Most children love fish fingers, but do they know where fish comes from and how it finds its way onto our plates?

This fully revised and updated version of the Fish & Kids education pack will help children find the answers to these questions and increase their knowledge and understanding of the sea, its creatures, the fishermen and women that depend on it and the threats they all face.

Children will also learn about:
- marine ecosystems
- where seafood comes from
- the fishing industry
- sustainability
- food labelling
- eating and cooking fish.

What is Fish & Kids all about?
This free classroom resource has been produced by the Marine Stewardship Council (MSC) as part of the global Fish & Kids project helping schools, children and families to support healthy oceans through education and school meal choices. Inside you’ll find resource cards and activity sheets that meet curriculum targets for a range of science and geography topics at Key Stages 1 and 2, for children aged 5-11 years.

The MSC is an independent charity set up to find a solution to the problem of overfishing. Our vision is of the world’s oceans teeming with life, and seafood supplies safeguarded for this and future generations. The MSC environmental standard for sustainable fishing is used to assess wild-capture fisheries, and only seafood from MSC-certified fisheries can display the MSC ecolabel.

Many children will know the MSC ecolabel after seeing it on fish products in supermarkets and on their school lunch menu. This inspirational pack will engage your class in learning about where fish comes from and why this valuable food source needs to be looked after.

How the pack works
The Fish & Kids classroom pack is structured around four sections:
- FOOD CHAIN
- FISHING
- THE IMPACT OF FISHING
- ECOLABELS

The pack can be used as a starting point for a project or linked into an existing topic on food, conservation or environmental issues. It will support your school’s food policy by teaching children where their food comes from and encouraging them to learn about healthy eating and food labelling. The Fish & Kids teaching resources can also be used as part of a whole-school approach to sustainable development.

The pack contains:
- A resource card for each section packed with ideas, activities and discussion points that can be tailored to meet the individual needs of your class.
- Two photocopiable activity sheets, one for each key stage, colour-coded in yellow for KS1 and green for KS2.
- An extra resource card called FISH AS FOOD which can be used as an introduction to any of the four topics.
- A teachers’ glossary and answer sheet.

Further information
If you want to know more please do get in touch via the website at www.fishandkids.org. You’ll find it has further teaching resources, information for school caterers and a children’s area with games, quizzes and fascinating facts.
Did you know that overfishing is a global problem?

Fishing is an important global industry and the livelihoods of millions of people around the world depend upon this vital food resource. But today our oceans are under more pressure than ever from human and environmental impacts. Overfishing is now our second largest sustainability challenge after climate change.

- Around 27% of the world’s fish stocks are overexploited or depleted.
- 200 million jobs depend on the fishing industry worldwide.
- About a billion people depend on fish as their sole or main source of animal protein.

What is sustainable fishing?

Many fishermen are aware of the threats of overfishing to the seas and their businesses. All around the world there are fishermen already practising sustainable management of fish resources - and many of them choose to be assessed by an auditor against the MSC’s environmental standard, which allows recognition of sustainable methods. It is increasingly important to look after the marine environment by looking after fish stocks and minimising harm to the environment by ensuring that fishing practices are in balance with the local ecology.

Look for the MSC ecolabel

The MSC was set up to offer anyone who eats fish a positive way to get involved in the effort to safeguard our oceans. It allows responsible fishermen to be recognised for their efforts, and by choosing sustainable fish from shops, school canteens and restaurants, we can all show our support for sustainable fishing practices. In this way, every person can help and reward those fishermen who are thinking of the future.

The MSC ecolabel makes it easy for you to spot sustainable fish products. It contains a fish tick symbol showing that the fish has come from a certified sustainable source. By choosing MSC-labelled fish, customers send a message back to the fishermen showing their support for sustainable fishing.

For use of images on Smart Board or large computer screens please visit the photo gallery in the Staffroom on www.fishandkids.org
Food chain

Use the ‘Food chain’ resource card to introduce this topic.

The web of life
All living things in an ecosystem depend on each other for food. Food chains are a flow of energy that show who eats what (e.g. plants absorb energy from sunlight and animals their energy from eating plants or herbivores). They overlap and interlink to produce complex food webs. If one animal’s source of food disappears, perhaps from a natural cause such as drought or disease, many other animals in the chain are affected. Plants are at the bottom of the chain, and humans are usually at the top. Humans are often responsible for disrupting food webs and damaging fragile ecosystems.

Breaking the chain
Human activity causes pollution. An oil spill at sea can block out sunlight, so phytoplankton (tiny aquatic plants) cannot produce enough energy to survive. This means there are fewer plants for shrimp and small fish to feed on, so some will starve. This has a cumulative effect. Larger fish have to compete for less food, and inevitably some will die while others may move to new feeding grounds.

Growing human populations need more food, and this puts pressure on many food chains. Overfishing means that some types of fish have been fished so much they cannot maintain their population.

Case study: from cod to crab
The fishing grounds off the east coast of Canada used to be full of large shoals of cod, but as fishermen got better at catching fish (using larger diesel-powered boats, bigger nets, sonar to ‘see’ under the waves to find the fish) they caught so many that it led to a population crash and there were almost no fish left. In 1992 the fishing grounds were closed and 40,000 people lost their job. There was massive unemployment in the area because the fishermen and cod processors had no work.

Once the cod had gone from this part of the North Atlantic other species began to take their place. Snow crabs are scavengers and because very few cod were left to prey on them, the snow crab population exploded. Now these crustaceans are being harvested and provide an income for some local people, but the cod has so far not been able to recover – even after so many years of no fishing. Human action has changed this food web, perhaps forever.

Teachers’ notes

www.fishandkids.org

Fishing

Use the ‘Fishing’ resource card to introduce this topic.

A global economy
Global fish production has increased dramatically over the last 50 years. A staggering 110 million tonnes of seafood is produced for human consumption each year. About two thirds of this is caught in the wild, and the rest is farmed.

Improvements in fishing technology, the ability to freeze fish at sea, and the advent of powerful engines have all contributed to the increase in wild fish capture in the last 50 years - although recently the amount of fish caught has been stable.

Types of fishing
A commercial fishing operation can vary in size from a single fisherman in a rowing boat using small hand-cast nets, right up to factory ships equipped with the latest technology to track, catch and process fish at sea. Commercial fishing, where fish are caught for profit, accounts for most of the seafood that is consumed each year with a large volume being caught in the developing world.

Some fishermen still use traditional methods. This is often known as artisanal fishing and employs techniques such as arrows, harpoons, throw nets, drag nets and hand diving. Although these methods are labour rather than technology intensive, the fishermen are highly skilled and can catch large numbers of fish. The term recreational fishing refers to fish caught for pleasure or competition.

The aquaculture alternative?
Aquaculture is the practice of farming freshwater or saltwater species under controlled conditions. Some commonly farmed species include salmon, trout, mussels and oysters. It is often seen as a solution to the problem of overfishing, but this method of producing seafood raises other concerns. Wild fish are often caught to feed farmed fish, putting further pressure on wild fish stocks; and parasitic infections, such as sea lice, can quickly spread from fish farms to surrounding rivers causing environmental damage to local ecosystems.

The MSC only certifies wild capture fisheries and certain enhanced fisheries requiring minimal human intervention, such as mussels.

Teachers’ notes

www.fishandkids.org
The impact of fishing

Unsustainable fishing
The world’s seafood stocks are under pressure from overfishing and unsustainable fishing practices. The good news is that lots of fishermen have adopted responsible fishing methods and are helping to look after the sea and protect marine ecosystems. But it’s not just fishing that can have a negative impact on the world’s fish resources. Climate change, pollution and habitat destruction can also contribute to declining fish stocks.

Our threatened oceans
Unsustainable fishing practices employed by some wild capture fisheries can cause three major problems:

Overfishing
Overfishing occurs when the number of fish being caught reaches a level where there are not enough adult fish left to replenish the population. Even when there are still some fish left, the fish stock is considered commercially extinct because it is no longer economically viable to catch fish for a living.

Bycatch
The term bycatch refers to species that are caught in addition to the type of fish being fished for. Bycatch can include other fish species, dolphins, porpoises, turtles and seabirds. Bycatch is a major global problem. Over 300,000 small whales, dolphins and porpoises die each year as a result of becoming entangled in fishing gear (WWF).

Habitat destruction
Some fishing methods can destroy sensitive habitats like coral reefs and seamounts, which are essential breeding and feeding grounds for marine life. This can cause certain types of fish to suffer from reduced food supplies, a lack of suitable breeding places and the inability to hide from predators.

Solving the problem
The MSC works with fisheries all round the world to solve the problem of overfishing making sure that there are enough fish in the sea for future generations. Don’t stop eating fish, but make sure the fish you buy has been caught responsibly by fishermen who are helping to protect the world’s oceans.

Ecolabels

Food labelling
Food labels provide a wide variety of information to inform consumers about the products they are buying. As well as written information – such as weight, country of origin, ingredients, cooking instructions, best before or use by date – many products also display logos on their packaging.

Logos are an effective way of giving people information in a simple and easily understandable way, but they are only effective once consumers learn to recognise different logos and what they stand for. An ecolabel is a voluntary symbol awarded to producers who can prove that their product has been produced with minimal negative impact on the environment.

Two widely recognised eco-labels used on food packaging are the Soil Association organic symbol and the FAIRTRADE mark. Eco-labels can also be found on non-food items, such as cleaning products, electrical goods, textiles and timber. The Forest Stewardship Council (FSC) logo depicts a tree with a tick, and indicates that the item has been made using products from well-managed, FSC certified forests.

The MSC ecolabel
The MSC ecolabel is a global symbol used to identify sustainable fish. It can only be found on seafood products that have come from an MSC-certified fishery.

The MSC’s rigorous assessment programme is carried out by independent certifiers, and usually takes about 14 months to complete. Fisheries that meet the MSC environmental standard for sustainable fishing can then be MSC certified for a maximum period of five years subject to annual check-up audits. This standard translates into the MSC eco-label, which allows shoppers to identify fish that has come from a sustainable and well managed source.

Your school menu
Is the MSC ecolabel displayed next to certain dishes on your school dinner menu? This means that the fish being served has come from a sustainable source. If you would like to see more sustainable seafood on the menu, then contact your school meal provider for further information.

Teachers’ notes

www.fishandkids.org
Imagine life under the sea. It's a fascinating world teeming with weird and wonderful wildlife. The amazing plants and animals that live in the five oceans of the world form a complex marine ecosystem made up of intricate food chains and webs.

**A delicate balance**

Draw this simple marine food chain on the board. Energy passes along the chain in the direction of the arrow. 

**phytoplankton → shrimp → herring → cod → human**

Remind the class that plants are primary producers and animals are consumers. Ask the class what the words predator and prey mean. A predator is an animal that hunts other animals for food, and the hunted animals are known as prey.

1) Which organism is the primary producer?
2) How many consumers are there?
3) Which animals are prey?
4) Who is the top predator?
5) Which animals are both predator and prey?

Ask the class to think of some more marine food chains and hand out the worksheet for the children to complete. Who has drawn the biggest underwater food web?

Explain the words herbivore, carnivore and omnivore. Ask the children to name some animals from each group.

**Talking points**

Show the class the picture of dolphins attacking a bait ball of sardines. Explain that a bait ball is the name given to a school of fish that has massed together to form a giant swirling ball to protect itself from predators.

- Why are the sardines bait balling?
- Is this a good way for small fish to protect themselves?
- Are the sardines predators or prey?
- Which animal is the predator?
- How could this food chain be extended?

**Class discussion topics**

- How has human activity influenced marine food webs? What are the negative effects of human intervention?
- What happens if fishermen catch too many fish? Why might this cause a problem for future generations?
- Humans are naturally omnivorous, but some people choose to be vegetarian. Discuss the reasons why some people prefer not to eat meat or fish.

**Whole-class activity**

String game for a class of 30. Draw this picture of a food web on the board, showing all the arrows:

You will need a ball of wool or string and 30 critter cards:

- 6 plankton, 5 krill, 3 shrimp, 2 crabs, 2 seagulls, 4 herring, 2 seals, 1 shark, 1 blue whale, 1 human

Stand the children in a circle. Give each child a critter card and ask one of the children to hold the end of a ball of string, and to roll or pass the ball to a species they eat, or one that eats them. A krill could pick plankton, shrimp, or blue whale, because these species are linked in the food chain.

Carry on passing the string until all the critters are connected at least once. Some children may get the string several times. Make sure the web is held tight, then ask one species to let go (try krill or shrimp first). As the string starts to slacken see how the web of life starts to unravel. The remaining critters should look at the food web on the board, and let go if they no longer have a food source. Eventually the food web will fall apart.

**Have your say!**

Hold a class debate. Ask the children to propose a motion, or choose one of the following.

“*This house believes that human activity is destroying the world’s oceans.*”

“*This house believes that we should look after the marine environment.*”

Ask for five volunteers to speak for the motion and five to speak against. Allow time for each group to prepare their arguments. The rest of the class can discuss the motion. Take the role of Speaker and invite the ‘first proposer’ to put forward their arguments for the motion, then ask the ‘first opposer’ to present their arguments against. When everyone has had their say, hold a vote and announce the result.

**Homework idea**

Find out about a creature in the marine food chain using the internet or library books. What does it eat? What plants or animals are above and below it in the food chain? See if you can find a really cool fact about your animal to tell the class next lesson.
Long-beaked common dolphins feeding on a sardine bait ball.

Photo: © Doug Perrine/naturepl.com
Fishing has always played an important part in Britain’s rich maritime heritage. Mainland Britain has over 11,000 miles of coastline dotted with small fishing villages and huge commercial fishing harbours.

A risky business
Ask the class to name some of the most dangerous jobs in the world. Did anyone say fisherman? If you are a deep-sea fisherman or trawlerman you have one of the most dangerous jobs in the world. Other high-risk professions include oil or gas rigger, pilot, diver, soldier in a war zone and professional racing car driver.

Focus on fishing
There are lots of different ways to catch fish depending on what species you are targeting.

Christina S FR224 – This is a trawler targeting mackerel and herring in the North Sea off the Scottish and Norwegian coasts. With modern electronic equipment - such as sonar, net and catch monitors - boats like these can easily locate and catch large shoals of fish. For three or four days at a time this trawler is home to ten fishermen, working up to 600 nautical miles from their base port of Fraserburgh. The trawler has a large lounge with satellite TV and cinema surround sound to entertain the crew while they are at sea.

PZ 481 – This is a handline boat targeting mackerel off the south west coast of England. Only two or three fishermen operate this boat, and all fishing trips take place over the course of one day staying close to the shore. The handline method uses lines with hooks attached, which can be deployed by hand. Coloured plastic or feathers are attached to the hooks to attract fish, and the line is weighted with lead. Each handline has 25-30 hooks.

Both the Scottish trawler and the English handline boat catch mackerel in a sustainable way despite their difference in size and gear type. Discuss some of the different types of fishing described on the ‘Go Fishing!’ activity sheet.

Talking points
Show the class the pictures of the two fishing boats on the reverse of this resource card, and discuss the following talking points:

- What differences can you see between the two boats?
- Imagine you are a fisherman working on both boats. What would your day look like? In what ways would a fishing trip on the large trawler differ from the smaller boat?
- Which boat would you like to be a fisherman on and why?

Hand out the fishing activity sheet most appropriate for the age and ability of your class. Make sure that the children are familiar with the term sustainable fishing, and understand that responsible fishermen can help to preserve fish stocks and look after the oceans if they abide by the rules and commit to fishing sustainably.

Policing the ocean
The fishing industry is strictly regulated. All fishing boats have to be registered and must have a set fishing quota which details the number and type of species the boat is licensed to catch. But once a trawler or fishing boat is out at sea, who makes sure that the fishermen are abiding by the rules?

The Marine and Fisheries Agency (MFA) has the job of patrolling English waters. The Agency enforces UK, EU and International fisheries laws and supports the sustainable use of the marine environment. If MFA officers discover that an offence has been committed, a full investigation is carried out which may result in prosecution. Fishermen can breach fishing regulations by:

1) Catching more fish than their quota allows.
2) Landing species they are not licensed to catch.
3) Landing under-sized catch.
4) Fishing in a closed area.
5) High-grading (throwing smaller fish that have already been caught back in the water and keeping larger ones that will make more money).

Class discussion topics
- Why is it a good idea to police the oceans?
- What is high-grading? Why is it harmful to the marine environment?
- Why do you think some fishermen are tempted to break the rules?

Homework idea
Imagine you are a Fishery Officer working for the MFA. You have boarded a British trawler fishing in the North Sea. Write a short (200 word) report based on one of the following scenarios:

Unsustainable fishing
You discover that the skipper has been overfishing. The log-book shows that the fishing quota for cod has been exceeded. When you inspect the hold you find ten boxes of hake, a species of fish that this boat is not licensed to catch. The skipper has broken the rules and may be prosecuted.

Sustainable fishing
You board the boat while the crew are sorting a large catch of haddock. They are throwing back juvenile fish that are too small to land, and any other species that have been caught by mistake (bycatch). You look at the skipper’s log-book and inspect the boxes of fish in the hold. The fishing quota has not been exceeded. The skipper has broken the rules and may be prosecuted.

Fishing www.fishandkids.org
A Scottish trawler targeting mackerel and herring in the north-east Atlantic.

Catching mackerel using a handline off the coast of Cornwall, England.
Fishing is an important global industry. It provides a vital source of employment and a valuable natural food resource for people all around the world. It's essential that we recognise the negative impacts of fishing and support fishers who are fishing responsibly.

What’s the problem?
Discuss some of the problems associated with unsustainable fishing: overfishing, bycatch and habitat destruction. How can these problems be reduced? Explain that fishing can be made more sustainable by:

1) Fishing at night. By fishing at night, when seabirds are less active, fewer birds get caught up in fishing lines.

2) Gear modifications. There are many ways in which fishermen can modify their fishing gear to avoid bycatch. For example, they can:
   - Use nets with larger mesh to allow young fish to swim through so they don’t get caught before they are mature enough to breed.
   - Use “circle” hooks that are much less likely to be swallowed by turtles than traditional J-shaped hooks. These are also easier to unhook from a snagged animal.
   - Target shoals of fish of the correct species, density and size by using electronic fish-finding equipment.

3) Fishing according to the rules. There are strict rules about the amount of fish that can be caught and the time of year that fishing can take place. Sometimes illegal fishers break the rules by:
   - Fishing during a closed season when fish are supposed to be left undisturbed to allow them to breed.
   - Catching more than the annual weight limit set for that species.
   - High-grading or choosing the best fish and dumping the rest back, dead or dying, so they can catch more valuable fish.
   - Catching endangered species.

Talking points
Show the class the picture of a turtle caught in a fishing net and discuss the following talking points:
- How does the picture make you feel?
- What environmental problem does it show?
- How does bycatch damage the marine environment?
- In what ways can fishermen reduce bycatch?
- How can sustainable fishing keep our oceans healthy?
- How can we support sustainable fishermen?

Whole-class activity
Ask the children to design an underwater collage. It’s a great way to recycle old magazines, packaging and pieces of fabric. This activity helps to develop imagination and creativity, and build teamworking skills.

One end of the collage should depict an area of the ocean that has been overfished and polluted by humans, while the other shows a healthy sea that has flourished due to sustainable fishing practices. Encourage the children to use appropriate colours and textures to highlight the differences between the overfished and the healthy ocean.

Homework idea
How would you persuade fishermen to use sustainable methods? Write a short article for the ‘Fishing News’ about the impact of fishing on the world’s oceans. Describe two sustainable fishing methods, and mention at least three benefits that will encourage fishermen to change the way they fish.
The impact of fishing

www.fishandkids.org
Today the provenance of our food is an important consumer issue. Where has it come from? How has it been produced? Is it sustainable? The use of ecolabels can help to answer some of these questions and assist shoppers in making an informed choice about the products they buy.

Look at the label
Before beginning this topic ask the class to bring in some empty cardboard food packaging. Working in pairs, ask the children to look at each item and write down everything they can find out just by looking at the packaging. Remind them to think carefully about each design element - text, graphics, logos, ecolabels and photographs. If the children don’t have any packagings then use the ‘What’s inside?’ activity sheet instead.

As consumers demand more and more information, food manufacturers have the problem of designing labels and packaging so that everything fits on. Sometimes they use ‘peel and reveal’ labels to help overcome a shortage of space.

Food packaging often includes all of the following: product name and description, ingredients, nutritional information, allergy advice, calorific information, method of production, manufacturer, weight, best before or use by date, recycling guidance, country of origin, cooking and storage instructions. It’s a wonder there’s any room left for ecolabels, logos and pictures!

Did anyone find an ecolabel on any of their products?

Food for thought
Ecolabels provide consumers with environmental information. An ecolabel can only be displayed on products that have had their environmental claim tested by an independent private or public body. Ecolabelling is voluntary, and is not a legal requirement.

Show the class the pictures on the reverse of this resource card. Ask the children if they have seen the MSC ecolabel before. If so, where have they seen it and what do they think it tells us? The MSC ecolabel tells people that the fish has come from a sustainable source. It can be found on fresh, chilled, tinned and frozen foods. You might also see it on school dinner and restaurant menus.

Talking points
Show the class the pictures of the MSC ecolabel on the reverse of this resource card, and discuss the following talking points:

- Do you think the MSC ecolabel gets its message across effectively? Give reasons for your answer (eye-catching, simple picture message, colour).
- What positive messages do you think the illustration of a fish and a tick conveys to shoppers?
- How many certified sustainable seafood dishes can you find on the school menu overleaf? You can easily spot them next to the MSC ecolabel.
- Discuss what makes a successful ecolabel in preparation for the homework activity.

Create your own sustainable menu
Ask the class to create their own sustainable school menu and include MSC-certified seafood. Ask your catering manager about how sustainable your school menu is and which rules apply when creating a menu. Finally decorate the menu and add ecolabels where appropriate.

Act out an ad!
Ask the class to name some of their favourite television food adverts. What do they like about them? Think about the music, acting, characters and slogans. Are the adverts funny? What makes them memorable?

Working in groups the children must make up their own short advert for a sustainable seafood product. Make sure each group chooses a different product. Encourage the children to make the adverts as fun as possible by using song, dance, poetry and catchy slogans.

Each group must act out their advert to the class. At the end of the ad break the children can vote for their favourite sustainable seafood advert. If your school is following a sustainability topic then the winning group can even present their advert during a relevant assembly.

Alternatively: make it a radio ad and get the children to record it.

Homework idea
Design your own ecolabel. Think of an environmental issue that you would like to support and the type of product your ecolabel will appear on. For example: saving energy (light bulbs, electrical goods), sustainability (fish, timber), recycling (paper, glass). You can use a computer to help you with your design or draw it yourself. The ecolabels can be made into a colourful display for the classroom or school canteen.
**Healthy, nutritional meals**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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</thead>
<tbody>
<tr>
<td>Pasta sausage, broccoli, and ham</td>
<td>Baked beef mince with gravy rice, garden peas, and salad</td>
<td>Chicken roast with mini sausage and gravy rice, garden peas, and salad</td>
<td>Hampshire beef burger in a bun garden peas, and salad chocolate crinkle</td>
<td>Baked white fish with tomato ketchup, chips, and baked beans, or sweetcorn and salad lemon balmie tart</td>
</tr>
<tr>
<td>Stornisyl pudding, baked potatoes, and salad</td>
<td>Pizza, garden peas, and salad</td>
<td>Apple buns, and salad</td>
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<td>Italian tomato pasta, sweetcorn, and salad lemon balmie tart</td>
</tr>
</tbody>
</table>

**Week One**
19 April, 10 May, 17 May, 24 May, 31 May, 7 June, 14 June, 21 June, 28 June, 5 July 2015.

**Week Two**
26 April, 3 July 2015.

**Week Three**
1 May, 8 May, 15 May, 22 May, 29 May, 5 June, 12 June 2015.

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**Picnic**

<table>
<thead>
<tr>
<th>Week One</th>
<th>Week Two</th>
<th>Week Three</th>
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<tbody>
<tr>
<td>Cheese wrap</td>
<td>Sausages in a roll</td>
<td>Egg pitta, tuna salad roll</td>
</tr>
<tr>
<td>Chicken pie, garden peas, and salad, chocolate slice</td>
<td>Baked white fish cake with tomato sauce in a bread roll, jacket potato, baked beans, or sweetcorn, and salad, jelly and yoghurt</td>
<td>Pork steak, tomato, gravy, baked potatoes, broccoli, and salad, ice cream</td>
</tr>
<tr>
<td>Cheese and vegetable patty, baked potatoes, garden peas, and salad, chocolate slice</td>
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**Egg roll, tuna/salmon pitta, chicken roll, cheese wrap, sausages in a roll, vegetable sushi with nori, rice, garden peas, and salad, fruit crumble and custard**

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**All picnics boxes are served with crunchy vegetable sticks, fruit wedge and fruit juice. Fresh fruit and additional bread will be available daily with the hot meals.**

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**Ecolabels**

[www.fishandkids.org](http://www.fishandkids.org)
Fish as food
Resource card

Fish is a popular food that is eaten in countries all around the world. Wild fish are the last natural food resource still hunted on a large scale, and so it’s really important that we eat sustainable seafood to help make sure that supplies of fish don’t run out.

A world of fish
Use a globe or display a world atlas on the whiteboard, and ask the children to find the following countries. Write the fish dishes down in random order and see if the children can match each fish dish to its country of origin.

America   Seafood gumbo
Britain   Fish and chips
France   Bouillabaisse
India   Fish curry
Jamaica   Saltfish
Japan   Sushi
Scotland   Arbroath Smokie
Spain   Seafood paella
Sweden   Surströmming

What’s that smell?
Surströmming is a Swedish dish sold in cans. It’s made from fermented herring, but it’s so smelly it has even been banned by some airlines in case the tins explode and cause a gigantic pong!

Talking points
Show the class the pictures on the reverse of this resource card. Now discuss the following talking points:

• Which two fish products can you see?
• How are they usually cooked? [Fish fingers are grilled and fish in batter is deep-fried].
• Although fish fingers are often made with cod, they can be made from other fish. Can you think of some alternatives? [hoki, pollock and salmon].

Boost your brain power
We eat lots of different types of fish and they all have a unique appearance, flavour and texture. Ask the class to think about some of the places you can buy fish - supermarkets, fishmongers, markets and, in some cases, straight from the fisherman at the harbour.
You can even buy fish online and have it delivered to your house.
Then discuss some of the different ways fish can be packaged and sold. Wet fish is the name given to fresh fish that hasn’t been frozen or cooked, but fish can also be bought smoked, frozen, pickled or canned.

Explain that eating oily fish, such as herring, mackerel and salmon, is good for your brain. These types of oily fish all contain a fat called Omega 3, which helps us concentrate better. Tell the children to look out for oily fish on the school dinner menu because it could help to boost their brain power!

Whole-class activity
Make a fishy feast class display. Divide the class into groups and select two or three countries from the ‘world of fish’ activity for each group to work on. Hand out paper plates to each group, and ask the children to draw and colour in all the fish dishes they can think of that come from the countries they represent. If classroom resources allow the children can use the internet for picture research, or make a collage on the plate.

Use the plates to make a fishy feast class display. The children must label each dish, describe what it’s made of and where it comes from. Is it sustainable and able to carry the MSC ecolabel?

Have your say!
Some children love eating fish while others do not like the taste of fish at all. Working in pairs or small groups, ask the children to choose one of the following statements:

“I like to eat fish because…” OR
“I don’t like to eat fish because…”

Allow the children ten minutes to make a list before presenting their reasons to the rest of the class.

Homework idea
Imagine you own a fish and chip shop which sells MSC-certified, sustainable haddock, hake and pollock. You want to tell all your customers about this. How would you advertise your sustainable chippy? Design a poster or flyer to advertise your sustainable fish and chips. Think about why people might be happier to buy sustainable fish.
Hake and chips

This ‘Cape Haddie’ is caught in the sustainable seas off the South West coast of South Africa where the cold, nutrient-rich, Benguela current sweeps up from the Antarctic. This unpolluted water yields a firm, white fleshed fish with an exceptional quality and flavour which is similar to cod or haddock.

Enjoy sustainable seafood twice a week at The Anstruther Fish Bar & Restaurant

Fish as food  www.fishandkids.org
There are lots of different ways to catch fish. Cut out the three objects at the bottom of the page and put them in the right place in the picture.

Now I know
There are different ways of fishing.
Some fish swim in the middle of the sea.
Lobsters live at the bottom of the sea.

This fish is a mackerel.
It swims in the middle of the sea.

This is a lobster. It walks along on the seabed.

This is an old boot. Better luck next time Murdock!
Go fishing!

Look at the different methods of fishing shown in the picture. Work out which method of fishing is used to catch each of the five sea creatures and write your answers in the table.

Use the website for clues: www.fishandkids.org → Playroom → Fun & games → Boat Bits

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
<th>Species caught</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-water trawl</td>
<td>A boat pulls a net through the water below the surface but not along the bottom.</td>
<td></td>
</tr>
<tr>
<td>Bottom trawl</td>
<td>A boat pulls a net through the water either rolling along or just above the seabed.</td>
<td></td>
</tr>
<tr>
<td>Pots</td>
<td>A boat drops down a cage and marks it with a buoy. The cage has with a one-way door and contains bait.</td>
<td></td>
</tr>
<tr>
<td>Handline</td>
<td>A boat drops a line with 20 – 30 baited hooks over the edge of the boat but they don’t go to the bottom.</td>
<td></td>
</tr>
</tbody>
</table>

Now I know
There are lots of different ways to catch fish. Different species of fish swim at different depths in the sea.
Look at these food chains. Write the correct word in the box. Then draw a picture of each word.

This arrow → means eaten by.

leaf → tadpole → human →

worm → fish →

caterpillar → bird →

pondweed → fish → bird →

Now I know:
Food chains show who eats what. Plants and small animals often get eaten by larger animals.
Use the plants and animals below to draw some food chains. Then see if you can join them up into a food web.

Seal  herring  crab
seaweed  gull  human  shrimp
killer whale  limpet  salmon

phytoplankton → krill → blue whale

Now I know
Food chains can be joined up to make a food web. Plants like seaweed are at the bottom of the marine food chain. Large animals like sharks and whales are at the top.
This scarecrow keeps birds away from the farmer’s crops. Draw something that will scare birds away from the fishing boat shown in the next picture.

Now I know
Birds can get tangled up in fishing line. We can help stop this from happening by keeping them away from fishing boats.
Complete the sentences to find out how fishers can help to protect sea creatures.

1) Nets with large mesh.......................................................................................................................... 
2) Bird scarers are a good idea because they............................................................................................ 
3) Marine Protected Areas are set up to...................................................................................................... 
4) At certain times of the year fishing is not allowed, these are called...................................................... 

Complete each sentence with one of the following:
- warn dolphins to keep away.
- keep birds away from fish hooks.
- give fish a safe place to breed.
- allow small fish to get out.
- closed seasons.

Now I know
Fishing can be made more environmentally friendly. Bycatch is when other marine creatures get caught in fishing nets by mistake.

Impact of fishing www.fishandkids.org
Help me choose what to buy for my dinner. Cut out the fish with the eco-friendly labels, put them on my plate and colour me in!

Now I know
Labels can help us decide what food to buy. The fish tick label means that fishermen are looking after the sea.
What's inside?

Look at the food packaging in front of you. What information can you find out about what is inside from the words and pictures?

10 Fish Fingers
100% sustainable pollock
Best before end
OCT 2012

1 kg
British
Garden
Peas
Keep frozen

White Potatoes

Now I know

Food packaging can tell us a lot about the product inside. This information helps us choose what to buy.

Ecolabels www.fishandkids.org
Teacher’s glossary (for children’s glossary see www.fishandkids.org)

Artisanal fishing - Can be commercial or subsistence. Characteristics include using a small amount of energy and capital, staying close to shore and supplying local markets.

Aquaculture - Aquaculture is the practice of farming freshwater or saltwater species under controlled conditions. Some commonly farmed species include salmon, trout, mussels and oysters.

Bycatch - Marine creatures caught unintentionally while fishing for other species. Sometimes this catch is used or sold, but often it is thrown overboard dead or dying.

Commercially extinct - When fish stocks are too low to make fishing commercially viable, often due to prolonged overfishing.

Commercial fishing - Any fishing that takes place with the intention of making money for the fishermen. Depleted fish stocks - Fish stocks at a historically low level - probably due to overfishing.

Ecolabel - An ecolabel provides environmental information on the production of a product that has been independently tested. Some labels give environmental information on other aspects of a product, like whether it is energy efficient or can be recycled.

Ecosystem - All plants and animals inhabiting an environment and interacting with each other.

Fish - Fish are aquatic vertebrates. Most fish are cold-blooded. They are usually covered with scales and breathe underwater using gills.

Fishery - A unit determined by an authority or other entity that is engaged in raising and/or harvesting fish. Typically, the unit is defined in terms of some or all of the following: people involved, species or type of fish, area of water or seabed, method of fishing, class of boats and purpose of the activities.

Fish farming - Commercial rearing of fish in man-made tanks on land or cages in open water, usually for food.

Fish stock - A term used for a group of individual fish of one species that live in a well defined area of the ocean independently of other groups of the same species. Some fish stocks are targeted by fishermen for commercial reasons.

Fully exploited - fish stocks that are being caught at their maximum biological capacity. 52% of the world’s fish stocks are fully exploited. Only 3% are underexploited.

Invertebrates - Any cold-blooded animal without a spinal column e.g. squid, lobster, barnacle, mussel, sponges, corals, butterflies, periwinkle, starfish.

Marine Protected Area (MPA) - An area designated to protect marine ecosystems, processes, habitats and species, which can contribute to the restoration and replenishment of resources for social, economic, and cultural enrichment.

MSC Chain of Custody - The MSC has a standard for seafood traceability to make sure that the MSC label is only displayed on seafood from a MSC certified sustainable fishery. Before seafood products can carry the MSC ecolabel, all companies in the supply chain - from boat to plate - must be checked by a third party.

MSC standard for sustainable fishing - The MSC has set a standard made up of a set of principles and criteria. Fisheries are measured against this standard by independent third parties. If they pass the fishery proves they are maintaining or improving fish stocks, looking after the whole ecosystem where they fish and that they manage their fishing sustainably.

Omega 3 - An essential chemical which humans cannot make themselves so they have to take it in through their diet. Oily fish offers a good source of Omega 3.

Overexploited - Fish stocks that are being harvested over their maximum biological capacity. This results in depletion of fish stocks.

Overfishing - Occurs when the fishing intensity is higher than the acceptable level. If less fishing were carried out, then it would be possible to catch more fish in the medium term (after stocks have recovered).

Population crash - Sudden decline in the numbers of a species because of decreased availability of resources required for survival, growth and reproduction. For example, overfishing of one species may lead to a population crash of another species higher in the food chain due to a reduced supply of food.

Sustainable fishing - Fishing at a level that can be sustained by the fish stocks indefinitely and support fisheries and the ecosystem in the long term.

Sustainable fish - Fish that has come from a fishery that is being sustainably fished, such as those that are certified to the MSC standard for sustainable fishing.

Unsustainable fishing - Fishing that causes the depletion of fish stocks or unacceptable impacts on the marine environment and subsequently has negative economic and environmental impacts.

Wild-capture fishery - naturally occurring populations of fish that are not controlled or farmed. Most ocean fisheries are wild capture, as are some freshwater lakes and rivers that are not artificially stocked.

Further resources (all correct as of February 2010)

www.fishandkids.org - Complementary website to support this resource. See ‘Staffroom’ for additional teaching materials. Also find more information, pictures, games and activities for children highlighting marine life, the impact of fishing and sustainable fishing.

Our oceans, food chains, fish, plants and animals www.archive.org - The world’s centralised library of films and photographs of the UK and the world’s endangered species and habitats - freely accessible to all around the clock and at any time of day.

www.bbc.co.uk/nature/blueplanet - Loads of information about the oceans and their inhabitants.

www.mm.ac.uk/upload/package/52/index.html - Your Ocean is a website aimed at KS2 but is accessible for younger children too.

Information about sustainable fish and fishing www.msc.org - Marine Stewardship Council website; information for consumers about where to buy MSC labelled fish, plus information about the MSC for fisheries and businesses.

www.fishonline.org - Marine Conservation Society (MCS) website with information on all types of fish, plus an indication of sustainability for each species, lists of "fish to eat" and "fish to avoid", and information on methods of fishing and fish-farming.

www.mcsuk.org - The website of the MCS, the UK charity dedicated to protecting our seas, shores and wildlife. Call 01989 566 017 for your free MPA Pocket Guide. Fish Guide. Check out the Cool Seas education resources for more great teaching ideas and classroom activities.

www.seafoodchoices.com - Global trade association promoting responsible use of the ocean's resources.

www.oceansatlas.org - Information on types of fishing; search using keywords such as artisanal, industrial, subsistence or recreational.

www.greenfacts.org/fisheries - Global fishing statistics provided by the Food and Agriculture Organisation.

Ecolabels and responsible consumption http://www.msc.org/where-to-buy - See the ‘where to buy’ page to help with your shopping. www.fsc.org - The Forest Stewardship Council, promotes responsible management of the world’s forests by using an eco-label.

www.soilassociation.org - The Soil Association is the UK’s largest organic certification body.

www.ncc.org.uk - National Consumer Council, drives change to meet the needs of consumers.

Health benefits of eating fish www.seafoodtraining.org - Educate children about fish and fish mongering.

www.seafish.org - Promotes the UK seafood industry - works with fishers, processors, suppliers, retailers etc.

Sustainable food systems - improve your school meals www.fishandkids.org - Get sustainable fish into your school.

www.soilassociation.org - See Food for Life campaign for practical guidance on getting healthy and sustainable food into schools.

www.sustainweb.org - The alliance for better food and farming. Plenty of information on food issues surrounding health and sustainability.

www.feedmabetter.com - Jamie Oliver’s campaign website aiming to improve school meals.

www.schoolfoodtrust.org.uk - Transforming school food and food skills to improve health and education.

www.foodinschools.org - DH and DfES initiative to help schools implement a whole school approach to food education and healthy eating.


www.greenpeace.org/international - Plenty of information on unsustainable use of the seas in the ‘Save our Seas’ campaign area.

www.greenpeace.org.uk - Information on the Greenpeace campaigns in the UK.

www.projectaware.org - Charity set up to help conserve the underwater environment through education, advocacy and action. See www.projectaware.org/kids for some fun, practical activities for children.
**Activity Sheet answers** Many of the answers are discussed in the teacher’s notes.

**Food chain**

**Who eats what?**
- worm → fish → human
- leaf → caterpillar → bird
- pondweed → tadpole → fish → bird

**A delicate balance**
Most examples are shown here.

- phytoplankton → krill → blue whale
- seaweed → limpet → gull
- shrimp → herring → killer whale
- crab → salmon → human

**Fishing**

**How are fish caught?**
- Mid-water trawl – herring, mackerel
- Bottom trawl – prawns, cod
- Pots – lobsters, prawns
- Handline – mackerel, cod

**Go fishing!**

**Ecolabels**

**A visit to the shops**
- Fish Fingers – product type and appearance, best before date, the fish is from a sustainable source.
- Peas – product type and appearance, weight, storage instructions.
- Potatoes – product type, best before date, place of origin.

**The Impact of fishing**

**Look after the sea!**
This is one simple idea for a marine bird scarer.
There are lots of other possibilities!

**The future – sustainable fishing**
1) ...allow small fish to get out.
2) ...keep birds away from fish hooks.
3) ...give fish a safe place to breed.
4) ...closed seasons.

**Fishing**

**How are fish caught?**
- Mid-water trawl – herring, mackerel
- Bottom trawl – prawns, cod
- Pots – lobsters, prawns
- Handline – mackerel, cod

**Go fishing!**

**What’s inside?**
- Fish Fingers – product type and appearance, best before date, the fish is from a sustainable source.
- Peas – product type and appearance, weight, storage instructions.
- Potatoes – product type, best before date, place of origin.