

# A Future Without Fish

## Activity 1: Class Discussion

Start the lesson with a short class discussion. Do students know the names of any fish? What fish have they seen? Have they ever been snorkelling? Do they know about fish that cooperate with other marine life (e.g., pilot fish have often been observed swimming into sharks' mouths to clean away fragments of food from between their teeth)? You may find that students have learned other interesting facts from watching documentaries.

## Activity 2: Fishing Facts

Prepare the following "Fishing Facts" for display on the interactive whiteboard or print them on a handout. Go through each statement and discuss it. If using the interactive whiteboard, reveal the facts one at a time. Encourage students to ask questions if they don't understand something. Are students surprised by any of the facts?

### Fishing Facts

- 1 Commercial fishing uses a method called "bottom trawling" which involves dragging nets larger than football fields along thousands of miles of ocean floor. After scraping the ground clear of coral, ocean plants and all the fish and marine animals in their path, trawlers leave huge gashes in the ocean floor.
- 2 The biggest fishing net is large enough to contain 13 Boeing 747s.
- 3 More than three quarters of the world's fish (the fish considered edible by humans) are in a perilous state. A 2006 report in the journal Science found that oceans will be essentially empty of these fish by the year 2048 if the fishing industry's practices remain unchanged – that's just over 30 years from now!
- 4 Industrial fishing lines (longlines) can be as long as 75 miles – the equivalent distance as from sea level to space.
- 5 Bycatch is a way of describing unwanted fish that get caught in nets and on lines. The global average ratio for bycatch is 6:1. In other words, six fish are thrown dead and dying back into the sea for every single fish caught. Greenpeace estimates that anywhere between 6.8 to 27 million tonnes of fish are discarded as bycatch each year.
- 6 Birds, turtles and dolphins are also often caught in nets.
- 7 More than 30 per cent of all the sea animals consumed each year are now raised on fish farms, where they spend their entire lives crammed together, constantly bumping against each other and against the sides of their extremely crowded cages.
- 8 Fish farms cause environmental problems as the fish raised on them are plagued by diseases and parasites - such as sea lice, resulting from the high concentration of fish in each pen - which can also spread to wild fish.

## Background

Our oceans are the Earth's "heart and lungs". They produce half of the world's oxygen and absorb 30 per cent of man-made carbon dioxide. So, for those taking part in Meat Free Monday, it's important to understand where fish fit into the picture and the ways in which industrialised fishing and aquaculture is as damaging and wasteful as industrialised farming. This lesson encourages students to explore how the commercial fishing industry has transformed entire ecosystems while pushing our oceans to the brink of environmental collapse.

## Learning Objectives

Children should learn the following:

- To explore the environmental impact of commercial fishing and aquaculture
- To communicate in ways that are appropriate to a particular task and audience

## Accompanying Materials

- Friendly Planet (student worksheet)
- A Future Without Fish – Recipe Demo (teacher sheet) for extension



## Activity 3: Research and Writing Task

Tell the students to imagine that they work on the letters page of an environmental magazine called Friendly Planet. The magazine, aimed at teenagers, has a strong environmental ethic. This month, the magazine is publishing a special feature on fish. Distribute copies of the "Friendly Planet" worksheet and ask students to answer the readers' letters, keeping responses concise yet informative. One answer has been given as an example. Discuss different methods of presenting information including informal writing styles. Students may need to do some research, either by using the internet, going to shops or contacting vegetarian and health organisations. Each student can add his or her photo to the top of the page (or draw a picture). Students can also add appropriate fish images to the page if desired.

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## Useful Resources

- "Fish-Free for Life" by Dr Justine Butler and Jane Easton of the Vegetarian and Vegan Foundation. This publication can be ordered or downloaded at [vegetarian.org.uk/guides/fishfish.pdf](http://vegetarian.org.uk/guides/fishfish.pdf).
- "The Fish Report: Why Public Health Policy Should Promote Plant Omega-3 in Preference to Fish Oils" by Dr Justine Butler of the Vegetarian and Vegan Foundation. This report can be viewed at [vegetarian.org.uk/guides/Fish/Report](http://vegetarian.org.uk/guides/Fish/Report).
- "Fish" by the Physicians Committee for Responsible Medicine (PCRM). This report is available at [pcrm.org/pdfs/health/rep\\_fish\\_report.pdf](http://pcrm.org/pdfs/health/rep_fish_report.pdf).

## Extension Ideas

- Present an interactive vegetarian faux fish cooking demonstration in the food technology department, teaching students how to make Veggie Tuna, Tofu Chowder, Sushi or Fishless Patties (see "A Future Without Fish – Recipe Demo" handout).
- Set up a tasting session whereby students try samples of ready-made fish alternatives such as Linda McCartney Foods' "Fish Free Scampi" or VBites' "Fish Style Fingers".
- Show students the films *The End of the Line* and *Sea the Truth*, or episodes from BBC documentary *The Blue Planet*. Follow up the viewing with a class debate. Divide the class into two groups. Have one group argue for the motion and one against it. Suggested motion: "This House believes that people should eat less, or no, fish." You may wish to use the structure of a British Parliamentary Debate. This could consist of four teams of two speakers, with two teams on either side of the case. Speakers, and students in the audience, should offer Points of Information (POIs) to their opponents. At the end of the debate you should vote to see if the motion is carried or opposed.



# A Future Without Fish - Recipe Demo

## Fishless Patties

Makes 8 patties

### Ingredients

- 750 g potatoes, cooked in vegetable stock (e.g. 2 x vegetable stock cubes)
- 225 g smoked tofu
- 2 teaspoon capers
- freshly ground black pepper
- vegetable or sunflower oil

### Method

1. Pre-heat the oven to 200°C/400°F/gas mark 6.
2. Mash the potatoes. (Do not add any liquid so that the mixture remains dry.)
3. Mash the smoked tofu and add this along with the capers and black pepper to the mashed potato.
4. Form 8 small patties.
5. Lay out the patties out on a greased baking tray, brushing the tops of the patties with a dash of oil.
6. Cook in oven as above for approximately 20 minutes, until slightly brown.

### Tip:

- Fishless Patties can be served either hot or cold.



## Veggie Tuna

Use as a substitute for tinned tuna for a great kids' lunch! Makes 4 servings

### Ingredients

- 2.3 kg carrots
- 2 celery stalks, chopped
- 1 small red onion, diced
- finely chopped green or red pepper (optional)
- tomato, chopped (optional)
- 115 g mayonnaise
- 2 tablespoon soy sauce
- 1 tablespoon salt
- 2 teaspoon kelp powder

### Method

1. Juice the carrots in an electric juicer. Save the pulp for the Veggie Tuna and enjoy the juice as an energizing beverage.
2. Combine the celery and onion. Add chopped pepper and tomato if desired. Stir in the carrot pulp. Mix in the mayonnaise, soy sauce, salt and kelp powder.

### Tip:

- If preferred, you can make the mayonnaise from a few simple ingredients. Combine 225 g soft or medium-firm tofu, 75 ml safflower oil (or sunflower oil), 1 to 1½ tablespoons lemon juice and ½ teaspoon salt in a food processor and blend until smooth.



## Tofu Chowder

Traditional chowders are stews or thick soups made from seafood, often made with milk or cream and eaten with salt crackers. This tofu version has just as much flavour but is kinder to the oceans and the oceans' inhabitants!

Makes 8 servings

### Ingredients

- 1 medium onion
- 2 carrots
- 3 celery stalks
- 2 tablespoon oil
- 500 ml water
- 500 ml milk (or soya milk)
- 225 g tofu, crumbled
- 2 teaspoon salt
- ½ teaspoon pepper
- ½ teaspoon celery seeds
- 2 large potatoes (about 500 g), peeled and cubed

### Method

1. Chop the onion, carrots and celery.
2. Heat the oil in a large cooking pot. Add the onion, carrots and celery and sauté for 15 minutes.
3. Add the water and milk and stir.
4. Add the tofu, salt, pepper and celery seeds and bring to a boil.
5. Add the potatoes and let the chowder simmer until the potatoes are soft.
6. Serve with crackers.

### Tip:

- Use sea salt instead of regular salt to really bring out the "chowder" flavour.



## Sushi

This recipe is loaded with goodies, but you can also add radish, asparagus, spring onions, mushrooms, sesame seeds or avocado. Makes 36 pieces

### Ingredients

- 1.5 litres water
- 675 g short-grain brown rice
- 1 small cucumber
- 1 small courgette
- ½ green pepper
- ½ red pepper
- 2 small carrots
- 225 g fresh spinach
- 160 ml rice wine vinegar
- 15 g brown sugar
- 1 packet pre-toasted nori sheets (or toast your own by briefly passing the sheets over a hot flame)
- wasabi paste, to taste (can be hot, so be careful!)

### Method

1. Bring the water to a boil. Add the rice, lower the heat and simmer for 40 minutes, stirring occasionally.
2. Seed and julienne the cucumber and julienne the courgette, peppers and carrots. Steam these vegetables and the spinach over boiling water for 5 to 7 minutes. Let cool to room temperature.
3. Mix together the vinegar and brown sugar and stir until the sugar is dissolved. When the rice is cooked, stir in the vinegar/brown sugar mixture and let cool to room temperature.
4. When the vegetables and rice are cool enough to handle, lay out the first nori sheet.
5. Place a handful of rice in the centre of the sheet. Moisten your hands with water, and gently but firmly spread out a thin layer of rice, in a line, to the edges of the sheet. Spread a bit of wasabi paste on top of the rice, approximately 4 cm from one edge of the nori sheet. Lay vegetable strips parallel to the wasabi, in a width of approximately 2.5 cm, along the wasabi line.
6. Carefully wrap the closest edge over the vegetables, then roll the nori delicately but tightly. Seal by moistening the edge of the nori. Once the nori sheet is completely rolled, slice the roll into 6 pieces and arrange on a platter. Repeat with the remaining nori sheets.

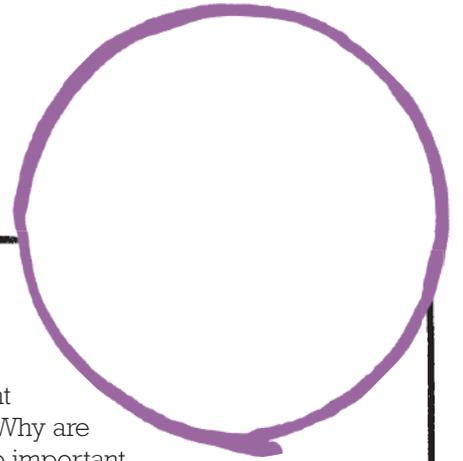
### Tips:

- If your nori rolls won't stay rolled, try sealing the seam with maple syrup or brown rice syrup.
- Use an inexpensive bamboo sushi mat to roll up the nori sheets in order to prevent them from tearing.



# Friendly Planet Problem Page

## Meet the expert



**Q** I saw a documentary about commercial fishing – it's really bad for the environment because huge bottom trawlers scrape the ocean floor clean of all life, even coral reefs. Is fish farming better for the environment than fishing? – **Anita, 15, London**

**A** Actually, fish farming, or "aquaculture", is not better for the environment. The extremely high stocking densities on aquafarms can lead to the rapid spread of diseases and parasites, which hurt and even kill farmed fish and also spread to wild fish. Fish farming is also inefficient because farmed fish need to be fed wild-caught fish! It takes 5 kilograms of anchovies to produce 1 kilogram of salmon!

**Q** I've just gone vegetarian, but I miss eating fish! Are there any fish-free alternatives on the market? – **Sandeep, 15, Cardiff**

**A**

**Q** I'm worried. Apparently if humans carry on over-fishing and polluting the oceans, there will be no fish left by 2048. What can young people do to prevent this from happening? – **Sarah, 17, Hastings**

**A**

**Q** I've heard that fish contains omega-3 fatty acids, which are an important part of a healthy diet. Why are omega-3 fatty acids so important, and what meat-free foods contain them? – **David, 13, Glasgow**

**A**

**Q** I've started supporting Meat Free Monday but last week my Dad made us fish fingers. He says that fish don't count as meat. What can I say to help him understand it's important to leave fish out on Mondays too? – **Nadia, 11, Manchester**

**A**

**Q** I used to be a huge lover of tuna but am trying not to eat it now, after hearing about over-fishing. Can you share any easy mock tuna recipes? – **Claire, 16, Hull**

**A**