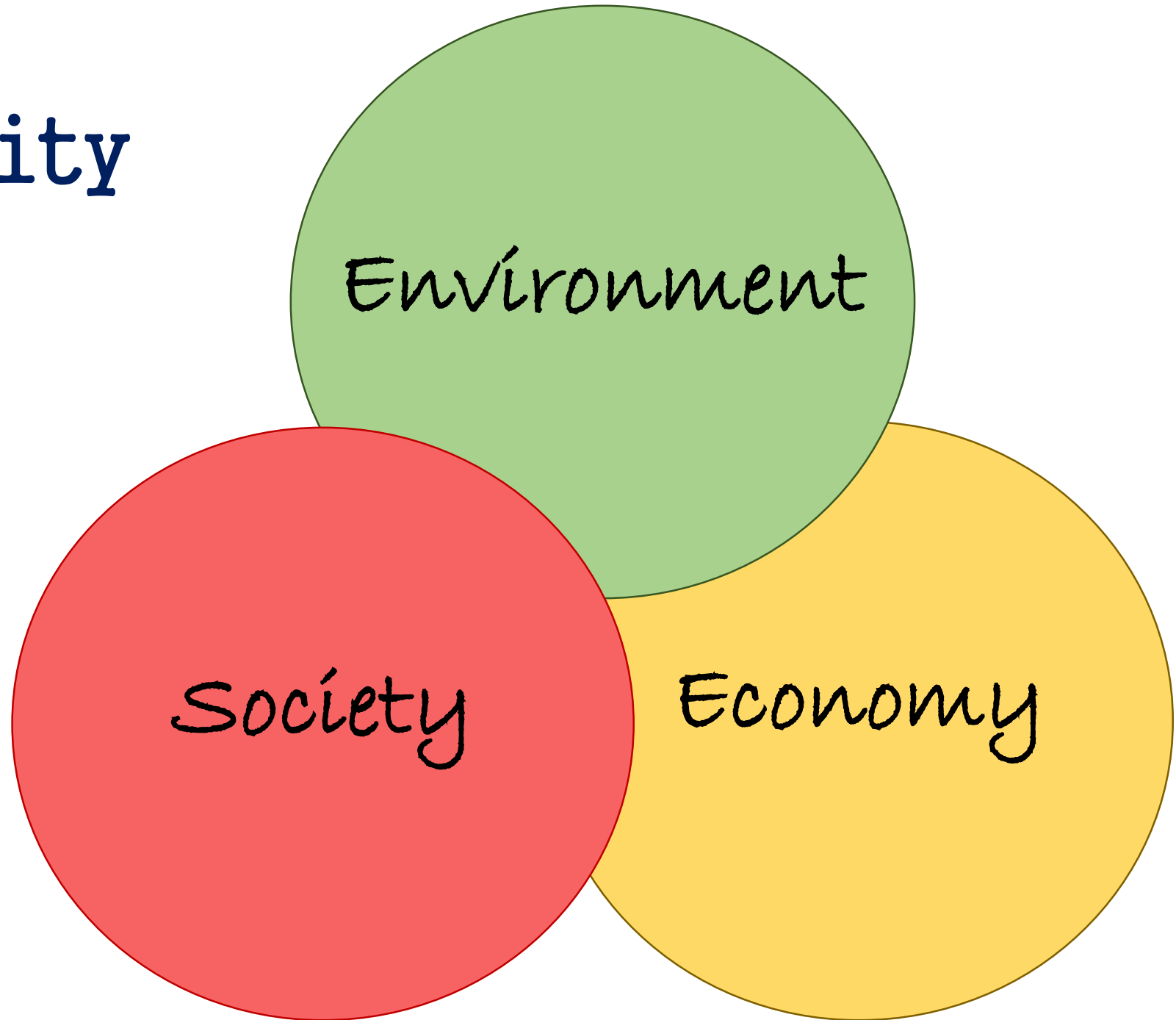


Sustainability

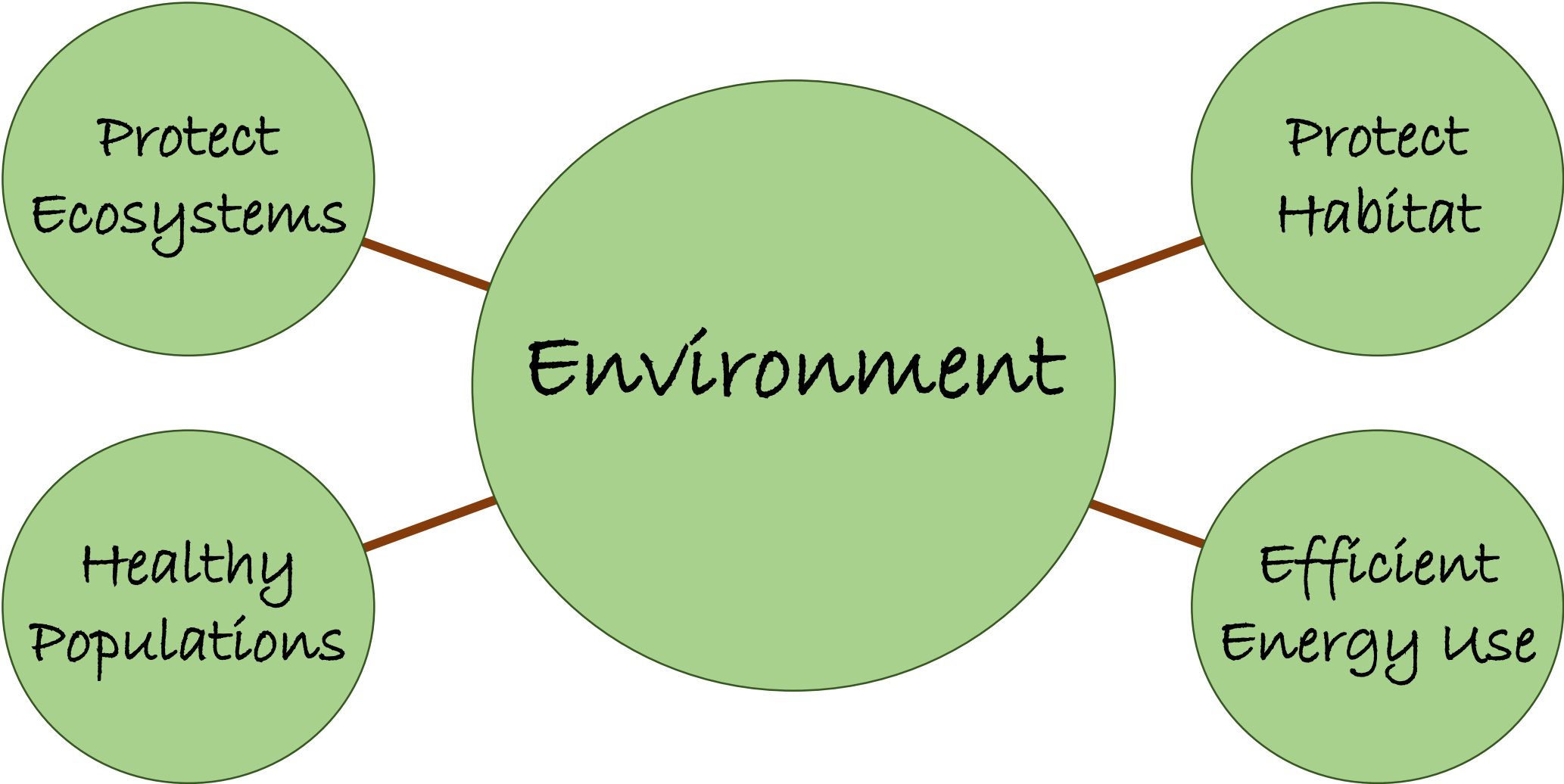
Maintain and protect resources and exist in productive harmony to support present and future generations

Sustainability

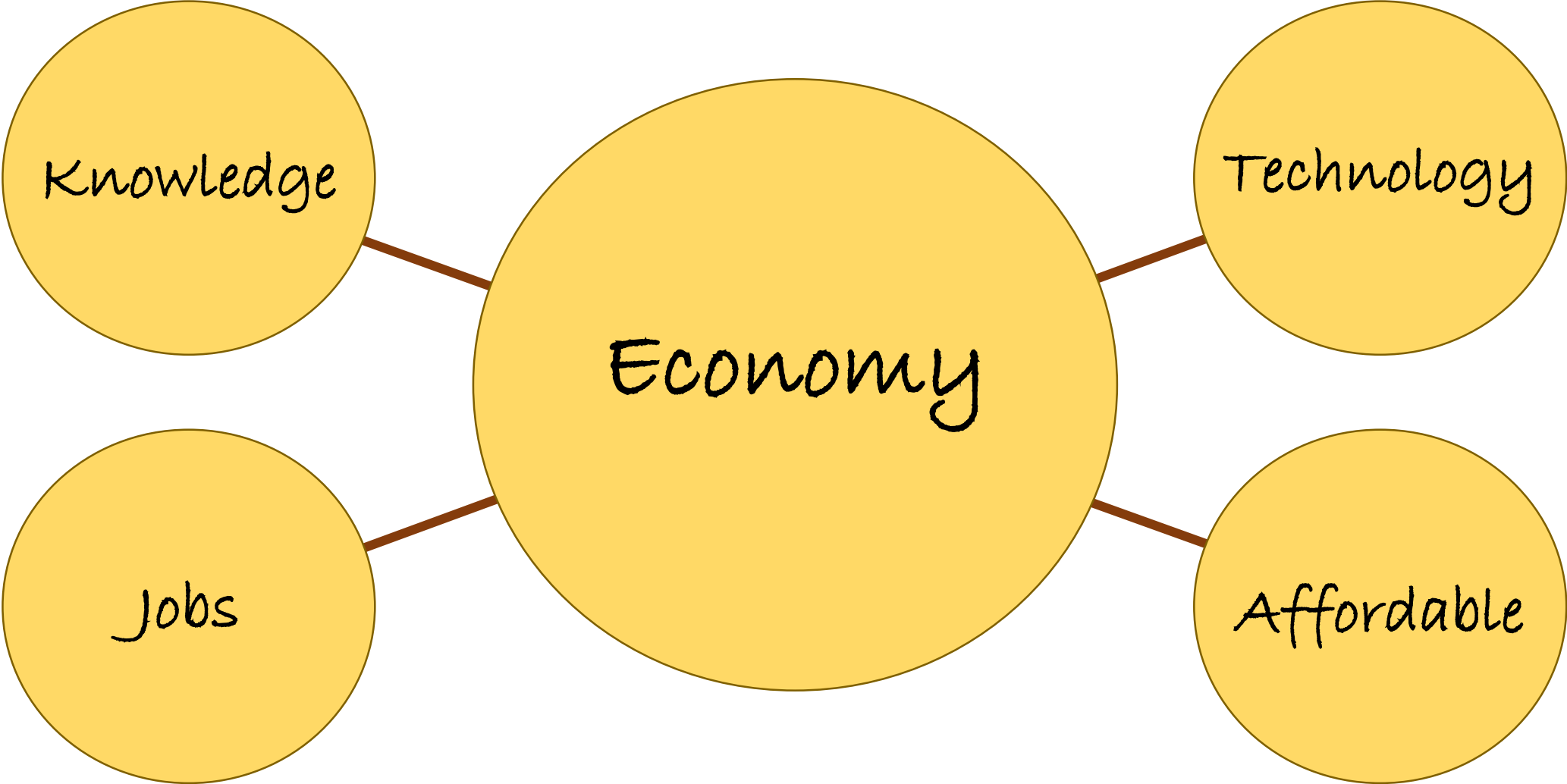
Key
Factors



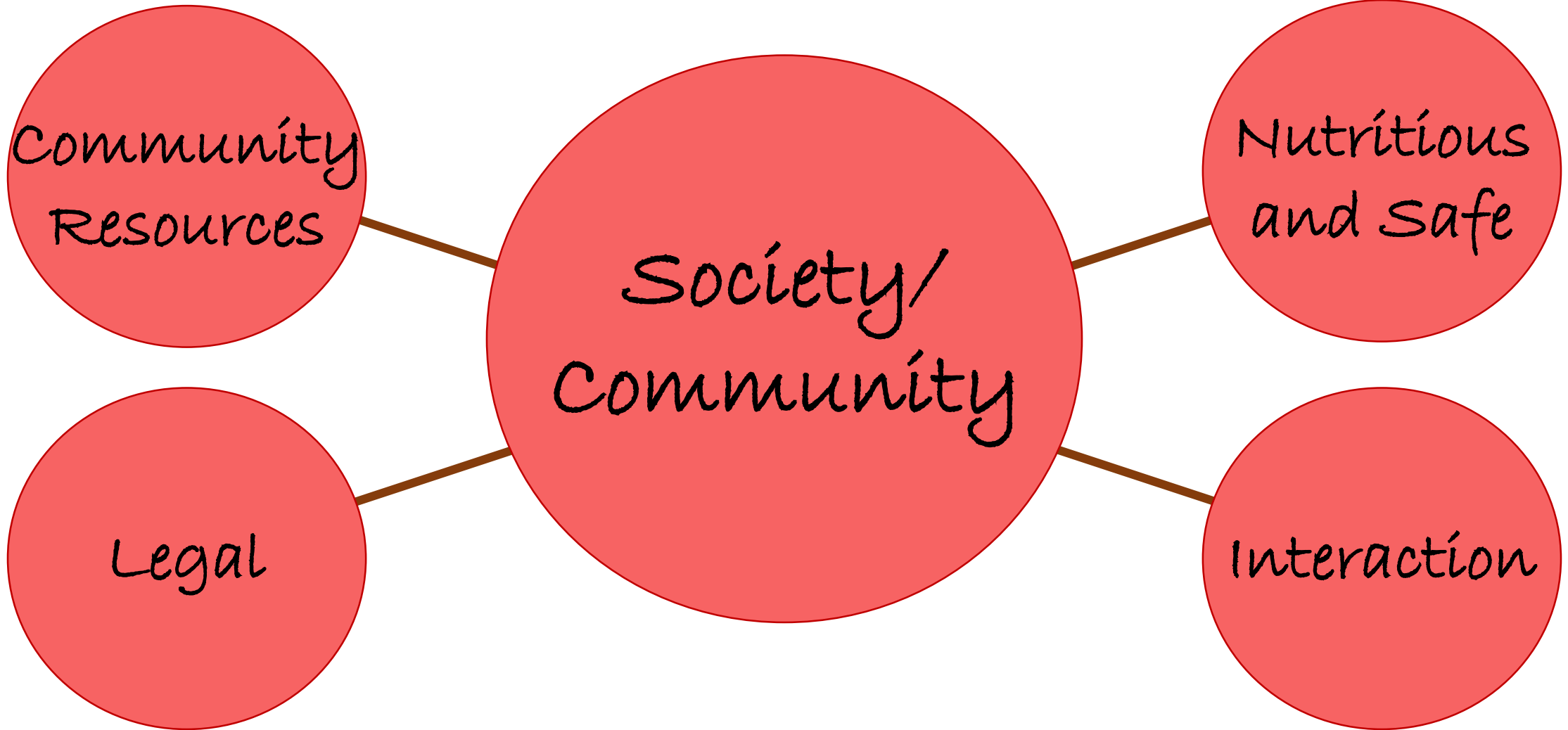
Environment



Economy



Society

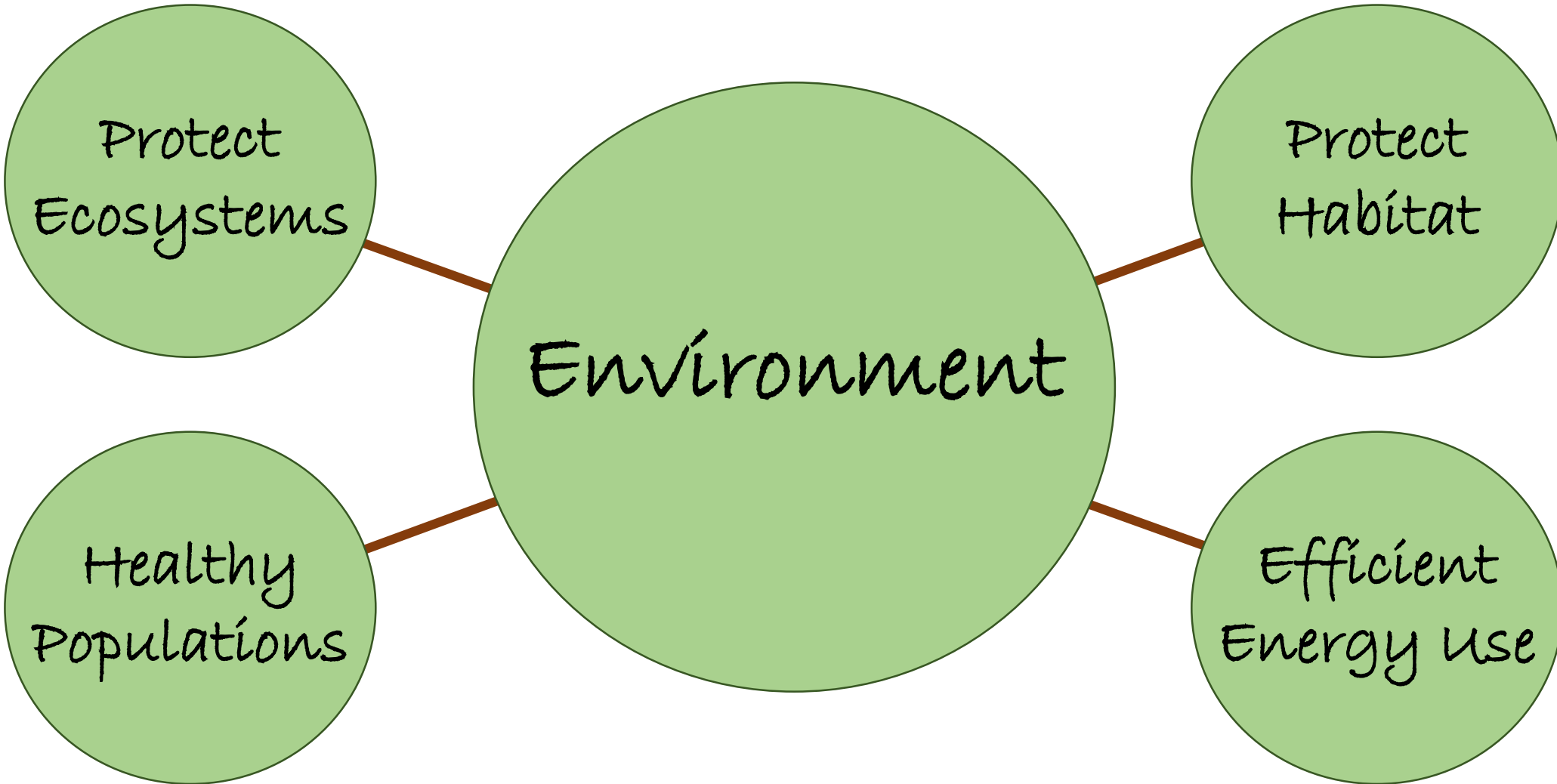


Thinking about Sustainability

Work in groups to identify words and phrases within each of the key factors that are integral insuring sustainability.



Environment





How do fisheries and aquaculture affect ecosystems?

Water Quality

Deplete Predator

Deplete Prey

Resource Dynamics

Currents



How do fisheries and aquaculture affect habitat?

Lakes

Seafloor

Reef Systems

Forests

Water Chemistry

Coastlines

Rivers

Vegetation



How do fisheries and aquaculture affect populations?

Predator – Prey Interaction

Genetic Diversity

Overfishing

Disease

Invasive Species

Bycatch



What resources are needed to support seafood production?

Fish Meal

Fuel

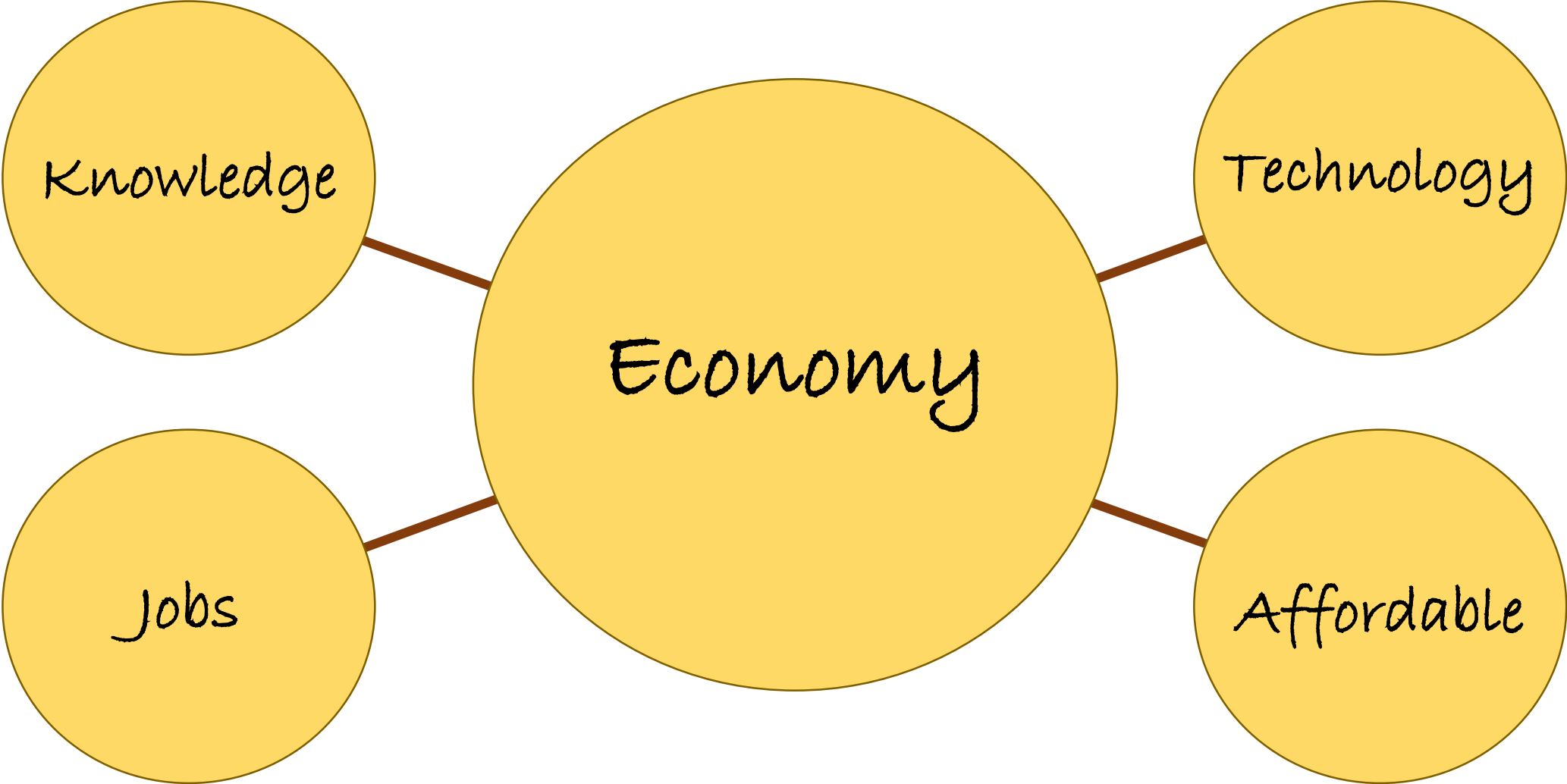
Agricultural Commodities

Electricity

Water

Fish Oil

Economy



How to gain knowledge to
allow fishery adaptation?

Better fishing practices

Alternative Protein

Larval Rearing

Fish Physiology



Life Cycle

Ecological Interaction

What technological advances allow for seafood sustainability?



Enhanced Fishing Gear

Culture Systems

Feed Technology

Processing Technology

What kinds of jobs do fisheries and aquaculture create?

Fishermen Engineers

Research Biologists

Physiologists

Consultants

Fishery Biologists

Fishery Managers

R&D

Chemists

Food Scientists



Fisheries and aquaculture must be affordable and profitable to be sustainable. How do we keep it that way?



Permitting

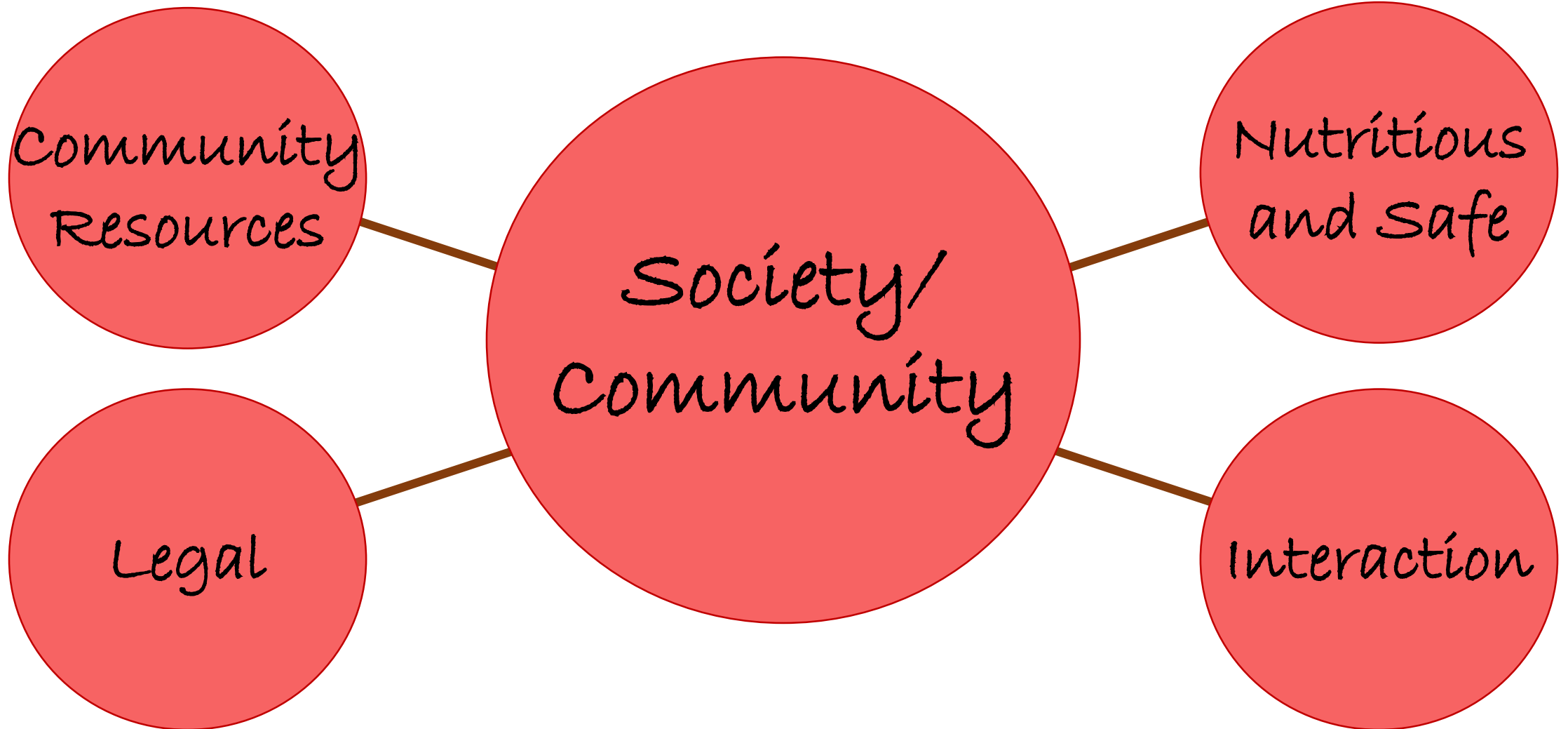
Maintenance

Market Demand

Equipment

Competitive

Society



What community resources must be preserved to insure sustainable fisheries and aquaculture?



Community Land

Water Use

Culture

Noise Pollution

How do we keep seafood nutritionally adequate and safe for human consumption?

Feed Composition

Handling

Storage

FSMA

Audits

Chemical Residues

Processing

HACCP



How do fisheries and aquaculture operate in a legal manner?



Certifications

Permits

Audits/Inspection

Licenses

FDA Compliance

Good Manufacturing Practices

How can fisheries and aquaculture operations interact with the community in a harmonious manner?



Trust

Education

Communication

Transparency

Sustainability: MSC

- Sustainable Fish Stocks
 - Continue Indefinitely
- Minimized Environmental Impact
 - Maintain the structure, productivity, function and diversity of the ecosystem
- Effective Management
 - Comply with relevant laws and responsive to changing circumstances



Sustainability: ASC

- Comply with legal requirements and regulations
- Limit/eliminate adverse effects on habitat, biodiversity and ecological processes
- Maintain health and genetic diversity in wild population
- Manage disease and pests responsibly
- Efficient use of resources – energy/waste/feed
- Community relations and interaction
- Socially and culturally responsible



Sustainability: Consumer Guides



www.seafoodwatch.org



www.fishwatch.gov



www.safinacenter.org

Seafood Watch: Consumer Guides

BEST CHOICES

Arctic Char (farmed)
Barramundi (US & Vietnam farmed)
Bass (US hook and line, farmed)
Bluefish (US handline)
Catfish (US)
Clams, Mussels & Oysters
Crab: King, Snow & Tanner (AK)
Croaker: Atlantic (beach seine)
Mahi Mahi (US handline)
Prawn: Freshwater (Canada & US)
Prawn: Spot (AK & Canada)
Rockfish (AK, CA, OR & WA)
Salmon (AK & New Zealand)
Sardines: Pacific (Canada & US)
Scallops (farmed)
Seaweed (farmed)
Shrimp (US farmed & AK)
Swordfish (Canada & US buoy, handline, harpoon)
Tilapia (Canada, Ecuador & US)
Tuna: Albacore (Pacific troll, pole and line)
Tuna: Skipjack (Pacific troll, pole and line)

GOOD ALTERNATIVES

Bluefish (US gillnet and trawl)
Branzino (Mediterranean farmed)
Crab: Atlantic Rock (Canada)
Crab: Blue & Dungeness (US)
Croaker: Atlantic
Haddock (Georges Bank)
Hake (US)
Halibut: Atlantic (farmed)
Lobster (Bahamas & US)
Monkfish (US)
Pollock (Canada longline, gillnet & US)
Redfish (US)
Scallops: Sea (wild)
Shrimp (Canada & US wild, Ecuador & Honduras farmed)
Squid (Mexico & US)
Tilapia (China, Indonesia, Mexico & Taiwan)
Tuna: Albacore (US longline)
Tuna: Skipjack (free school, imported troll, pole and line, and US longline)
Tuna: Yellowfin (free school, HI longline, and Pacific & Indian Ocean troll, pole and line)

AVOID

Cod: Atlantic (Canada, CA, OR & WA)
Crab: Atlantic Rock (US)
Crab: Jonah (Canada)
Crab (Russia)
Haddock (Gulf of Maine)
Halibut: Atlantic (wild)
Mahi Mahi (Costa Rica, Guatemala & Peru)
Octopus: Common (Portugal & Spain trawl, Mexico)
Orange Roughy
Pollock (Canada trawl)
Salmon: Atlantic (farmed)
Sardines: Atlantic (Mediterranean)
Sharks
Shrimp (imported)
Squid (China, India & Thailand)
Swordfish (imported longline)
Tuna: Albacore (except US troll, pole and line, and longline)
Tuna: Bluefin
Tuna: Skipjack (imported purse seine)
Tuna: Yellowfin (Atlantic troll, pole and line)

Start with Best Choices then check the other columns—your favorite seafood could be in more than one.

Best Choices

Buy first, they're well managed and caught or farmed in ways that cause little harm to habitats or other wildlife.

Good Alternatives

Buy, but be aware there are concerns with how they're caught or farmed.

Avoid

Take a pass on these for now, they're overfished or caught or farmed in ways that harm other marine life or the environment.

Visit us online or download our app for a **comprehensive list** of our recommendations.



Monterey Bay Aquarium

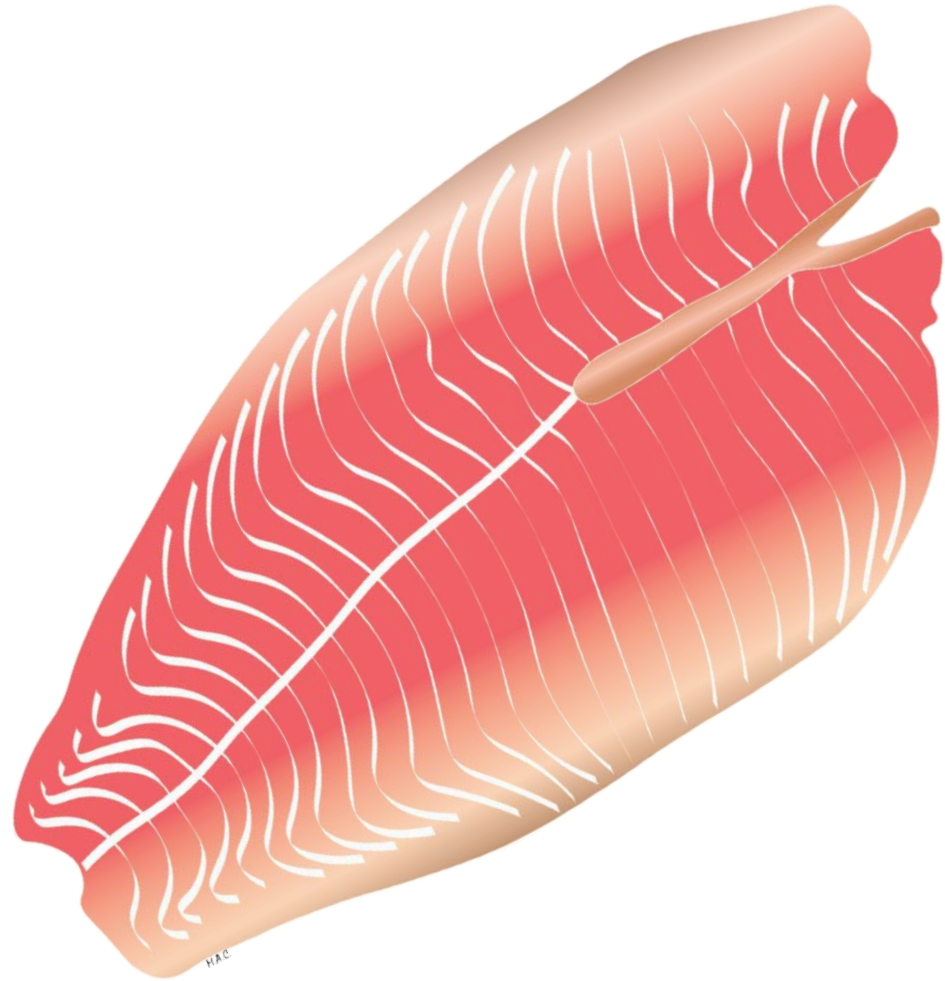
Seafood WATCH



Northeast
Consumer Guide
January–June 2016

Where to buy and learn more...

- Online Resources
- Local Specialty Markets
- Local Grocer Guides
 - [Wholefoods](#)
- Community Supported Fisheries



Community Supported Fishery (CSF)

LOCAL CATCH
____.org____



Seafood Safety

Four steps to keeping
seafood safe



1



2

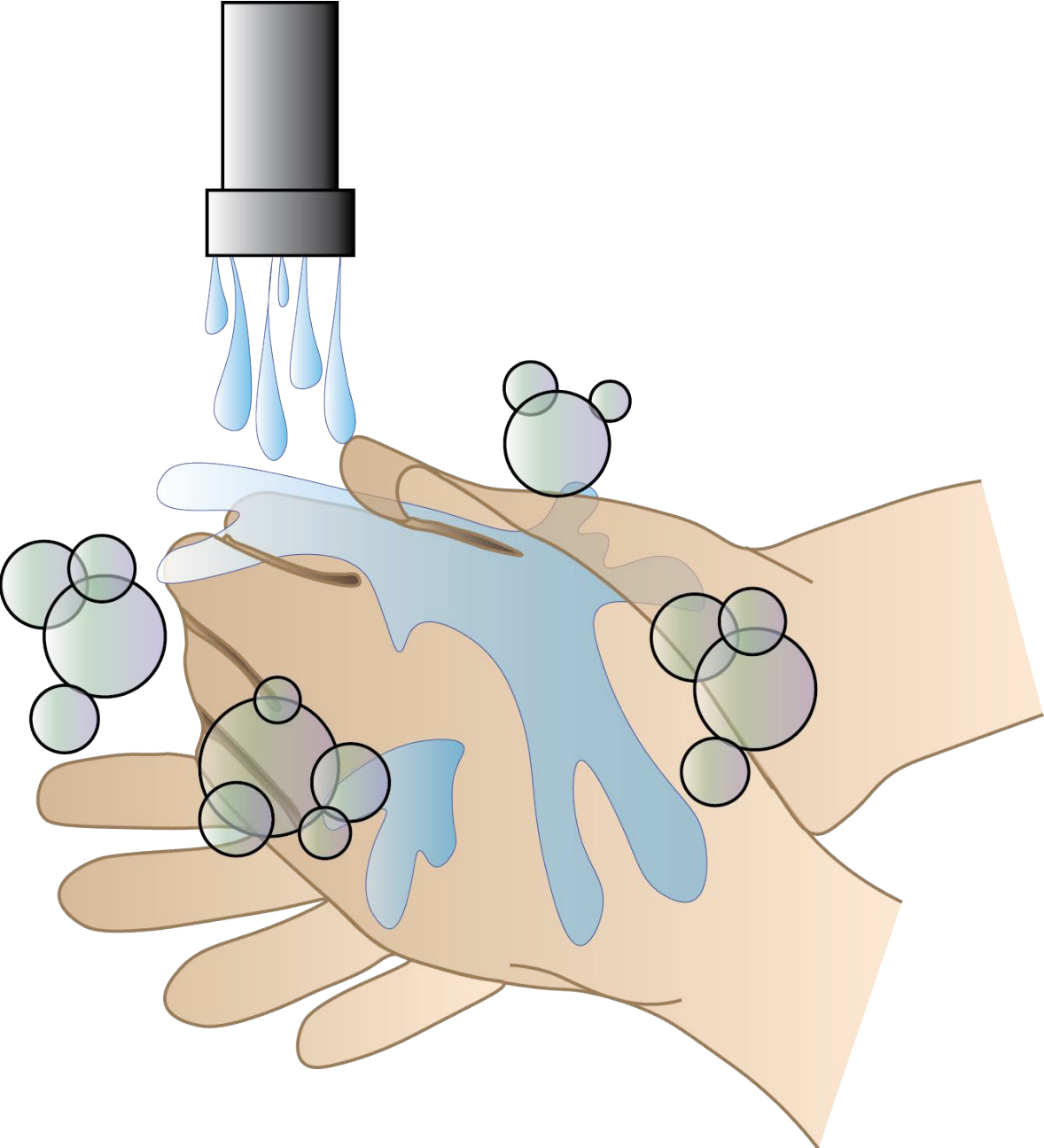


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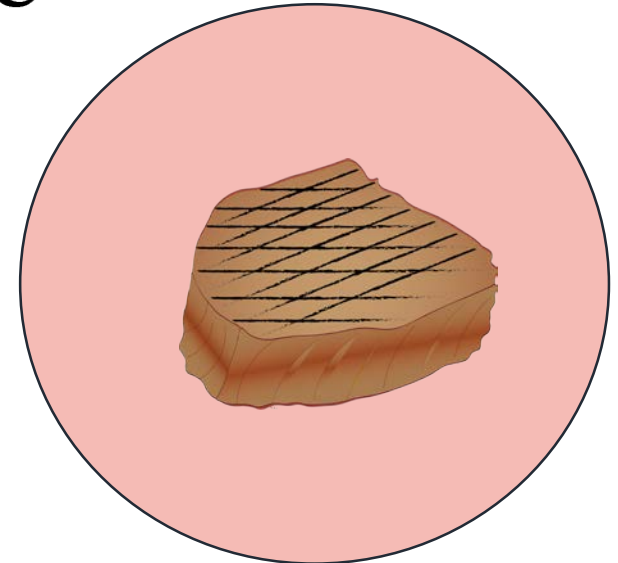
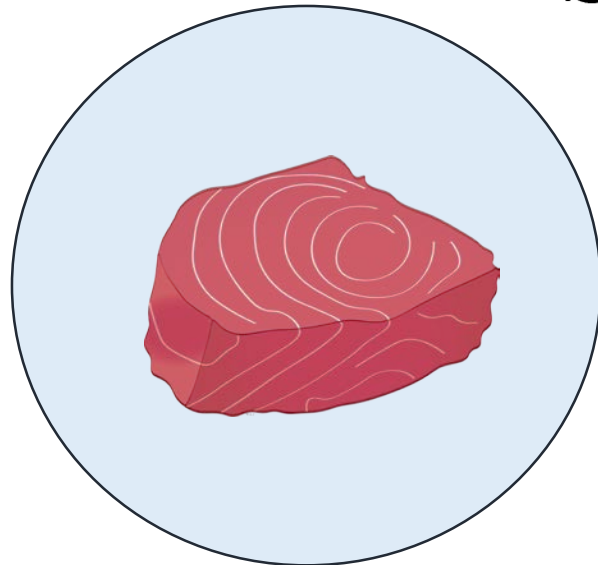
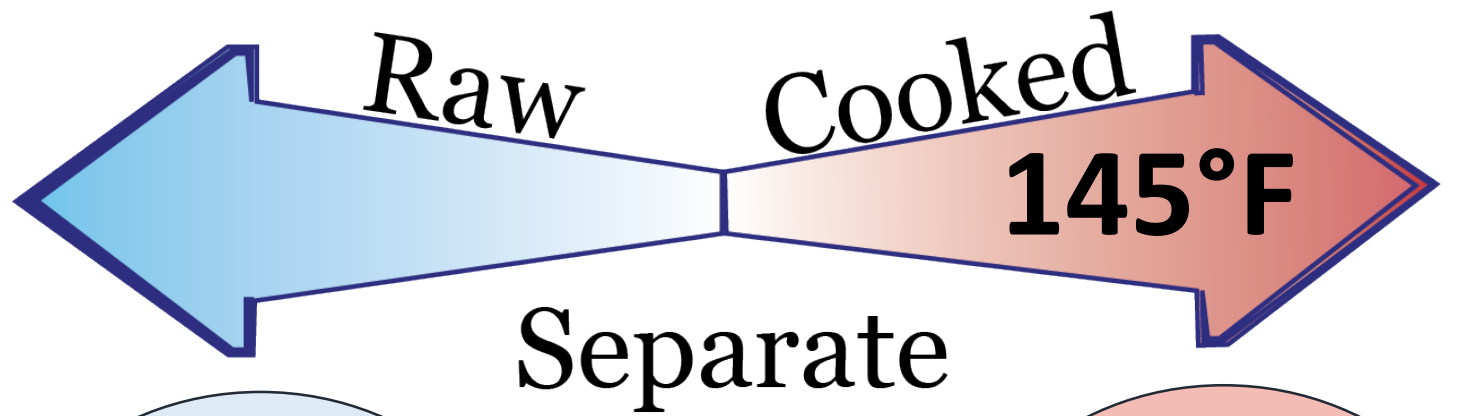


4

Keep
Clean



Keep
Separate

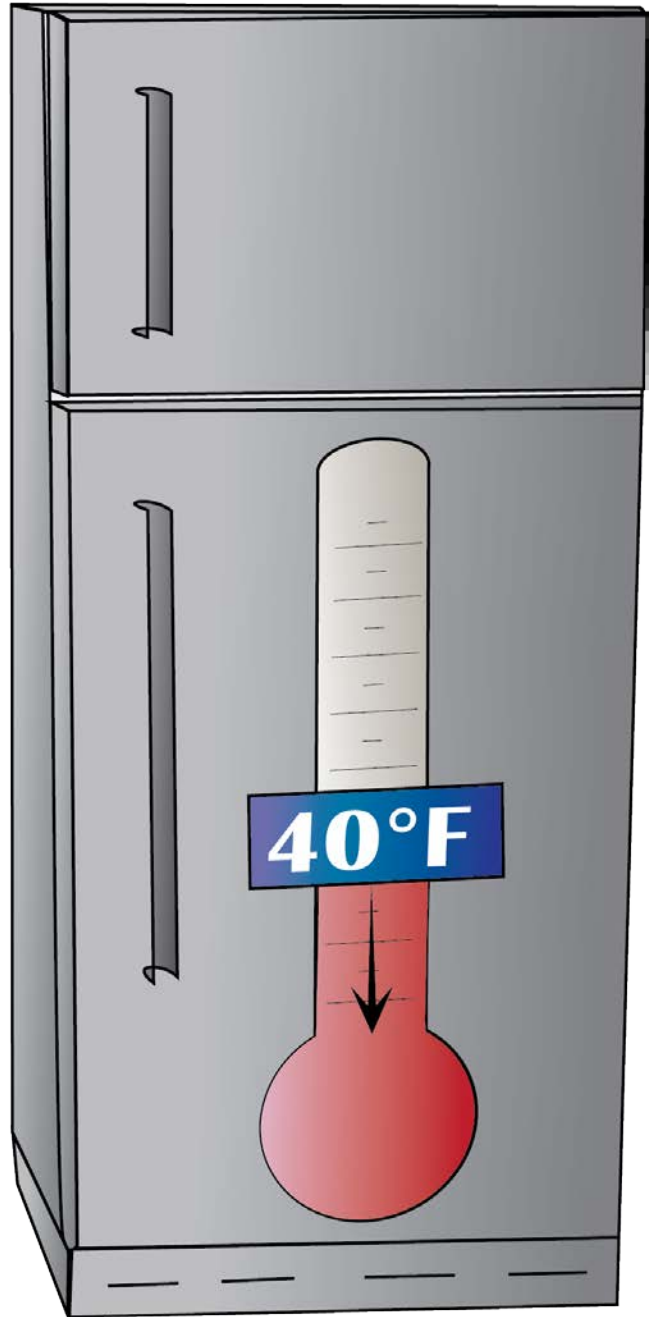
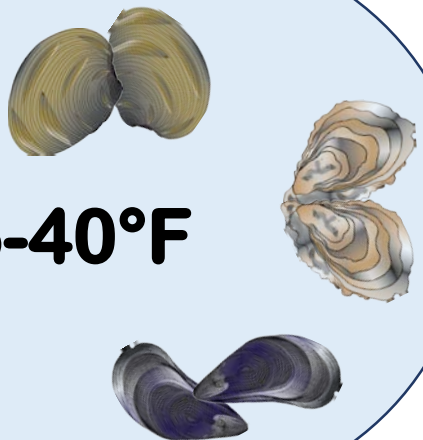


Keep
Cold

32-40°F



35-40°F



Thank

You!

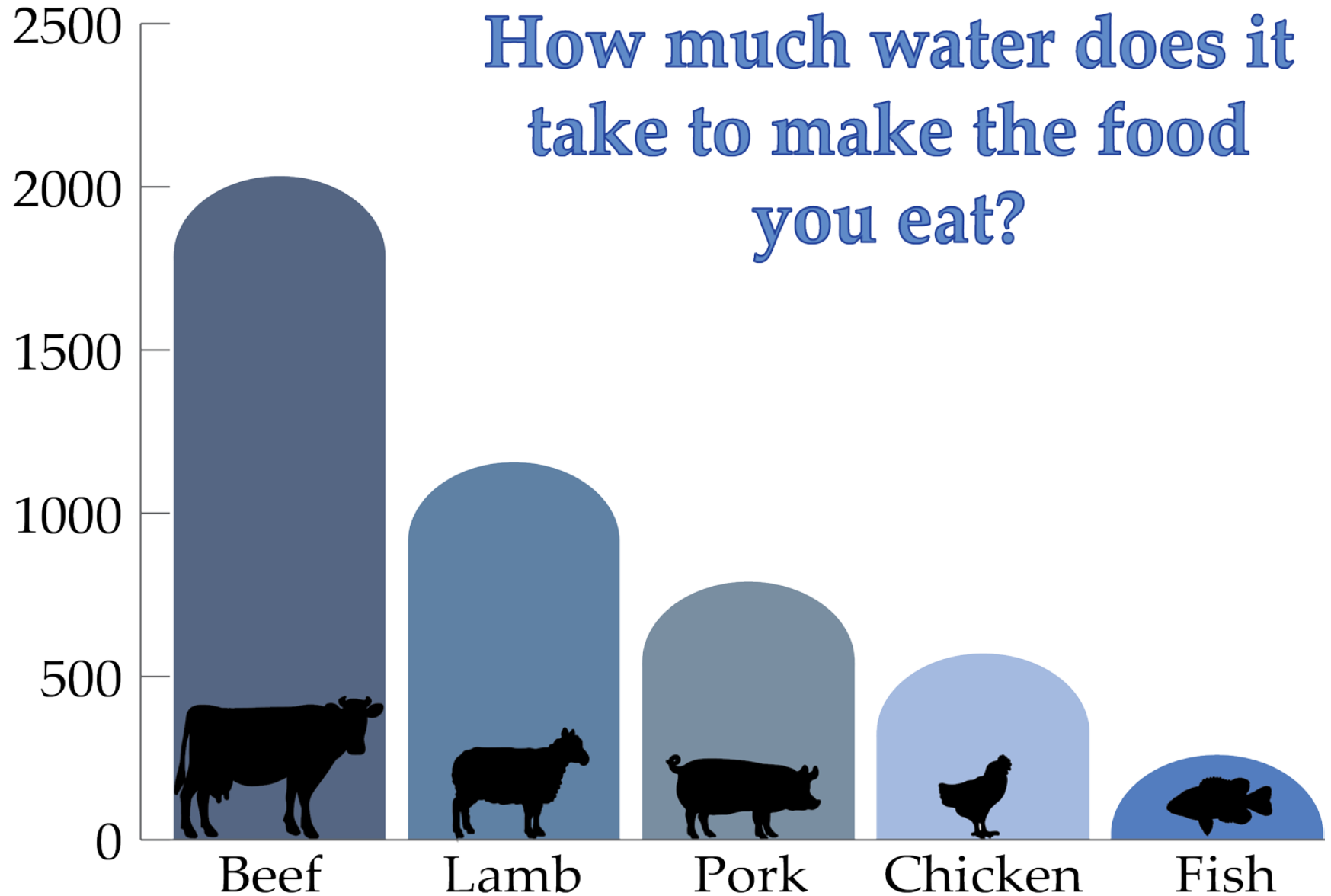


Water

Gallons per
Pound

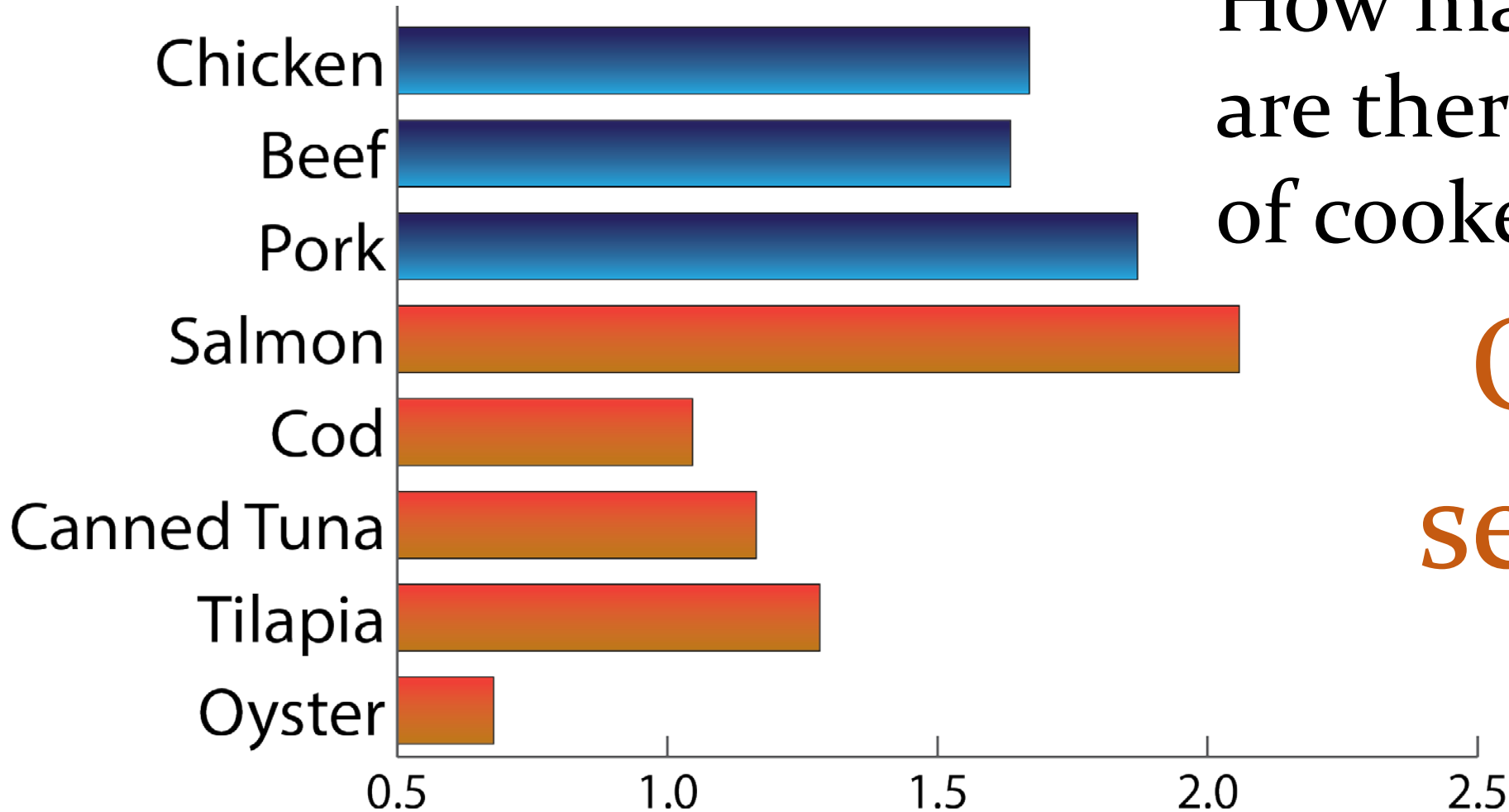
Water Use

How much water does it
take to make the food
you eat?



Data from Mekonnen and Hoekstra 2012: Water Footprint Network (www.waterfootprint.org)

High protein - Low calorie



How many calories are there in 1 gram of cooked meat?

One 3oz serving is:
85g.