Lesson Two: Looting the Pacific

About this lesson
In the previous lesson students were introduced to the concept of resource depletion. In these next two lessons students will be looking at overfishing in particular, looking first at what overfishing is and then exploring the impact of overfishing and what can be done. The aim of this lesson is to encourage students to think critically about the use of resources and their own role within this as well.

Learning Objectives
- Understand the concept of industrial fishing and its social and environmental impact
- Know types of fish that are under threat

Resources Required
- Handout 2.1: Looting the Pacific Factsheet
- Handout 2.2: What about my fish and chips?

Key Concepts
Overfishing
Fish stock
Bycatch

Lesson plan

10 minutes
Start this lesson by introducing students to the concept of overfishing. Use the information on handout 2.1 to explain the terms and show the introduction to the film ‘Looting the Pacific’ about the depletion of jack mackerel fish stocks. Make sure to check everyone understands the key concepts before moving on.

35 minutes
In this activity students will learn how the increase of industrial fishing fleets, higher number of fisherman and a lack of sustainability has massively increased the world’s catch of fish leading to the collapse of many fish stocks. They will start thinking about the short and long term impacts. Before starting this activity, make copies of the statements in handout 2.2 so there is one per pair. The instructions on how to play this game are included in handout 2.2. Divide your class into pairs to order the statements and write up their stories. If you have time, ask pairs to feedback to the whole class.

10 minutes
Which fish are under threat and being overfished? Provide students with some examples and discuss why they think these fish are being overfished? What is the problem with overfishing? What impacts does it have? If you have time, show students this animation, which shows the history of overfishing over the past 100 year: http://athinkingsam.com/aquarium/

5 minutes
To round off this lesson as students to write down/say three things they learnt, two things they found interesting and one thing they are still unsure about. Address any of the ‘unsures’ if you can and try to encourage students to think about short and long term impacts they learnt about.

Homework
Ask students to collect data on fish consumption in their local area by interviewing family members and conducting research in their local shop/supermarket. They can use handout 3.1 to guide their research.
What is overfishing?

Overfishing occurs when fish are caught faster than their ability to reproduce, leading to a decrease in fish populations. Current estimates suggest that mankind has already consumed 95% of the large fish in the world's seas and 70% of the world's fish stocks have already been depleted.

Have a look at this animation to get an idea of what this looks like: http://athinkingsam.com/aquarium

How has this happened?

The number of people fishing around the world has doubled since the 1970s with 200 million people depending on fishing for their livelihood. There has also been a rise in the number of fishing vessels, which has massively increased the amount of fish caught, leading to overfishing.

What is bycatch?

This is a term used for fish caught unintentionally while fishing for other fish. It may also refer to the unintentional catch of other animals like turtles and dolphins. In one fishing method, boats drag large nets over the sea floor to catch as many fish as possible, but in the process they also catch other animals.

Pacific Jack Mackerel

The Pacific Jack Mackerel in Looting the Pacific are fished off the coast of Chile and Peru. They are either canned or dried and used as a food source. However, they are also used for animal feed and their population has been depleted.

Chile has signed up to legally binding international treaties to protect Pacific mackerel and other threatened fish species across the South Pacific. For more information, go to www.tve.org/reframing-rio

Handout 2.1 Looting the Pacific Factsheet

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Image: SEDAC Maps www.fllickr.com/photos/54545003@N04/
Handout 2:2 – What about my fish and chips?

For lower ability students:

- There are 3 general information cards – c, g, f – which can be placed anywhere or taken out of the game.
- Before the 1950’s – s, o, l
- After the 1990’s – m, e, t, p, q, r, k, j, i, a, d, n, h, b
- There are 4 statement order cards – m, e, t, p, q, r, k, j, i, a, d, n, h, b – which can be placed anywhere or taken out of the game.

What do you need?

- One copy per student of the scenario cards of the next page
- The Game:

1. Introduce the premise of the game: Lucy wants to have her usual meal for dinner, fish and chips, but this is not possible. Why not? (make sure you go through the Looting the Pacific factsheet first)
2. Handout one copy of the scenario cards per student and ask them to put them in the right sequence in order to answer the above question. You can decide whether students should cut the cards out and put them in the right order, or simply number them on the page.
3. Go through the answers in groups first and then discuss them as a class. If you have time, ask students to write a paragraph in their own words explaining why Lucy will not be having fish and chips.
4. The students should come to the conclusion that due to improved technology and the increase in the number of people fishing, Atlantic cod stocks have been seriously reduced. Fishing was so intense from the 1950’s-1990’s that the Atlantic cod population collapsed. It is now a very short supply and very expensive to buy.

The students should explain in their own words why Lucy cannot have her usual meal.

The students should come to the conclusion that due to improved technology and the increase in the number of people fishing, Atlantic cod stocks have been seriously reduced. It is now a very short supply and very expensive to buy.

Therefore, some businesses and consumers are deciding not to eat Atlantic cod, allowing the population to recover. Therefore, some fish and chip shops are choosing not to sell cod. Because of this, Lucy cannot have her usual meal. She can now have a sustainable alternative fish for her dinner.

The exact order of the statements is at your discretion.

Statement Order Answers

<table>
<thead>
<tr>
<th>Before the 1950’s</th>
<th>After the 1990’s</th>
<th>General Information Cards</th>
</tr>
</thead>
<tbody>
<tr>
<td>s, o, l</td>
<td>m, e, t, p, q, r, k, j, i, a, d, n, h, b</td>
<td>c, g, f</td>
</tr>
</tbody>
</table>

This example of the overfishing of Atlantic Cod is just one example among many. Mankind has consumed around 55% of the large fish in the seas.

Environment Education

This game was adapted from a resource made by the Harambee Centre for Development and Environment Education.
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T |
| Looting the Earth | ...countries had not given the cod population any time to recover after the record catch of 800,000 tons in the 1960s. | Lucy’s local fish and chips shop now uses more sustainable fish. | From 1970 to 1990, cod was caught. ...mean more and more catches were needed. Fishermen were catching less fish, but people were buying whole fish. By 1970, less cod was caught. | By the 1950s, people from all over the world were fishing in Canadian waters for cod. | Atlantic cod are found off the coast of Newfoundland in Canada. | 200 million people worldwide depend on fishing for their livelihoods. | The demand for fish and chips remains high in the UK, even though cod is expensive due to high fish prices and changes in the UK market and global demand for fish. The demand for fish increased by 70%. | By the 1970s, cod levels were low because the fish could not reproduce quickly enough to make up for the amount of fishing that was happening. | By 2006, cod levels were low because the fish could not reproduce quickly enough to make up for the amount of fishing that was happening. | During the early 1900s, Canadian fishermen used small boats and simple fishing nets and poles. By 1990, the estimated cod catch was just 1,700 tons, compared to 800,000 tons in 1970, ‘90 years later. | Once foreign fishermen were banned from fishing too close to their shores, Canada increased their fishing efforts and cod catch rose again. By 1990, costs were about 250,000,000. Canada used new technology to increase cod catches. | By the 1950s, commercial fishing was using technology such as trawl nets, huge boats and radars to increase fish catches. | Up to the 1950s fishing technology was basic and there were few fishermen so pressure on cod stocks was low. | By 1990, cod was caught... because cod became more and more scarce. 
Fishermen were catching less fish, but people were buying whole fish. | From the 1950s, cod became cheap, readily available and popular (with chips!) due to large catches. | From the 1950s, cod became cheap, readily available and popular (with chips!) due to large catches. | Sad to say, by the 1990s, the estimated cod catch was just 1,700 tons, compared to 800,000 tons in 1970, ‘90 years later. | By the 1950s, local fishermen moved to Newfoundland by the thousands. Due to improved technology, the cod catch reached an all-time high of 800,000 tons in 1970. | I couldn’t have my fish and chips! | Piece together why Lucy cannot have her fish and chips!