

Sustainable Seafood Education Kit

HOOK, LINE, & THINKER



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Canada

OCEAN
WISE

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LAND ACKNOWLEDGMENT

We acknowledge that K'émk'emeláy/Vancouver is situated on the unceded, traditional, and ancestral lands of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and səliłwətał (Tsleil-Waututh) Nations, who have cared for the land and waters since time immemorial. The name K'émk'emeláy, meaning “place of many maple trees,” is rooted in the Squamish Nation's history. We recognize and honour these enduring connections, acknowledging the past, respecting the present, and committing to a future built on understanding and reciprocity.

INDIGENOUS LEAD EXTENSION QUESTIONS

1. What does home mean to you?
2. What lessons do nature teach you?
3. What stories from your family or community inspire you?
4. What does the ocean teach you?
5. What responsibilities do you have for your community?

INTRODUCTION

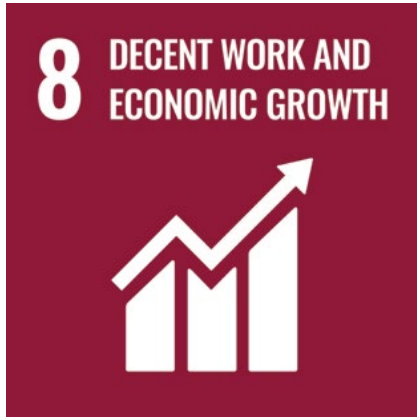
The health of our ocean and the countless communities, cultures, and species that depend on it relies on responsible human choices. Seafood is one of the most valuable resources the ocean provides, nourishing billions of people around the world. However, unsustainable fishing practices, overharvesting, and destructive methods have pushed many marine species and ecosystems to the brink. Every day, habitats are damaged, populations decline, and entire food webs are disrupted due to human actions on the water and along our coasts.

Yet, a different future is possible. By choosing sustainable seafood and supporting responsible harvesting practices, we can protect biodiversity, promote thriving ecosystems, and ensure food security for generations to come. At Ocean Wise, we believe that informed, empowered youth are key to shaping this future. Our sustainable seafood education programs build awareness of how our daily food choices are deeply connected to ocean health and global sustainability. Grounded in recognized science, global frameworks such as the United Nations Sustainable Development Goals (SDGs), and decades of collaborative work with fishers, scientists, Indigenous communities, and industry leaders, these lessons equip students with the knowledge and tools to become thoughtful consumers and ocean stewards.



SUSTAINABLE DEVELOPMENT GOALS

Our work aligns closely with the United Nations Sustainable Development Goals, particularly with goal 8, 10, and 14.



GOAL 8: DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.



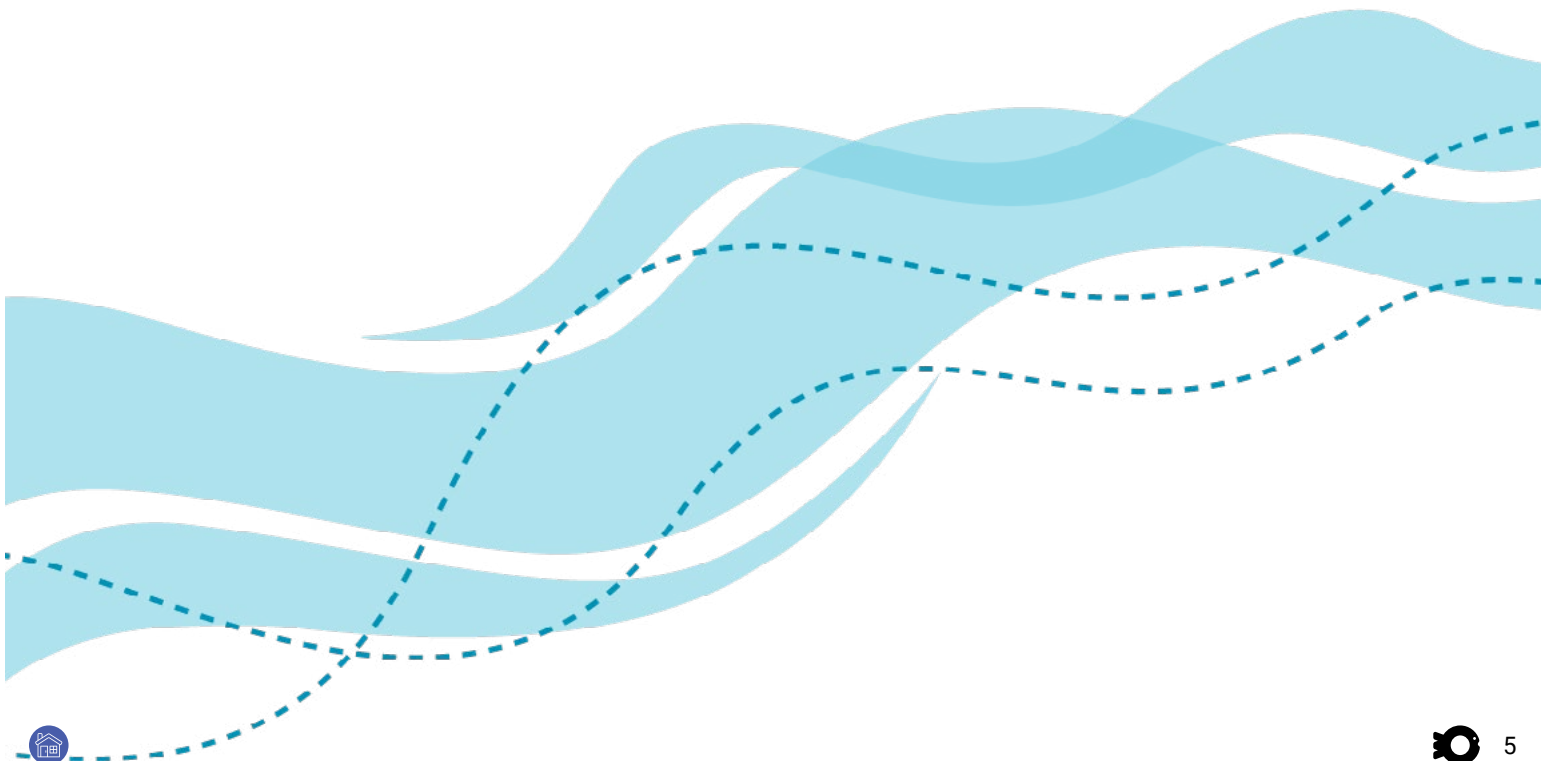
GOAL 10: REDUCED INEQUALITIES

Reduce inequality within and among countries.



GOAL 14: LIFE BELOW WATER

Conserve and sustainably use the oceans, seas and marine resources for sustainable development.





NOTE TO EDUCATORS

Each lesson follows the same format throughout the kit with critical questions and reflections built into the activities section. The kit follows the overarching theme of interconnectedness, integrating decolonization practices with scientific, conservation, and Indigenous knowledge.

The thought book component prompts students to journal on interconnectedness and consider its connection to each lesson's focus. Through reflection, students will consider their role in decolonization and climate action so that they are encouraged to be changemakers within their community.

Each lesson ends with ways to take action. We invite educators and students to create their own actions acknowledging that those provided may not be accessible or applicable to all. We recognize that individual action should be coupled with systemic change. We aim to empower students through active approaches and creative problem solving that address individual or smaller-scale behavior change, but also through actions that can positively influence large systemic issues.

Finally, we want to thank you for promoting climate change education, social justice and Indigenous knowledge in your classroom. By doing so, you are providing a unique skill set to the future leaders of the world, so they are better equipped to deal with environmental issues. Nonetheless, today you are the leader, leading our youth towards a cleaner and more sustainable future.

CURRICULUM LINKS

The table below illustrates curriculum connections, outlining the Big Ideas in a variety of courses and detailing which lessons are connected to which Big Ideas. Please note that although this resource is developed with a focus on aligning to the British Columbia curriculum, there exists a lot of overlap across provincial curricula and lesson activities possess room for interpretation so different curriculum objectives can be met, making this kit applicable throughout Canada.

CURRICULUM ALIGNMENTS AND SUSTAINABLE DEVELOPMENT GOALS

LESSON	SUBJECT	KEY TERMS	SUSTAINABLE DEVELOPMENT GOALS
Sustainable Seafood – You	Science	Sustainability, overfishing, bycatch, biodiversity, habitats, food webs, human impacts.	Goal 14: Life Below Water Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
	Social Studies	Interconnected, equity and access, social responsibility, rights and responsibilities, economics, global trade.	Goal 10: Reduced Inequalities Reduce inequality within and among countries.
Overfishing – Tuna	Science	Migrations, ecosystem balance, biodiversity loss, ecosystems, habitats and marine conservation.	Goal 14: Life Below Water Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
	Physical & Health Education	Agility, spatial awareness, teamwork and collaboration, fair play and respect.	
	Language Arts	Narrative writing, cause and effect analysis, oral storytelling, creative expression, multiple perspectives.	

LESSON	SUBJECT	KEY TERMS	SUSTAINABLE DEVELOPMENT GOALS
Connection – Salmon	Science	Life cycles, reproduction, ecosystem dynamics, nutrient cycle, ecological balance.	Goal 14: Life Below Water Conserve and sustainably use the oceans, seas and marine resources for sustainable development
	Social Studies	Cultural identity, food security, Indigenous knowledge and governance.	Goal 10: Reduced Inequalities Reduce inequality within and among countries.
Global Climate Shift – Arctic Char	Science	Population dynamics, biodiversity, ecosystem balance, adaptations, resilience and habitat requirements.	Goal 14: Life Below Water Conserve and sustainably use the oceans, seas and marine resources for sustainable development
	Mathematics	Addition and subtraction, multiplication financial literacy and unit pricing.	Goal 8: Decent Work and Economic Growth Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.
Local and Indigenous Practices – Herring	Science	Ecosystem stability, adaptations.	Goal 14: Life Below Water Conserve and sustainably use the oceans, seas and marine resources for sustainable development
	Social Studies	Community resilience, identity, Indigenous knowledge, placed based relationship.	Goal 8: Decent Work and Economic Growth Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

GLOSSARY

ADAPTATION

Traits or behaviours that help a species survive in its environment.

BYCATCH

Non-target species caught accidentally during fishing.

BIODIVERSITY

The variety of life in an ecosystem; healthy ecosystems usually have high biodiversity.

CONSERVATION

Protecting natural resources and habitats for future generations.

ECOSYSTEM

Community of living organisms interacting with their environment.

ETHICAL CONSUMPTION

Choosing products that are environmentally and socially responsible.

FRESHWATER ENVIRONMENT

A place where the water has little to no salt in it, like lakes and rivers.

HABITAT DESTRUCTION

Damage to natural environments caused by human activities.

OVERFISHING

Catching fish faster than they can reproduce, threatening populations.

SUSTAINABILITY

Meeting current needs without harming future generations.





LESSON 1

Sustainable Seafood – You



BACKGROUND

This lesson invites students to reflect on their own food memories and explore the connections between what they eat, where it comes from, and how it impacts the environment. Food is deeply tied to memory and culture, students often recall who prepared a meal, how it tasted, and the traditions around it. Beginning with these personal reflections makes the lesson meaningful and helps connect individual experiences to bigger ideas of sustainability.

Sustainable seafood means catching seafood in ways that protect species, habitats, and communities for the future. Unsustainable practices, like overfishing or harmful gear use, threaten ecosystems and food security, while sustainable choices, such as eating local species in season or supporting small-scale fisheries, help maintain balance.

Indigenous peoples have long relied on marine and freshwater food sources with values of respect, reciprocity, and care for the environment. For example, at the Natoaganeg fishery in New Brunswick, they catch striped bass using trap nets that



were historically used in Indigenous communities throughout the province. This method of fishing is sustainable as they can select the fish they want to harvest and release the other fish, known as bycatch.

For students, the key questions are: Where does your food come from? What memories or traditions are connected to it? And how can your choices help protect those foods for the future? Framing seafood in this way highlights that sustainable choices are not just environmental actions but ways of protecting culture, memory, and connection for generations to come.

STUDENTS WILL BE ABLE TO

- Identify that seafood is a major global food source, but how it's caught affects ocean health.
- Define "sustainable seafood"
- Understand Ocean Wise's role in seafood sustainability
- Explore why not all fishing is equal

CRITICAL QUESTIONS

1. How do you think sustainable seafood practices affect local communities, particularly fishers?
2. What barriers exist for people who want to buy sustainable seafood?
3. How do your choices change over time? What are some of the reasons your mind changes?



ACTIVITIES

WHAT'S ON A PLATE

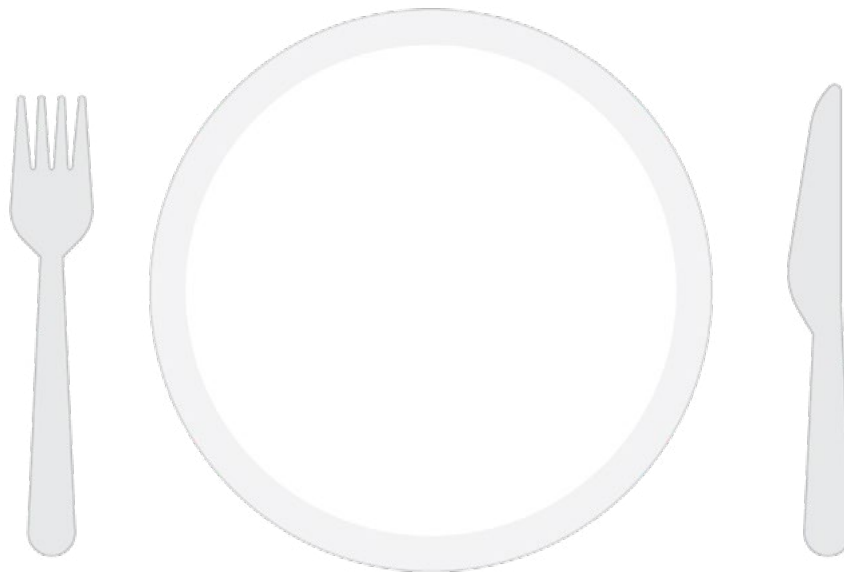
TASK Have students draw their favourite meal that their family eats on the plate in the student workbook.

ASK Where does it come from? Farm, garden, grandparent's house, grocery store, ocean, from a plant. The point being that the student's interpretation of this question will differ.

TASK Have students draw their favourite seafood or marine product on the plate in the student workbook. Some may relate easily, while others may not be familiar with seafood at all.

EXPLAIN that seafood includes any food from the ocean or other bodies of water, such as fish, shellfish, and marine plants. Encourage students to share their favourites and notice patterns, highlighting how seafood connects to culture, diet, and local ecosystems. You can also make it more engaging by showing pictures or examples of different seafood to help students connect names, appearances, and origins.

ASK Where does it come from? The ocean is usually the primary response.



➔ **VIEW** the resource(s) for this activity at ocean.org/action/sustainable-seafood-ed-kit

FISHING FOR SUSTAINABILITY

EXPLAIN that at its simplest, sustainability means being able to continue something over the long term without using up the resources needed to keep it going. When something cannot continue this way, it is considered unsustainable.

TASK Have students colour the sustainable fishing cards green and the unsustainable fishing cards red. Here is background information to give the students prior to deciding.

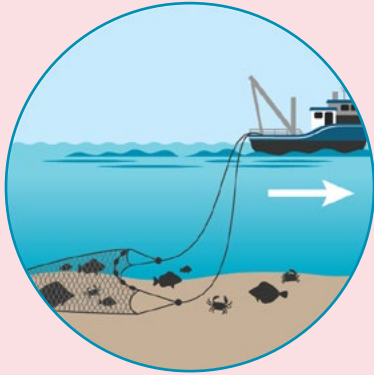
FAST FACTS

- Over 3 billion people rely on seafood for protein.
- Some fishing methods, like bottom trawling, destroy habitats and catch non-target species known as bycatch.
- Ocean Wise Seafood is a conservation program that helps businesses and consumers make ocean-friendly choices.

SEAFOOD AND COMMON GEAR TYPES USED

SEAFOOD	COMMON GEAR TYPES USED
Salmon	Pole-and-line/Handlines, Gillnets, Seine nets
Tuna	Pole-and-line/Handlines, Longlines, Seine nets
Herring	Seine nets, Lift nets, Gillnets
Halibut	Pole-and-line/Handlines, Longlines, Gillnets
Cod	Pots/Traps, Bottom trawls, Gillnets
Shrimp	Bottom trawls, Traps
Crab	Pots/Traps
Sardines	Seine nets
Pollock	Bottom trawls
Groundfish (general)	Bottom trawls

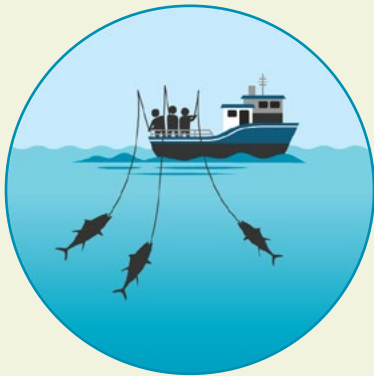
ANSWERS

**BOTTOM TRAWLS**

HOW IT WORKS Large nets dragged along the seafloor to catch groundfish or shrimp.

ENVIRONMENTAL IMPACT Destroys seabed habitats, including corals and sponges, catches many unintended species (bycatch), and can deplete fish populations.

SOCIAL / ECONOMIC IMPACT Can temporarily increase catch, but long-term damage affects local communities and ecosystem health.

**POLE-AND-LINE / HANDLINES**

HOW IT WORKS Fishers use a single line or a pole with baited hooks to catch fish one at a time. Common for tuna and other large pelagic fish.

ENVIRONMENTAL IMPACT Very selective, minimal bycatch, no damage to seabed or habitats.

SOCIAL / ECONOMIC IMPACT Often small-scale, provides jobs without harming ecosystems.

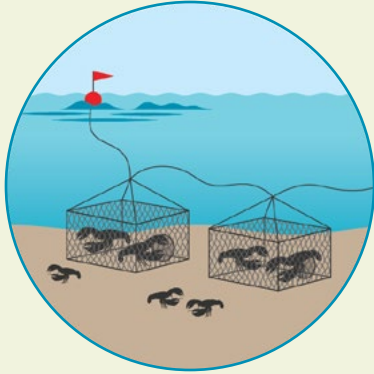
**LOGLINES**

HOW IT WORKS Very long lines with thousands of baited hooks are set in open water, often for tuna or swordfish.

ENVIRONMENTAL IMPACT High bycatch, including endangered turtles, sharks, and seabirds. Can deplete targeted fish if unregulated.

SOCIAL / ECONOMIC IMPACT Industrial scale benefits a few companies but harms ecosystems.

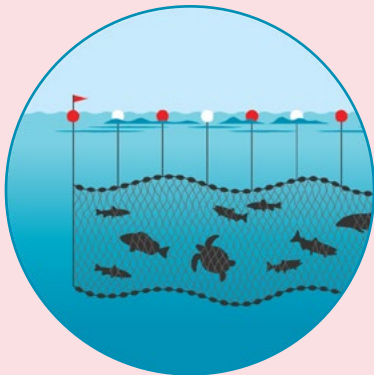
ANSWERS

**POTS / TRAPS**

HOW IT WORKS Pots or traps (often with bait inside) are placed along the ocean floor and have openings that trap the target species that enter them.

ENVIRONMENTAL IMPACT Minimal damage to the area around them due to being stationary. Smaller openings in the pots/traps allow bycatch species to swim out.

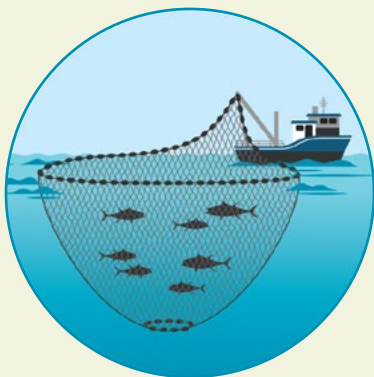
SOCIAL / ECONOMIC IMPACT Used in both small-scale and large-scale fisheries. Primarily used for catching crab and lobster which supports livelihoods in coastal communities.

**GILLNETS**

HOW IT WORKS A large mesh net is set in the water and catches fish when they swim into it and become entangled by their gills.

ENVIRONMENTAL IMPACT High bycatch of species like marine mammals, seabirds, and other fish.

SOCIAL / ECONOMIC IMPACT Gillnets are inexpensive and efficient at catching high volumes of fish. However, other species can become depleted if caught as bycatch.

**LIFT NETS / SEINE NETS**

HOW IT WORKS Nets are used to capture schools of fish (like herring or sardines) in shallow water. Lift nets are raised from the water; seine nets surround the fish and close at the bottom.

ENVIRONMENTAL IMPACT Minimal habitat disruption, usually low bycatch if used on fast-growing species.

SOCIAL / ECONOMIC IMPACT Supports small coastal communities and provides affordable seafood.



THOUGHTBOOK

Seafood is more than what ends up on our plates, it connects people, cultures, and ecosystems across the world. The choices we make about what we eat can help protect ocean habitats and the animals that live there. Some fishing methods harm the ocean and other species, while others, like low impact or Indigenous-managed fisheries, work in harmony with nature. By learning how to recognize sustainable seafood and understanding the impacts of different fishing methods, we can make choices that support healthy oceans and thriving communities.

REFLECT

1. Which seafood do you or your family eat most often, and how might your choices affect the ocean?
2. How do different fishing methods impact marine habitats and species beyond the fish we eat?
3. What is one change you could make in your seafood choices to support sustainability and healthier oceans?



TAKE ACTION

Look for the Ocean Wise label when you go to the grocery store or order seafood at a restaurant. Choosing responsibly sourced seafood helps support healthier oceans and more sustainable fishing practices.

Knowing where your food comes from, how it was caught and the impact it has on marine ecosystems is an important action in itself. Every informed choice is an opportunity to make a difference!

THE WHY

Knowing where your food comes from helps us understand the impact our choices have on the ocean, freshwater ecosystems, and the communities that depend on them. Choosing sustainable seafood supports healthy fish populations, protects marine habitats, and ensures that species can continue to thrive for future generations. It also strengthens local and Indigenous fisheries that practice respect, reciprocity, and balance in harvesting.

By being mindful of what you eat and asking where it was caught, how it was harvested, and whether it supports sustainable practices, you become part of a global effort to reduce overfishing, safeguard biodiversity, and protect cultural traditions tied to the ocean. Your choices matter: each meal can be a step toward conservation, climate resilience, and ensuring that future generations can continue to enjoy the foods and memories we cherish today.



LESSON 2

Overfishing – Tuna



BACKGROUND

Tuna is some of the most widely recognized and commercially valuable fish in the world, prized for their role in global cuisines such as sushi, canned tuna, and fresh seafood dishes. They are highly migratory, traveling thousands of kilometers across the ocean to feed and spawn, which makes understanding their population size and distribution challenging for researchers. Despite their abundance in certain regions, some tuna species are considered vulnerable or endangered. Although other species have also been considered a conservation success story, coming off of the endangered list entirely.

Overfishing occurs when fish are caught faster than they can reproduce, causing populations to decline. Tuna is especially vulnerable because they are long-lived predators that play an important role in the marine food web. Unsustainable fishing practices, such as large-scale industrial fleets using longlines or seine nets, not only remove huge numbers of tuna but also impact other marine species through bycatch, including sharks, seabirds, and sea turtles.

The consequences of overfishing tuna are significant. Reduced tuna populations can disrupt marine ecosystems, affecting predator-prey relationships and the health of other species in the food chain. Additionally, overfishing threatens the livelihoods of coastal and small-scale fisheries that rely on tuna for food and income, including many Indigenous and local communities who have managed these resources sustainably for generations.

Efforts to address overfishing, such as enforcing catch limits, promoting sustainable fishing practices, and supporting responsible consumer choices, have helped some tuna populations recover. However, much work remains to ensure that these species are fished responsibly, so they continue to thrive in the ocean and remain a reliable food source for people around the world.

STUDENTS WILL BE ABLE TO

- Understand the impacts of overfishing on tuna populations
- Explore tuna adaptations and food chain role
- Practice empathy and creativity by writing from a tuna's perspective

CRITICAL QUESTIONS

1. How does overfishing tuna affect other species in the ocean (predators, prey, and bycatch species)?
2. How does the migratory nature of tuna make it challenging to manage their populations?
3. How does overfishing affect the livelihoods of small-scale fishers and Indigenous communities?
4. How do you balance the global demand for tuna with the need to protect marine ecosystems?
5. If you oversaw a tuna fishery, what policies or practices would you implement to ensure long-term sustainability.



ACTIVITIES

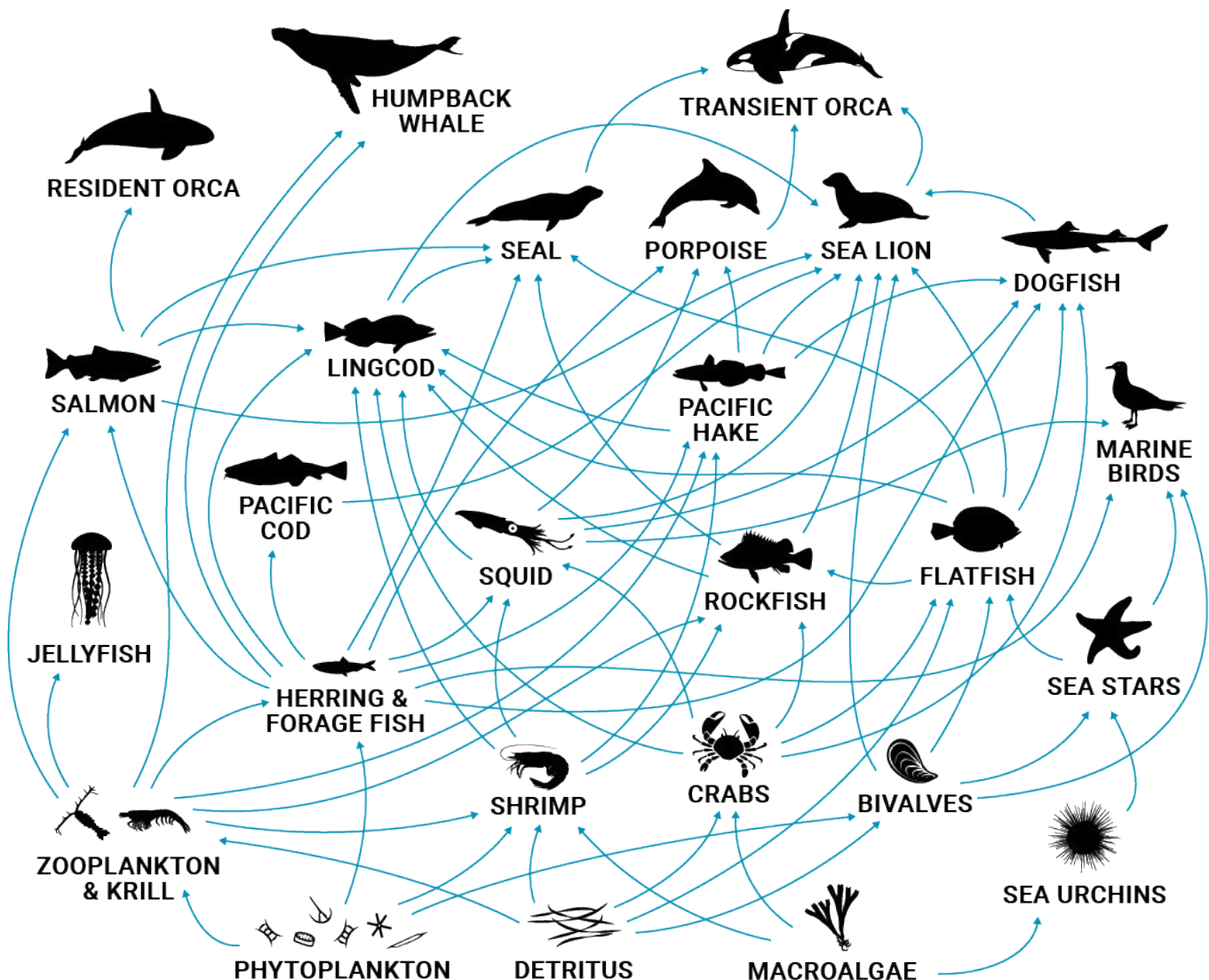
➔ **VIEW** the resource(s) for this activity at ocean.org/action/sustainable-seafood-ed-kit

PREDATOR FOOD CHAINS

TASK Have students select a top ocean predator and draw their respective food chain.

ASK Where do humans fit into this food chain? Have students add them to the food chain they drew in the previous question.

FOOD WEB OF HOWE SOUND (SIMPLIFIED)



I'M A TUNA TRYING TO SURVIVE...

TASK Evaluate tuna's role within the food chain and have students write from the perspective of a tuna trying to survive overfishing. Have students write a story or draw a cartoon depending on which grade level you are teaching. Use the prompt: "I'm a tuna trying to survive..."



READ ALOUD

June 13, 2024 – Somewhere in the Big Blue

Dear Diary,

It finally happened. I'm the last tuna in my school who hasn't been caught on someone's dinner plate. Larry got scooped yesterday. Said he was going to Cancun. I'm pretty sure that's code for "grilled with lemon."

Anyway, I've got a plan. I've been working out my fins (you know, for speed), studying jellyfish disguises, and even practicing my sad face in case I meet a fisher with feelings. "Please sir," I'll say, "have you considered kelp instead?"

Life's rough when you're tasty and endangered. All I want is to live long enough to have a family, join a traveling current band, and maybe even create my own jewelry business.

Yours in panic,

T.J. the Tuna

TUNA TAG (OPTIONAL)

SETUP

1. Mark a large play area as the ocean.
2. Add 2–3 cones/spots to be kelp safe zones.
3. Choose 2 fishers who will be the taggers.
4. All other players are tuna that will run inside the ocean.

ROUND 1: BALANCED OCEAN

- Fishers try to tag the tuna.
- After being tagged, tuna become plankton by sitting/standing at the edge of the ocean and waving their arms around.
- Tuna can “hide” by touching the kelp safe zones.

Play for 1–2 minutes, then count remaining tuna.

ROUND 2: MORE BOATS ARRIVE

- Add 2 more fishers (4 total).
- Play again, fewer tuna will remain.

ROUND 3: RACE FOR THE LAST

- Add 4 more fishers (6 total).
- Remove kelp safe zones to symbolize habitat destruction.
- Predict what might happen and play again. Very few tuna will survive.

➔ **VIEW** the resource(s) for this activity at ocean.org/action/sustainable-seafood-ed-kit



THOUGHTBOOK

Tuna are some of the fastest and most powerful fish in the ocean, traveling thousands of kilometers across international waters. Overfishing doesn't just affect tuna, it impacts the entire food chain and the health of ocean ecosystems. By understanding the threats tuna face and the fishing methods that harm them, we can make smarter seafood choices and support sustainable fisheries. Protecting tuna helps ensure the ocean stays balanced and full of life for generations to come.

REFLECT

1. How does overfishing affect ecosystems and people?
2. What would happen if tuna disappeared?
3. What would you do to save tuna?
4. What might tuna do in real life to avoid the fishers? (migrate, hide deeper, move north)
5. What could happen to ecosystems when top predators disappear?



TAKE ACTION

Eat local and Ocean Wise recommended fish. Choose tuna that is recommended by organizations like Ocean Wise. These labels indicate that the fish comes from fisheries following strict environmental standards.

THE WHY

Choosing sustainable tuna and being mindful of how much seafood we eat helps protect tuna populations and the health of our oceans. Overfishing removes tuna faster than they can reproduce, which disrupts marine ecosystems and affects other species that rely on a balanced food web. By making informed choices, such as looking for Ocean Wise or other sustainable seafood labels, eating tuna in moderation, or choosing local, responsibly caught fish, you are helping ensure tuna populations remain healthy and abundant.

Supporting sustainable fishing practices also protects the livelihoods of small-scale and Indigenous fishers who have long managed these resources responsibly. Every meal becomes an opportunity to contribute to ocean conservation, maintain biodiversity, and ensure future generations can enjoy tuna as part of a thriving, sustainable ocean.



LESSON 3

Connection – Salmon



BACKGROUND

For many Indigenous Peoples of the Pacific Northwest, salmon are far more than a source of food – they are teachers, relatives, and a living connection between generations, waterways, and the ocean. Salmon are deeply woven into culture, governance, ceremony, trade, identity, and survival. The Gitanyow First Nation have harvested salmon from the Meziadin River in north-west British Columbia for generations. The sockeye salmon fishery is at an important traditional fishing site called Lax An Zok on the Meziadin River which flows into the Nass River. Every year, sockeye salmon return from the Pacific Ocean to swim upstream towards Meziadin Lake where they spawn to start the next generation of salmon. The fishery is below a small waterfall, called Victoria Falls, which helps to guide salmon towards the fishing area.

The salmon life cycle reflects this interconnected relationship. Salmon begin their lives in cold freshwater streams and rivers, where eggs are carefully laid in gravel nests called redds. After hatching, young salmon (alevins) remain protected beneath the gravel, nourished by their yolk sacs before emerging as fry. As they grow, many species spend months or years in freshwater habitats learning to navigate currents, avoid predators, and adapt to changing conditions.

Eventually, salmon undergo an extraordinary transformation called smoltification, allowing them to transition from freshwater to saltwater environments. They journey downstream to the ocean, where they may travel thousands of kilometers across the Pacific Ocean. During this stage, salmon become vital parts of marine food webs, feeding larger species such as whales, seals, sharks, seabirds, and humans.



Guided by Earth's magnetic fields, ocean chemistry, and an incredible sense of smell, adult salmon return to the exact rivers and streams where they were born. This return migration is physically demanding; salmon leap over rapids, navigate strong currents, and often stop eating entirely as they focus all remaining energy on reproduction. After spawning, many Pacific salmon species die, and their bodies become nourishment for forests, animals, insects, and waterways. Bears, wolves, eagles, and even trees benefit from marine nutrients carried inland by salmon, making salmon a critical link between ocean and forest ecosystems.

For many Indigenous Nations, this cycle is not viewed simply as biology, but as a sacred relationship based on responsibility and reciprocity. Ceremonies such as the First Salmon Ceremony honour the salmon's return each year with gratitude and respect. These teachings reinforce that salmon give themselves to sustain life. Salmon is an important part of the ecosystem in northwestern British Columbia. They're a key food source for animals like black bears, grizzly bears, birds and other wildlife. When salmon return to the river to spawn, they also bring important nutrients from the ocean into the river, forest and surrounding habitat which helps to support biodiversity throughout the area.

Today, salmon face growing threats from climate change, warming rivers, habitat destruction, overfishing, dams, pollution, aquaculture impacts, and declining biodiversity. When salmon populations decline, the effects ripple far beyond the species itself. Entire ecosystems are disrupted, food security becomes threatened, cultural practices are impacted, and generations of Indigenous knowledge connected to salmon stewardship are placed at risk. To help protect salmon populations for

future generations, the Gitanyow fishery measures how many salmon are returning each year and how healthy the stock is, and they work on restoration projects in the ecosystem to help make sure that enough salmon come back year after year to maintain healthy populations. In 2021, the Gitanyow First Nation declared the Meziadin Watershed an Indigenous Protected Area under Gitanyow law. This helps protect salmon habitat from industrial development, like mining, and limits the impact that these industries can have on conservation.



Climate change is also a growing worry for the fishery. Warmer temperatures in summer months means the snow melts quicker which can reduce river and creek water levels, and increase the water temperature in the rivers. In some years, the streams have been so shallow that salmon weren't able to reach their spawning grounds. Continuing to protect healthy rivers and ecosystems and sustainably harvest salmon populations are important ways the Gitanyow First Nation is working to sustain salmon populations for the future.

Salmon remind us that water connects everything, mountains to oceans, forests to rivers, and people to the natural world. Their life cycle demonstrates resilience, interconnectedness, and the importance of protecting ecosystems for future generations.

STUDENTS WILL BE ABLE TO

- Explain the cultural, spiritual, and ecological importance of salmon to Indigenous Peoples of the Pacific Northwest.
- Describe how Indigenous harvesting practices reflect sustainability, respect, and reciprocity.
- Analyze the connection between healthy salmon populations and healthy land, rivers, and ocean ecosystems.
- Identify threats to salmon populations and consider how these impact both ecosystems and human communities.

CRITICAL QUESTIONS

1. Why are salmon considered “the lifeblood of the people” by Indigenous communities, and how does this perspective differ from seeing salmon only as a food source?
2. How do healthy rivers, forests, and oceans directly affect salmon populations, and what does this teach us about ecosystem interconnectedness?
3. How can modern conservation efforts benefit from incorporating Indigenous knowledge and sustainable harvesting practices?
4. What are some ecological, cultural and social consequences of declining salmon populations?



ACTIVITIES

→ **VIEW** the resource(s) for this activity at ocean.org/action/sustainable-seafood-ed-kit

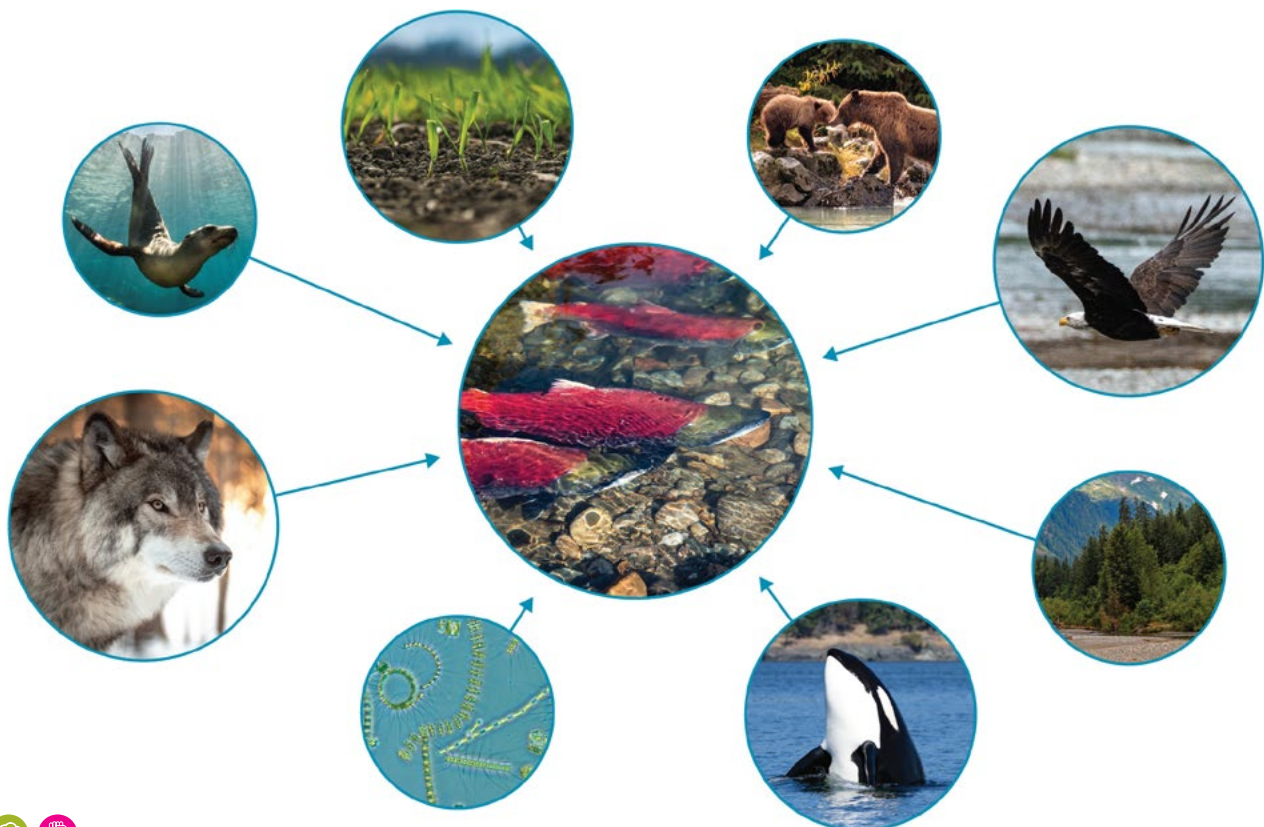
ECOSYSTEM CONNECTIONS

EXPLAIN that salmon are an important food source for bears, eagles, wolves, birds, and many other animals. Bears may carry salmon away from the river, spreading nutrients across the surrounding forest. Salmon remains and animal waste are broken down by insects, fungi, and other decomposers, returning nutrients to the soil and water.

Plants and trees can then benefit from these nutrients, supporting insects, birds, and other wildlife. In this way, nutrients that began in the ocean can travel through salmon and eventually reach the forest.

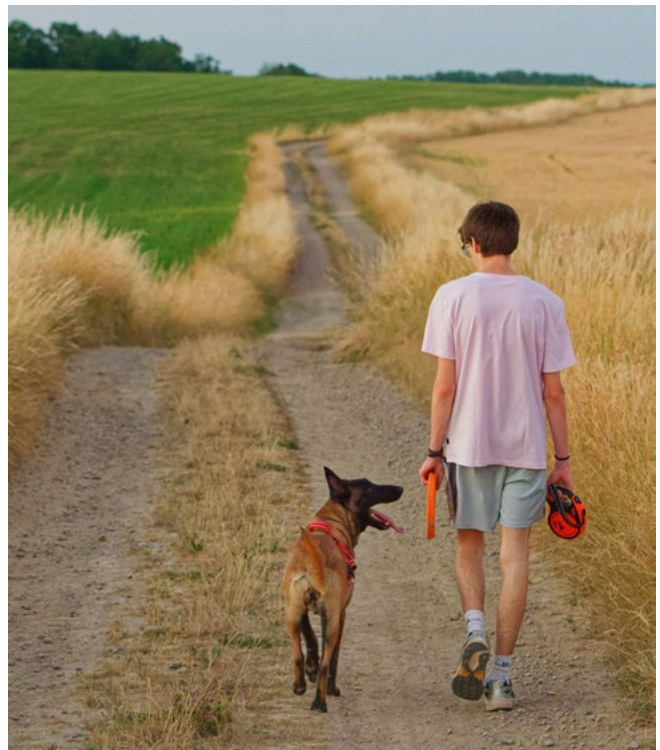
Salmon are therefore more than a food source, they are an important link between marine, freshwater, and terrestrial ecosystems, helping move energy and nutrients through the natural world.

SALMON NUTRIENT CYCLE





TASK Have students place themselves in the middle of a nutrient cycle diagram and ask them to draw or write the living things in the surrounding bubbles that they directly impact day to day.



TEACHER TIP

Encourage students to think beyond major environmental impacts and consider how everyday human actions can change where nutrients go, who receives them, and how they return to the environment. Walking on plants, covering soil with concrete, feeding pets, leaving food scraps for birds, removing leaves, gardening, farming, and throwing food into the garbage can all influence the movement of nutrients through an ecosystem.



THOUGHTBOOK

The journey of a salmon, from tiny egg to returning adult, connects rivers, oceans, forests, and humans in a vast, interdependent ecosystem. Indigenous communities honour and care for salmon, recognizing their importance beyond food. Each stage of the salmon's life plays a vital role in sustaining wildlife, enriching soils, and supporting plants and forests. Reflecting on this journey reminds us of the delicate balance in nature and the importance of protecting the connections that sustain life.

TWO-EYED SEEING (ETUAPTMUMK)

Two-Eyed Seeing, or Etuaptmumk (pronounced ed-oo-OP-duh-mumk), was introduced by Mi'kmaq Elder Albert Marshall as a way to bridge Indigenous and Western knowledge systems. It highlights the strengths of both perspectives to enhance our understanding and care for the world around us.

This approach recognizes that Indigenous Knowledge, which is rooted in relationships, reciprocity, and holistic stewardship, can complement Western science, which focuses on analytical and data-driven methods. Two-Eyed Seeing does not merge the two systems but encourages walking parallel paths that respect the

integrity of each. This idea is reflected in the Two Row Wampum, a Haudenosaunee teaching symbolizing two distinct knowledge systems traveling side by side like two canoes on a river, neither interfering with nor overpowering the other. By honouring both perspectives, learners can build relationships based on mutual respect and shared responsibility.

Using a Two-Eyed Seeing approach in Ocean Wise education programs ensures that ocean conservation efforts are inclusive, culturally relevant, and grounded in multiple ways of knowing. Students are empowered to engage meaningfully, build stronger partnerships, and take action toward a more just and sustainable future.

REFLECT

1. In what ways do humans rely on salmon, and how do salmon rely on humans or human actions?
2. If you could share the story of salmon with someone who has never experienced nature, what would you tell them?
3. How do the different stages of a salmon's life reflect challenges and opportunities in our world?





TAKE ACTION

Rivers run like veins through the land, carrying life, history, and hope. For salmon, these waterways are more than a path, they are a home, nursery, and legacy. Protecting their habitat is not just about the fish; it is about honouring the delicate balance between land, water, and all who depend on it. You can plant a tree along a riverbank, pick up garbage and remove it, clean water preserved becomes a promise: that life, in all its resilience, will continue to flow.

THE WHY

KEYSTONE SPECIES Salmon are more than just fish they are a critical part of the ecosystem. They support bears, eagles, river otters, and countless other creatures. If salmon populations decline, it causes a ripple effect throughout the food web. Protecting their habitat ensures the health of entire rivers, forests, and coastal ecosystems.

CULTURAL AND COMMUNITY SIGNIFICANCE For many Indigenous Peoples and local communities, salmon are central to culture, traditions, and food security. Protecting habitats is a way of respecting centuries of knowledge and stewardship, and sustaining communities that depend on these fish.

LIFE CYCLE NEEDS Salmon need very specific conditions to thrive: cold, clean water; gravel beds for spawning; and free-flowing rivers to migrate. Habitat degradation like pollution, damming, or deforestation directly threatens their survival. Protecting their habitat is literally protecting their chance to live and reproduce.

CONNECTION TO HUMANS Salmon are not just “wildlife”; they are part of our collective well-being. Economically, recreationally, and spiritually, healthy salmon populations benefit communities and inspire stewardship of the natural world. Protecting their habitat is an act of care for both nature and ourselves.

LESSON 4

Global Climate Shift – Arctic Char



BACKGROUND

Across Arctic and sub-Arctic regions, Arctic char are not only an important ecological species but also a cornerstone of local food systems. In many northern communities, char are harvested through small-scale fisheries, meaning fish are caught locally using traditional or low-impact methods rather than large industrial operations.

Arctic char are uniquely suited to cold environments. They can live entirely in freshwater lakes or migrate between rivers and the ocean, adapting their life strategy depending on environmental conditions. This flexibility makes them one of the most resilient fish species in northern waters.

Unlike large industrial fisheries, small-scale fisheries often operate close to shore and rely heavily on local ecological knowledge. Fishers observe seasonal changes, water temperatures, and animal movements to determine when and where to fish. In Cambridge Bay, Nunavut, the Arctic Char fishery uses weirs to catch fish. Weirs are a selective harvest gear, meaning that they only catch the fish that they want to harvest, and can release all the other fish, known as bycatch. Weirs have been traditionally used by Inuit communities for generations. They're built across a river, stream or narrow coastal area and act like a fence in the water that guides fish into an area where they can be easily harvested.

However, the Arctic is warming rapidly. Changes in ice cover, ocean temperature, and river flow patterns are shifting where and when char migrate. These changes also affect small-scale fisheries that depend on predictable char runs.

Arctic char occupy a key position in Arctic food webs. They feed on plankton, insects, and smaller fish while supporting predators such as seabirds and marine mammals. Because they connect freshwater rivers, lakes, and the ocean, char help move nutrients through Arctic ecosystems.

When climate shifts alter char populations, the impacts ripple outward, affecting ecosystems, fisheries, and communities that rely on them for food and cultural traditions. Understanding Arctic char therefore means looking at three interconnected systems: the fish, the ecosystem, and the people who rely on them.

STUDENTS WILL BE ABLE TO

- Describe how Arctic char survive in changing Arctic environments.
- Explain how climate shifts affect fisheries and food systems.
- Investigate the relationship between small-scale fisheries and ecosystem health.
- Identify the role of Arctic char in Arctic food webs and ecosystem stability.

CRITICAL QUESTIONS

1. How do changes in Arctic char routines affect small-scale fisheries and local food supply?
2. In what ways do climate shifts impact both the fish and the communities that rely on them for food and income?
3. Why are small-scale fisheries more vulnerable to environmental changes than industrial fisheries?
4. How can communities and fishers adapt to maintain sustainable harvests and manage rising costs in a changing climate?



ACTIVITIES

DAY IN THE LIFE OF AN ARCTIC CHAR

EXPLAIN that humans build routines based on predictable conditions like school schedules, food availability, and transportation. Just like humans, Arctic char must constantly decide where to go, when to eat, where to stay safe, and how to conserve energy.

TASK Have students explore how both humans and animals make daily decisions based on environmental conditions, needs, and survival. By comparing their own routines with those of the Arctic char, students will begin to understand how climate shifts can disrupt those routines. Have students consider where they go in the morning, what they eat, when they rest, and what other decisions they make during the day.

POSSIBLE ANSWERS

STUDENT'S DAILY ROUTINE

MORNING Wake up, eat breakfast, travel to school

MIDDAY On the move, errands, hobbies, activities

AFTERNOON Learn, eat lunch, socialize

EVENING Go home, eat dinner, relax

NIGHT Sleep

ARCTIC CHAR'S DAILY ROUTINE

MORNING Search for food (insects, plankton, small fish)

MIDDAY Move to cooler or deeper water

AFTERNOON Avoid predators while feeding

EVENING Return to safe areas to rest

NIGHT Conserve energy in colder water layers



CLIMATE CURVEBALLS

EXPLAIN that curveballs disrupt routines. Examples of disruption to a human's routine include bus route changes, grocery store closures, or school schedule shifts.

ASK What are two things that could disrupt the Arctic char's routine?

POSSIBLE ANSWERS

- Higher water temperatures
- River ice melting earlier
- Lower insect populations
- More ocean predators

COMPARE RESILIENCE

EXPLAIN that resilience means adjusting routines to survive change, but every species has limits and humans do too.

EXAMPLE If climate shift changes the water temperature and ice conditions, Arctic char may adjust their migration timing. This could lead to changes to Arctic char ocean and freshwater migration routes, providing access to alternative feeding areas. If Arctic char successfully spawn and the population persists then this could result in genetic and behavioral flexibility, strengthening their resilience.

ASK Which routine changes more easily, yours or the fish's?

ASK What happens if environmental changes happen too quickly?

THE COST OF A FISH

EXPLAIN that the Cambridge Bay Arctic char fishery has 5 fishery sites, all of which are remote and only accessible by float plane. At the beginning of the fishing season, harvesters will drive hours on ATV's with gear to set up the fishery but through the rest of the season will take a float plane to transport workers and fish, in and out of the fishery sites.

TASK Have students explore how changes in Arctic char routines caused by climate shifts can affect fisheries, costs, and food prices.

TEACHER CONTEXT

- Small-scale fishers rely on predictable patterns of fish migration.
- If Arctic char arrive earlier, later, or in smaller numbers due to warming rivers or changing prey, fishers must work harder to catch the same amount, or risk catching less.
- This increases fuel, travel, and labour costs, which can raise the price of fish for communities.

1. BEFORE

SETUP A fisher catches 50 Arctic char in a day.

- Fuel cost for the trip is \$50.
- Fish sell for \$5 each.

ASK How much profit does the fisher make?

ANSWER

- $50 \text{ fish} \times \$5 = \$250$ total revenue
- $\$250 - \$50 \text{ fuel} = \$200$ profit

2. AFTER

SETUP The fish migration is delayed or smaller due to climate changes. A fisher now catches only 20 Arctic char in a day.

- Fuel cost increases to \$80.
- Fish still sell for \$5 each.

ASK How much profit now?

ANSWER

- $20 \text{ fish} \times \$5 = \$100$ total revenue
- $\$100 - \$80 \text{ fuel} = \$20$ profit

TAKEAWAY Profit dropped drastically because fewer fish were caught and costs increased.

REAL WORLD EXAMPLE

In Nunavut, the cost of food is already significantly higher than the rest of Canada because of the high transportation costs. The arctic char fishery offers food security for the local community by providing access to a nutritious and locally harvested food source. If fewer Arctic char return to local rivers, or, if they arrive at different times than expected, harvesters may have fewer opportunities to fish during traditional fishing times. This could reduce the amount of locally harvested food available to the community, which would increase their reliance on expensive imported foods, negatively impacting food security.

3. PRICE IMPLICATIONS

- How could the fisher make the same profit as before?
- What happens to fish prices if the fisher needs to cover costs?

EXAMPLE

To earn \$200 profit with 20 fish and \$80 fuel:

- $\$200 + \$80 = \$280$ needed
- $\$280 \div 20 \text{ fish} = \$14$ per fish

TAKEAWAY Fewer fish and higher costs can make fish more expensive for consumers.

4. DISCUSSION

- Why did the cost per fish increase?
- Why does this affect consumer choice?
- Do unsustainable fish continue to be less expensive?
- How does climate change start this chain reaction?
- How might this affect communities that rely on Arctic char?

TAKEAWAY Environmental changes affect both ecosystems and human economies.



THOUGHTBOOK

Now that you have explored Arctic char, small-scale fisheries, and how climate shifts and ecosystem changes affect both, take a moment to reflect on the connections between fish, communities, and the environment.

REFLECT

1. How do changes in Arctic char migration and routines affect small-scale fisheries and the communities that rely on them?
2. What are the economic and food security consequences when fish are harder to find or costs of fishing increase?
3. How can observing Arctic char and local ecosystems help communities adapt and maintain sustainable harvest practices?
4. What actions could you take in your community to support resilient fisheries and healthy waterways?



TAKE ACTION

We can take action for Arctic char by supporting sustainable fisheries, protecting rivers, lakes, and coastal habitats, and reducing our climate impact. Learning about Arctic char and sharing this knowledge helps raise awareness, while supporting local and Indigenous-led conservation efforts ensures communities and ecosystems remain resilient.

THE WHY

Arctic char plays a crucial role in Arctic ecosystems, transferring energy from smaller organisms to larger predators and maintaining food web balance. Many northern communities rely on char not only for sustenance but also for cultural traditions, meaning changes in char populations can directly impact local food security and economy. Sensitive to cold water and seasonal conditions, Arctic char act as indicators of environmental change. By understanding how these fish, ecosystems, and fisheries interact, communities can adapt to climate shifts and support sustainable harvesting practices.



LESSON 5

Local and Indigenous Practices – Herring



BACKGROUND

For many Indigenous Peoples across the Pacific Northwest and coastal regions of Canada, the ocean is far more than a source of food; it is deeply connected to culture, identity, and community. One species that demonstrates this connection is the Pacific herring, a small but essential fish that has supported coastal communities for thousands of years. Herring provides food directly through their flesh and eggs, and they are a key part of the marine food web, feeding birds, larger fish, and marine mammals. Other species, including shellfish, seaweed, and crustaceans, are also integral, but herring illustrates how one species can sustain both ecosystems and human communities.

Indigenous communities harvest herring guided by Traditional Ecological Knowledge (TEK), a system of knowledge developed over generations through careful observation, storytelling, and relationships with the environment. Herring harvesting is closely tied to seasonal cycles and local ecosystems. Practices such as taking only what is needed, respecting spawning seasons, monitoring herring populations, and sharing harvests within the community reflect values of respect, responsibility, and reciprocity. These practices help ensure that herring populations remain healthy, sustaining both human and ecological communities for future generations.

Herring are not just a resource, they are part of a network of relationships connecting humans, animals, waters, and land. Harvesting and preparing herring often involves families and communities working together, passing down knowledge, stories, and cultural practices that strengthen connections to place. Today, Indigenous knowledge of herring is recognized as a vital partner in modern sustainability efforts. By combining TEK and Western science, communities and conservation groups can protect herring populations and maintain healthy, resilient marine ecosystems. Exploring Indigenous herring harvesting practices helps students understand food systems, cultural responsibility, and the shared role we all play in caring for the ocean.

STUDENTS WILL BE ABLE TO

- Understand seafood as a vital part of Indigenous cultures and knowledge systems.
- Explore how traditional practices contribute to sustainable and equitable food systems.
- Reflect on their personal relationships with seafood and ways to support inclusive and respectful harvesting.
- Reflect critically on sustainability, equity, and cultural significance in food systems.

CRITICAL QUESTIONS

1. How can we apply these lessons about equity and sustainability in our communities or classrooms?
2. What insights from today changed how you think about food equity or sustainability?
3. How can you uplift Indigenous Knowledge in your classroom, community, or organization?



ACTIVITIES

➔ **VIEW** the resource(s) for this activity at ocean.org/action/sustainable-seafood-ed-kit

MARINE SPECIES MATCHING GAME

OBJECTIVE Students will work together to find and match marine species cards.

SETUP

1. Print and shuffle all cards in the game.
2. Lay them face-down in a grid (3–5 rows depending on space) on a table or floor.
3. Make sure everyone can reach the cards.
4. Explain that the goal is to find matching cards for each marine species.

PLAYING THE GAME

- Players take turns.
- The first player flips three cards during their turn.
- If all three cards match (they belong to the same species), the player keeps the cards and takes another turn.
- If the cards do not match, the player must turn all cards face down again in the same spots.
- Continue playing until all marine species are matched.
- The player or team with the most marine species at the end wins.

TASK Have students select two marine species that stand out to them and write down the key facts they learned (habitat, diet, needs, behaviour) in their workbooks



Herring roe on seaweed



THOUGHTBOOK

Consider how Indigenous communities interact with the ocean through respect, reciprocity, and care. Reflect on your own choices as a consumer. Think about how every action, like choosing sustainable seafood or reducing single-use plastics, can ripple outward to support healthier oceans and more equitable food systems.

REFLECT

1. What differences did you notice between Indigenous knowledge and commercial practices?
2. How do Indigenous harvesting practices demonstrate respect and reciprocity with the ocean?
3. Why is it important to consider both traditional and modern perspectives when managing marine species?



TAKE ACTION

You can make a difference for oceans, communities, and ecosystems through small but meaningful choices. By selecting seafood that is sustainably and ethically sourced, learning about Indigenous harvesting practices, and supporting Indigenous-led initiatives, you help protect marine life and honour cultural traditions.

Reducing your impact on coastal environments, through actions like minimizing single-use plastics, participating in clean-ups, and spreading awareness, creates positive ripples that benefit both people and wildlife. Every choice you make can contribute to healthier oceans, stronger communities, and a more sustainable relationship with the natural world.

THE WHY

Indigenous marine harvesting practices are rooted in centuries of knowledge, stewardship, and respect for the ocean. These practices demonstrate how humans can live in balance with marine ecosystems, taking only what is needed while ensuring species and habitats remain healthy for future generations. By learning from Indigenous knowledge, we see that seafood is not just a resource but part of a larger system of cultural, ecological, and community connections. Understanding these connections empowers us to take responsibility for our actions and contribute to a more just, sustainable, and resilient food system for our next generations.

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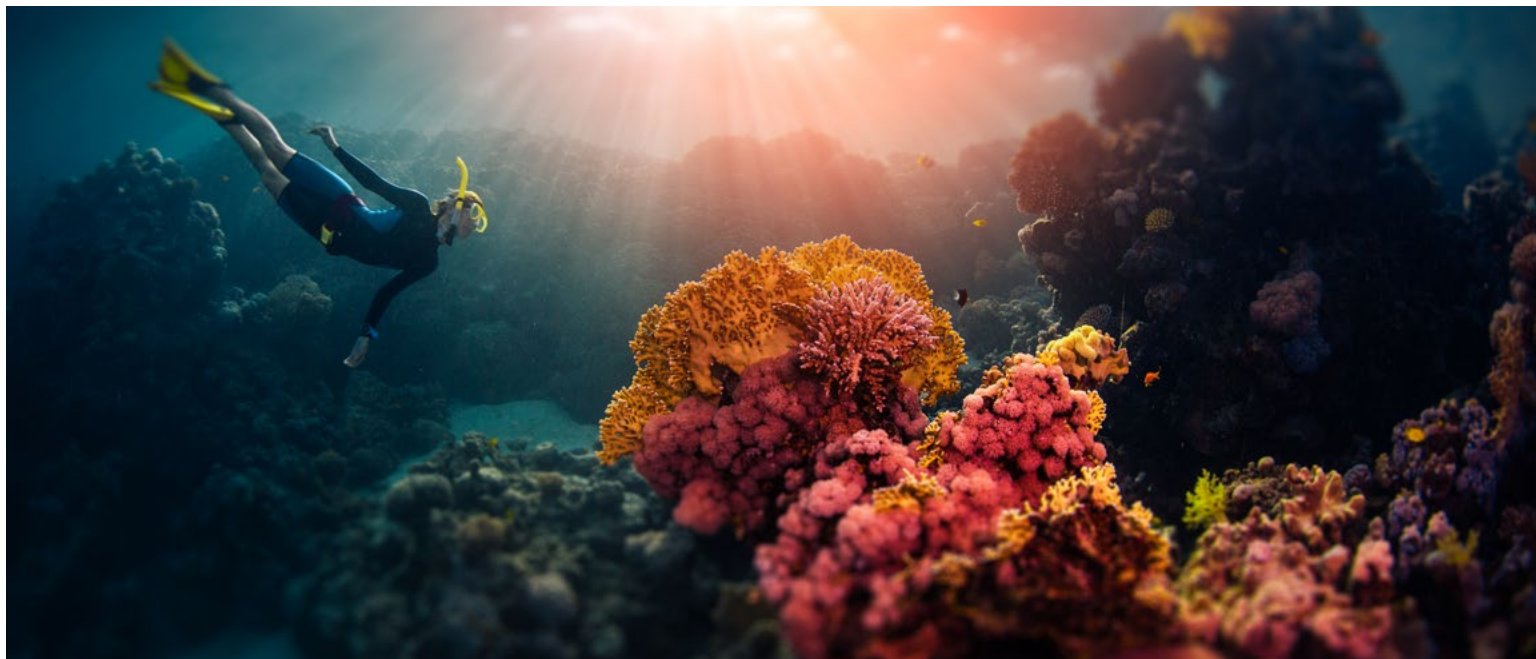
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ABOUT OCEAN WISE

Ocean Wise is a non-profit organization whose mission is to empower communities and individuals to take action to protect and restore our world's ocean. We do this by tackling three critical ocean challenges – climate change, overfishing, and plastic pollution – through six intersecting initiatives: seaforestation, plastics, fisheries and seafood, education, youth, and whales. Through our work we make a real and measurable difference to the health and well-being of the ocean and the people who depend on it. Learn more about the actions you can take at ocean.org

EDUCATION RESOURCES

Our Education team offers in-person mobile education opportunities, online virtual programs, and more. Ocean Wise Professional Development Workshops are designed to train educators on discussing ocean health and literacy for students K–12. Visit ocean.org or email education@ocean.org to learn more.

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PACIFIC HERRING (*Clupea pallasii*)



HABITAT Open waters of the ocean ranging from California to Alaska and across the Pacific Ocean to Japan.

DIET Plankton, like krill, small crustaceans and copepods.

NEEDS Lots of plankton.

BEHAVIOUR Pacific herring communicate with each other using sounds and bubbles.

FUN FACT They are a keystone species. When they spawn the water turns a bright blue colour.

PACIFIC HERRING (*Clupea pallasii*)



INDIGENOUS KNOWLEDGE Roe-on-kelp is harvested by placing kelp or hemlock branches in Pacific herring spawning areas, then removing them once eggs are laid. Fish are rarely killed.

PACIFIC HERRING (*Clupea pallasii*)



COMMERCIAL USE Pacific herring are commercially harvested throughout British Columbia using seine nets, gillnets, dip nets, rakes and jigs. There are strict quotas on the fishery following a severe population decline in the 1960s.

BULL KELP (*Nereocystis luetkeana*)



HABITAT Along the coast from Alaska to southern California.

DIET Sunlight (Photosynthesis).

NEEDS Rocky seafloor to attach to, cold nutrient-rich water.

BEHAVIOUR Reaches maturity within one year and can grow roughly 30–60 cm per day during peak season. Provides shelter for many marine species.

FUN FACT Kelp have a holdfast instead of roots. It grips onto rocky surfaces and helps the kelp survive waves and currents like an anchor.

BULL KELP (*Nereocystis luetkeana*)



INDIGENOUS KNOWLEDGE Used traditionally as food (raw/pickled), containers, ropes, nets, siphons, and even medicinal steam tubes by Northwest Coast Nations like the Tlingit.

BULL KELP (*Nereocystis luetkeana*)



COMMERCIAL USE Seaweed farms/aquaculture are emerging, particularly in California and Alaska, to reduce pressure on wild bull kelp. Bull kelp is farmed for food, fertilizer and bioproducts.

CHINOOK SALMON (*Oncorhynchus tshawytscha*)



HABITAT Pacific Ocean and rivers ranging from California to Alaska in North America. Also found in the north-western Pacific Ocean from Japan to Russia.

DIET Insects, amphipods, small fish.

NEEDS Freshwater rivers to spawn, gravel to lay their eggs.

BEHAVIOUR They hatch in freshwater, migrate to the ocean and then return to their birth rivers to spawn.

FUN FACT From high mountain streams to wide rivers, estuaries, and the ocean, salmon warn us of how climate change is affecting the health of the entire ecosystem.

CHINOOK SALMON (*Oncorhynchus tshawytscha*)



INDIGENOUS KNOWLEDGE Salmon are respected as relations and seasonal markers. Many First Nations host ceremonies to honour the first salmon return and share stories that teach reciprocity in harvesting.

CHINOOK SALMON (*Oncorhynchus tshawytscha*)



COMMERCIAL USE Salmon are extensively fished by troll, seine nets and gillnets. Salmon hatcheries are used to supplement wild runs when populations aren't healthy. Many commercial salmon fisheries throughout British Columbia have strict quotas due to declining salmon populations.

GEODUCK (*Panopea generosa*)



HABITAT Buried in sandy and muddy seafloor along the coast from California to Alaska.

DIET Phytoplankton that they filter out from the water around them.

NEEDS Soft seafloor to burrow into.

BEHAVIOUR They typically burrow 1–3 feet deep. When males spawn, females will release 7–10 million eggs each year.

FUN FACT Pronounced “Gooey-duck”. They can live up to 168 years and reach reproductive maturity by age 3.

GEODUCK (*Panopea generosa*)



INDIGENOUS KNOWLEDGE Traditionally harvested in the intertidal zone; modern Indigenous-led farms combine economic development with stewardship.

GEODUCK (*Panopea generosa*)



COMMERCIAL USE Geoduck are a high-value aquaculture species. They have a long grow out period of 5–7 years where larvae are raised in hatcheries, and are then moved to floating systems nurseries before ocean planting. Geoduck can also be harvested in the wild.

RED SEA URCHIN (*Mesocentrotus franciscanus*)



HABITAT Rocky areas from Alaska to California in North America, and across the Pacific Ocean to Japan.

DIET Kelp and algae.

NEEDS Healthy kelp forests and rocky habitats.

BEHAVIOUR They use their tube feet to slowly move across the seafloor. Can live to be over 200 years old.

FUN FACT Red Sea Urchins have radial symmetry.

RED SEA URCHIN (*Mesocentrotus franciscanus*)



INDIGENOUS KNOWLEDGE Red Sea Urchins are harvested by hand or shallow diving. Knowledge of kelp health guides when and where harvesting occurs to maintain balance between urchins and kelp forests.

RED SEA URCHIN (*Mesocentrotus franciscanus*)



COMMERCIAL USE Red Sea Urchins are harvested by divers in British Columbia. The roe is exported globally and the fishery is regulated by quotas and size limits.

MANILA CLAM (*Ruditapes philippinarum*)



HABITAT Burrow in sandy, muddy or gravel seafloor ranging from central British Columbia to California.

DIET Phytoplankton that they filter out of the water.

NEEDS Sandy or muddy habitat with abundant plankton.

BEHAVIOUR Grow up to 75 cm. They will only spawn when the water temperature is 15°C.

FUN FACT Clams are natural filters for water! They use their siphons to draw in water that contains tiny plankton, trap the food with their gills, then push the clean water back out.

MANILA CLAM (*Ruditapes philippinarum*)



INDIGENOUS KNOWLEDGE Manila clams are harvested by hand digging and managed through clam gardens. Knowledge of sediment, beach slope, and tidal cycles improves yields sustainably.

MANILA CLAM (*Ruditapes philippinarum*)



COMMERCIAL USE Clam farming in British Columbia begins in hatcheries, where larvae from adult clams are raised in seawater tanks until they become juvenile “seed” clams. The juveniles are then moved to nurseries where nutrient-rich water helps them grow. In the final stage, clams are placed on subtidal beaches, protected by nets, and left to mature for two to four years until they reach market size.

ARCTIC CHAR (*Salvelinus alpinus*)



HABITAT Lakes, rivers, and coastal ocean waters of Canada, Greenland, Iceland, northern Europe, Asia and Alaska.

DIET Insects, zooplankton, small fish.

NEEDS Cold water, gravel beds for spawning.

BEHAVIOUR Some migrate between freshwater and the ocean while others stay in freshwater lakes their entire life.

FUN FACT Arctic char plays a crucial role in Inuit culture and food security, being highly valued for its abundance and flavour. In Nunavut, Arctic char migrate to the ocean.

ARCTIC CHAR (*Salvelinus alpinus*)



INDIGENOUS KNOWLEDGE Arctic char is a vital food source for Indigenous communities across the Canadian Arctic, with Inuit fishing for both personal and commercial purposes whenever conditions permit. Catches are shared according to cultural traditions, with different parts of the fish distributed to children, adults, and elders. Char serves as both an essential source of country food and a sustainable livelihood, especially as populations continue to grow.

ARCTIC CHAR (*Salvelinus alpinus*)



COMMERCIAL USE Arctic char are harvested in the wild in both northern Labrador and Nunavut. They are also farmed in Canada using land-based systems. Arctic char are typically caught using gillnets or weirs.

EULACHON (*Thaleichthys pacificus*)



HABITAT In marine and freshwater from California to Alaska.

DIET Plankton, fish eggs.

NEEDS Rivers to spawn in.

BEHAVIOUR They spend most of their life in the ocean and will return to rivers in large groups to spawn.

FUN FACT Eulachon are called “candlefish” due to their high oil content which allows them to burn like a candle with dried.

Photo Credit: Washington Department of Fish and Wildlife

EULACHON (*Thaleichthys pacificus*)



INDIGENOUS KNOWLEDGE Eulachon were highly valued, giving rise to “grease trails” trade routes in coastal British Columbia and southeast Alaska. Its oily flesh can even burn like a candle when dried. Indigenous peoples extracted the oil to make a nutrient-rich, long-lasting grease with a distinctive flavour.

Photo Credit: Washington Department of Fish and Wildlife

EULACHON (*Thaleichthys pacificus*)



COMMERCIAL USE Commercial fishing of eulachon is restricted or closed in Canada due to severe population declines. Other fisheries that may catch Eulachon as bycatch are required to have bycatch reduction devices to reduce their impact on Eulachon.

Photo Credit: Washington Department of Fish and Wildlife

NORTHERN ABALONE (*Haliotis kamtschatkana*)



HABITAT Rocky coastlines from Alaska to California.

DIET Kelp and algae.

NEEDS Healthy kelp forests in rocky habitats.

BEHAVIOUR Shell colour can depend on their diet. Those that only eat kelp will have a pale green shell while those that feed on other types of algae will have a redder shell.

FUN FACT Abalone can start having babies when they are quite small. They produce many eggs, averaging 10,000 eggs at once.

NORTHERN ABALONE (*Haliotis kamtschatkana*)



INDIGENOUS KNOWLEDGE Northern abalone is a key resource for West Coast Indigenous nations. Traditionally harvested during low tides, women used special tools to collect them. Abalone can be eaten raw, cooked, dried, or smoked, while the shells hold cultural significance in smudging, symbolizing water, earth, fire, and air.

NORTHERN ABALONE (*Haliotis kamtschatkana*)



COMMERCIAL USE Currently, over 95% of global abalone production is sourced from aquaculture. They are cultivated for consumption in saltwater enclosures on land or in floating cages within the ocean. It typically takes three to four years for them to grow to a size that is suitable for the market, which averages about five abalone per pound.