



Culinary Institute
of America

Seafood Sustainability

Day 5



Learning Objectives

- Define sustainable seafood and its importance.
- Explain the difference between wild-caught and farm-raised seafood.
- Describe common aquatic and fishing practices.
- Identify current laws regulating seafood.
- Recognize sustainability certifications and organizations.
- Understand how to choose sustainable seafood and reduce your impact.
- Explore global and ethical challenges in the seafood industry.
- Introduce innovations and alternatives in sustainable seafood.

What is Sustainable Seafood?

Seafood caught or farmed in ways that:

- Have minimal environmental and social impacts
- Prevent overfishing and allow fish populations to recover
- Protect marine ecosystems and biodiversity
- Avoid bycatch: accidental capture of non-target species
- Support fishing communities and uphold fair labor practices



Why Sustainability Matters

- Maintains healthy fish populations
- Preserves ocean environments and water quality
- Reduces carbon footprint and pollution
- Protects endangered marine species
- Empowers chefs and consumers to drive ethical change



Wild Caught

- Sourced directly from oceans, rivers, lakes
- Live in natural habitats with varied diets
- Often considered more nutrient-dense than farm-raised
- Typically more flavorful due to wild diet and environment
- Lower risk of exposure to antibiotics/additives

Culinary use:

- Distinct flavor, texture, and appearance
- Often preferred for premium dishes and seasonal specials



Farm Raised (Aquaculture)

- Raised in controlled, open-ocean or inland water environments
- More sustainable than many wild-caught options
- Available year-round in various regions
- Usually less expensive
- Rich in omega-3s

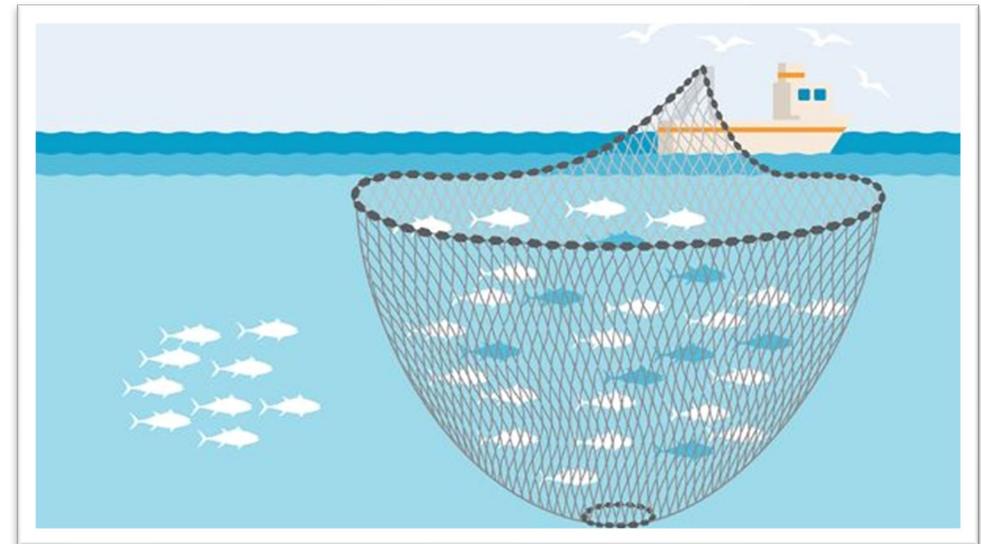
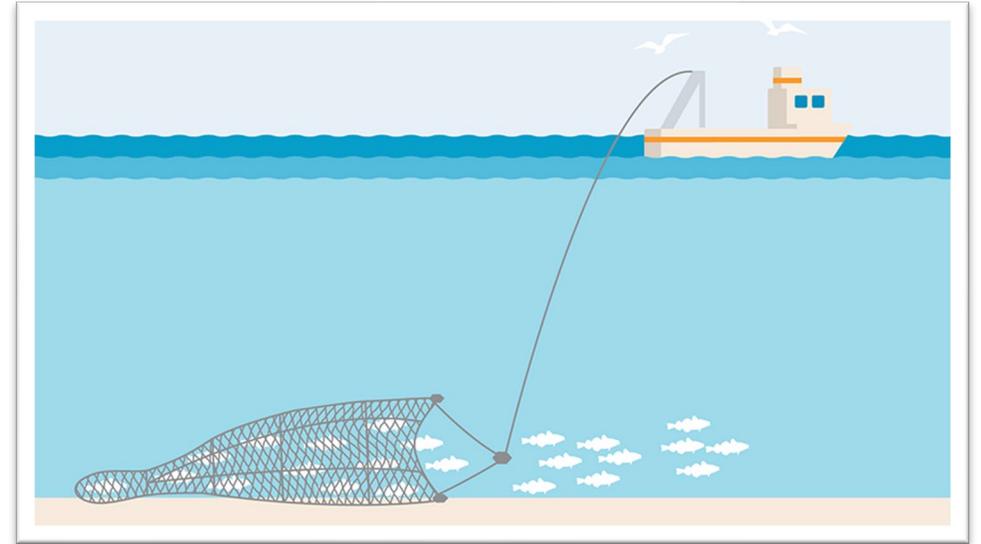
Culinary use:

- Consistent size, flavor, and texture
- Good for portion control and menu planning



Fishing Techniques

- **Longlines:** miles of fishing line with thousands of hooks; high bycatch risk
- **Trawling:** nets dragged along the ocean floor; effective but can destroy habitats
- **Trolling:** lines with bait towed behind boats; more selective
- **Purse seining:** huge net encircles fish; efficient, but can capture unintended species
- **Pole-and-line:** one fish at a time; low bycatch and highly sustainable



Aquatic Practices

- **Fisheries:** areas where seafood is harvested (can be wild or farmed)
- **Hatcheries:** facilities that raise young fish for later release or sale
- **Day boats:** return daily, ensuring fresher, traceable catch
- **Catch shares:** systems that allocate fishing quotas to control overfishing
- **Estuaries:** where rivers meet the sea
 - Critical breeding grounds, but vulnerable to pollution



Industry Challenges

Traceability:

Difficulty tracking where and how seafood was sourced

Overfishing:

Depletes fish faster than they can reproduce

Climate change:

Warms oceans, disrupts fish migration, and causes ocean acidification

Labor exploitation:

Human trafficking and unsafe conditions in parts of the global seafood industry

Red tide:

Toxic algal blooms that damage marine life and shellfish safety

Bycatch:

Non-target species harmed by certain fishing methods

Seafood Laws & Regulations

Magnuson-Stevens Act (1976):

- U.S. law that manages fish stocks, sets catch limits, and rebuilds depleted populations

IUU Fishing (Illegal, Unreported, and Unregulated):

- Includes poaching, mislabeling, and fishing in closed areas
- Undermines sustainability and labor ethics worldwide



Sustainable Seafood Organizations

- **Seafood Watch (Monterey Bay Aquarium):** sustainability rankings by species and region
- **Oceana:** ocean conservation and policy advocacy
- **WWF:** works on sustainable fisheries and marine biodiversity
- **NOAA:** tracks U.S. fish stock status and regulations
- **FDA:** oversee seafood safety, imports, and inspections



Monterey Bay Aquarium
Seafood Watch

OCEANA



WWF

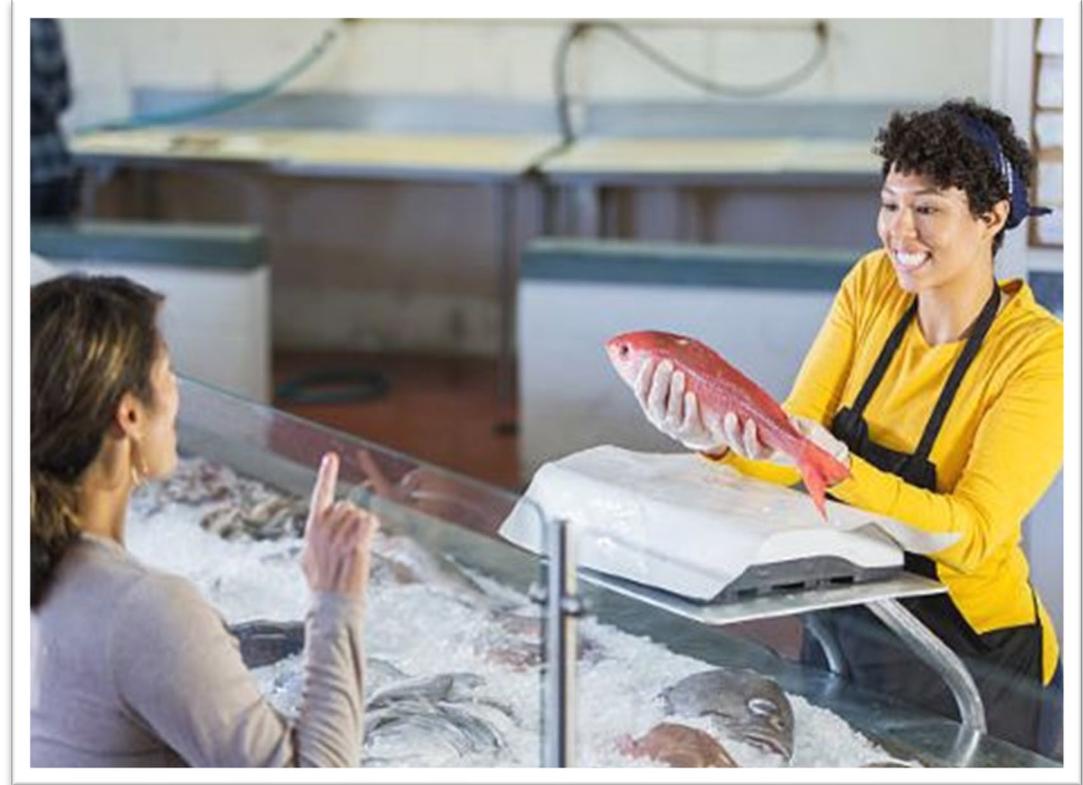


FISHWATCH
U.S. SEAFOOD FACTS



How to Choose Sustainable Seafood

- **Ask questions:** talk to vendors or chefs about how and where it was caught or farmed
- **Check certifications:** look for sustainability labels
- **Use trusted tools:** refer to Seafood Watch website for guidance
- **Buy local and seasonal:** fresher and lower environmental
- **Avoid overfished species:** stay informed and choose well-managed



Seafood Certifications

Look for these labels on packaging or menus!



Global G.A.P.:
Covers sustainable agriculture and aquaculture

Marine Stewardship Council (MSC):
For wild fisheries



Aquaculture Stewardship Council (ASC):
For responsible fish farming



Best Aquaculture Practices (BAP):
Ensures environmental, labor, and safety standards

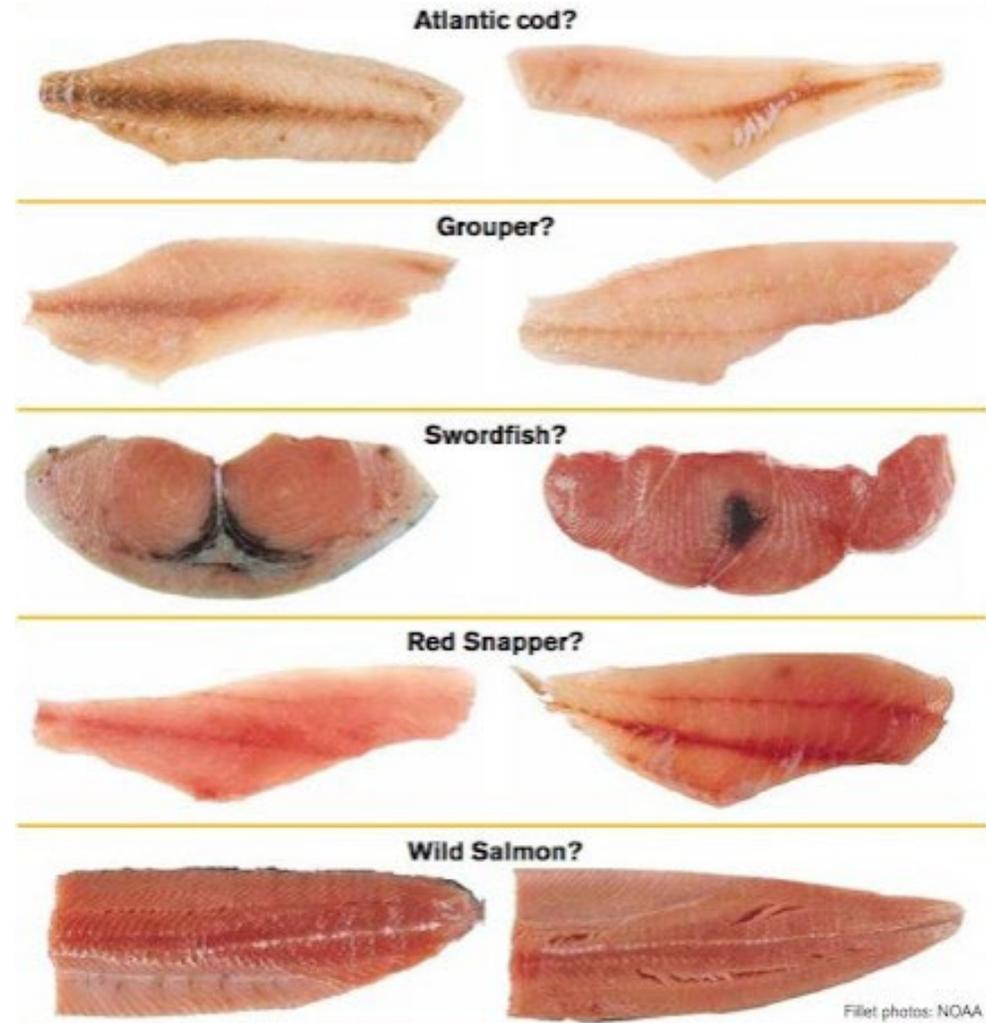


Seafood Fraud

- ~20% of seafood in the U.S. is mislabeled
- Common fraud: cheap fish sold as premium (e.g., escolar labeled as tuna)
- Undermines sustainable sourcing
- Can expose consumers to allergens, toxins
- Makes traceability difficult

How to avoid:

- Buy from trusted vendors
- Ask for species, catch method, and origin
- Look for third-party certifications



Lower-Impact Seafood Choices

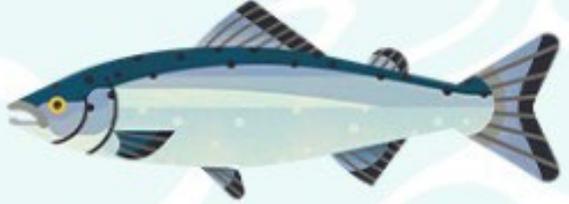
Lower-impact species are seafood types that:

- Grow quickly and reproduce often
- Are low on the food chain
- Require little or no feed to grow
- Cause minimal habitat damage during harvest

Main types:

- **Bivalves:** filter water and improve quality naturally
- **Small pelagic fish:** quick reproduction/short lifetimes
- **Farm-raised fish:** sustainable

Salmon



Wild Atlantic salmon is not doing well, the environmental impact of some farmed salmon needs to improve

Swap it for...



Farmed rainbow trout from freshwater ponds

Lower-Impact Seafood Species Examples



Bivalves:
mussels, clams, oysters



Pelagic fish:
sardines, anchovies,
mackerel



Farm-raised fish:
trout, char

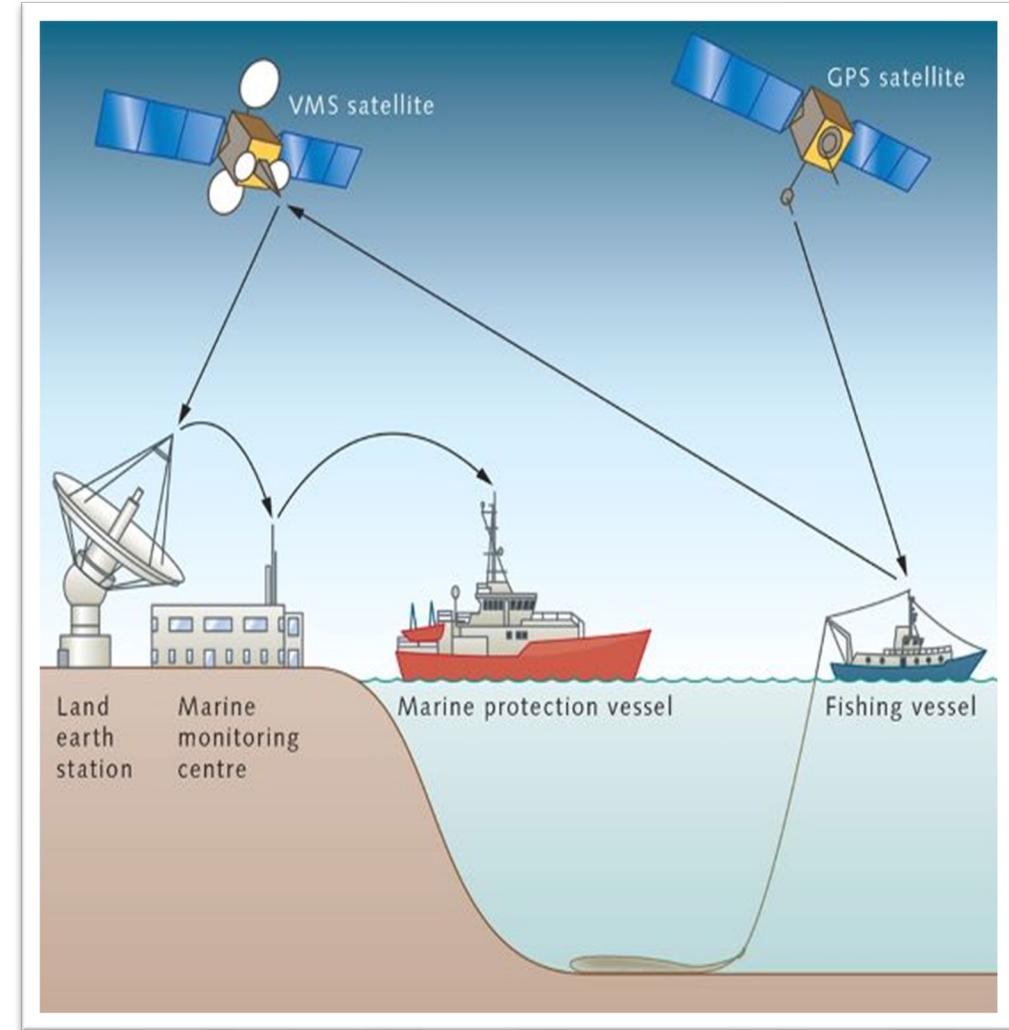
Global Perspectives & Innovation

Global challenges:

- 60%+ of U.S. seafood is imported, often from poorly regulated sources
- Weak enforcement in developing countries allows illegal fishing and labor abuse

Innovations:

- Satellite tech tracks illegal fishing
- AI cameras help prevent bycatch
- Closed-loop aquaculture reduces waste
- Alt-seafood: Plant-based or lab-grown



Sustainable Fish Butchery

- Use the whole fish (bones, collars, cheeks, skin) to minimize waste
- Make stock from bones and heads (zero-waste kitchen)
- Consider underutilized cuts like collars (*hamachi kama*)
- Portion accurately to reduce over-serving and food waste
- Discuss yield such as how it impacts menu pricing and sourcing



Sustainable Menu Planning

- Choose underutilized/invasive species
- Highlight sustainable options as specials
- Reduce portion sizes/use all parts of fish to minimize waste
- Feature bivalves and small fish (low-impact choices)
- Rotate menu based on seasonal local catch
- Your purchasing decisions shape seafood demand and supply





Culinary Institute
of America

Any Questions?