Brink expedition
www.brinkX.org
Survive the race against time!

Curriculum

Module 3

Ocean Care

Section 3: Resources

Suitable for Lower Primary to Middle Secondary

Core Learning Outcomes Levels 2 - 6

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In partnership with:

- Department of Education and the Arts
- Association of Independent Schools of Qld
- Brisbane Catholic Education
- Qld Catholic Education Commission
- Earth Charter

The State of our oceans: What have we done?

Resource sheets

- Types of questions
- List of organisations
- State of the ocean 1-4
- Brink hotspots 1-2
- Human activity pictures
- Sample consequence wheel

Resource sheet: Types of questions 1

Who?	Where?
What?	How?
When?	Why?

Types of questions 2

The questions we ask often determine the answers we get. Learning to ask the types of questions described below helps to make our investigations more thorough. Often we only ask describing questions and as a result limit the process and outcomes of an inquiry.

Describing questions:

- record observations
- clarify the purpose of an inquiry
- describe social and natural phenomenon, events, actions and processes.

E.g. Which human activities are threatening the health of the oceans?

Explaining questions:

- identify relationships, causes and consequences of actions and events
- attempt to empathise with the motives and beliefs of others in order to understand human actions.

E.g. What impact are these activities having?

Critical questions

- identify whose interests are involved
- reflect critically on valuing and decision making processes to identify bias and exclusion.

E.g. Why do people continue these activities if they know they are causing harm?

Action questions

- develop skills of democratic social action including lobbying, writing letters and organising in community groups
- practise action strategies and skills in personal, interpersonal and social contexts
- develop skills of reflection, self analysis, empathy and assertiveness.

E.g. What can I/we do to make others aware of this situation and work towards addressing it?

Resource sheet: State of the ocean 1

Most (95%) marine life caught by a typical prawn trawler dies on the deck and is discarded. These discarded marine creatures are called by-catch. Source: Marine Conservation Biology Institute
More than half of the world's reefs are at risk from human activities. This includes 60% of coral reefs in the Caribbean Sea, 41% in the Pacific Ocean and 82% in South East Asia. Source: World Resources Institute
Half of every tonne of fertiliser used is washed into local waterways and damages coastal estuaries and inshore waters where most commercial fish and shellfish species breed. Source: *Issues in Ecology*, Issue number 1
In 2002, nearly ¾ of the world's marine fish stocks were being harvested faster than they could reproduce. Source: United National Environment Program, *Geo Year Book 2003*
Prawn farming can harm oceans by polluting the water and clearing mangroves. In only six years (between 1987 and 1993) Thailand lost nearly 1/5 of it's mangroves to shrimp ponds. Source: *New Scientist, No. 2059*
Pesticides like DDT have been found in sperm whale tissue. These toxins can cause high levels of cancer, birth defects or sterility. Source: Ocean Alliance, 2003
Six of the world's seven turtle species could disappear. Many are killed when they drown in fishing nets. Some are killed to make items (i.e. tortoiseshell hair clips) for tourists to buy. In some areas females can't lay their eggs safely because their nesting sites have been destroyed. Worldwide Fund for Nature, 2000

Resource sheet: State of the ocean 2

According to some scientists animal populations have still not recovered nearly 12 years after the Exxon Valdez oil spill in Alaska. The tanker spilt 42 million litres of crude oil in Prince William Sound in 1989. The spill killed 250 000 sea birds, 2 800 sea otters, 300 harbour seals, 250 bald eagles, 22 killer whales and billions of salmon and herring eggs.

Source: BBC News Online

About 2 million tonnes of Pacific Tuna, worth $US2 billion, are caught each year. Japan, South Korea and the United States of America are concerned that new larger purse seine fishing boats being operated by Taiwanese companies will damage the fisheries as they can catch and carry twice the amount of most boats.

Source: ABC Radio Australia News, 18/6/04

Deep-sea stocks, such as the orange roughy and ling, are in danger of collapsing because of overfishing. Most deep-sea fish grow slowly, live long lives and mature late in life. Orange roughy, for example, live to be more than 100 years old and only mature when they have reached an age of more than 25.

Source: The International Council for the Exploration of the Seas (ICES), 2004

In recent years there have been many springtime red tides in China's coastal regions. A red tide is a densely populated algal bloom that breeds in abundance and suffocates fish by using up the oxygen in the water and producing toxins that paralyse fish and contaminate seafood. The algae grow rapidly in water polluted with industrial discharges, urban and farming wastes, and fertilizer run-off that are rich in nitrogen and phosphorus.

Source: Independent Online (IOL), 16/6/04

In many cases the distribution of seagrass beds (nursery grounds for many species) overlaps with intensive commercial fishing operations. This is a problem when bottom trawling is the fishing method used as it involves dragging heavy equipment over the seabed which damages the seagrass. Off Tanzania, in fisheries that use heavy bottom trawling gear, 80% of the by-catch is seagrass. These sea grass beds may take 10-17 years to recover.

Source: United National Environment Program, *Geo Year Book 2003*

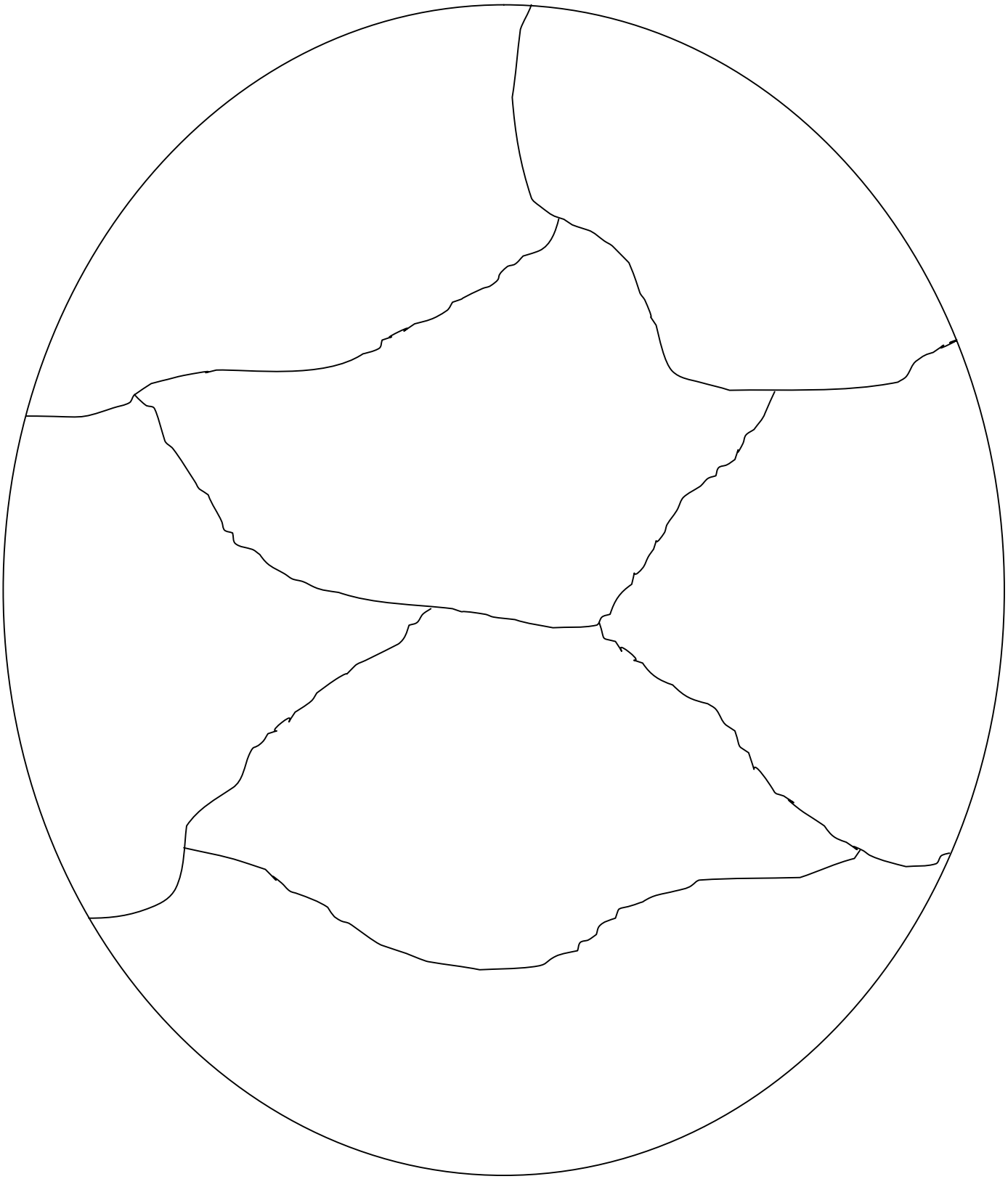
Fishing nets packaging straps, nylon ropes, loops of cotton cord, plastic bags and fishing line all pose hazards for coastal dolphins. Entanglement and swallowing of this debris is becoming more common in many marine mammals, including dolphins and porpoises. This usually results in death or severe disfigurement.

Source: Australian Conservation Foundation

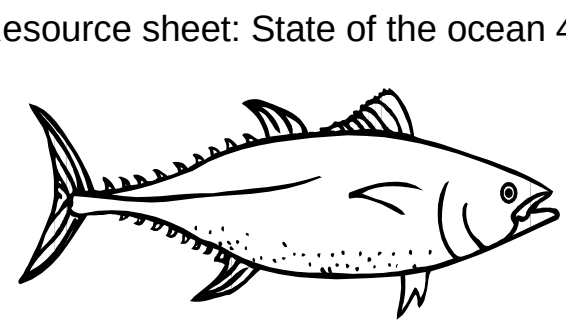
The northern Pacific sea star, *Asterias amurensis*, is one of more than 100 exotic marine species known in Australian waters. It is a potential threat to the biological diversity of shallow-water marine communities, and could cause significant problems for the mariculture industry and temperate wild fisheries.

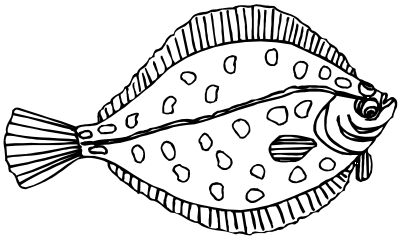
Source: CSIRO Marine Research

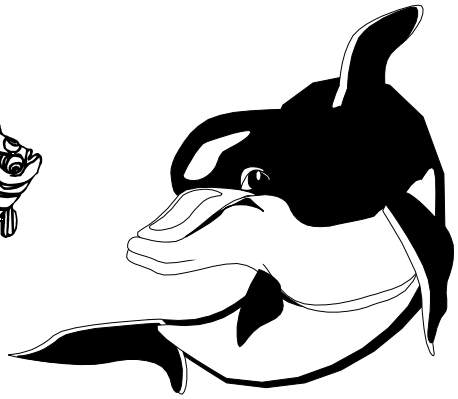
Resource sheet: State of the ocean 3

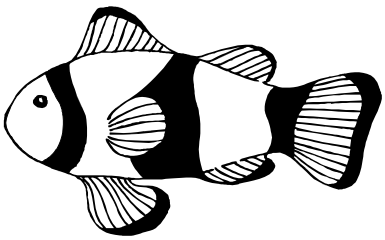


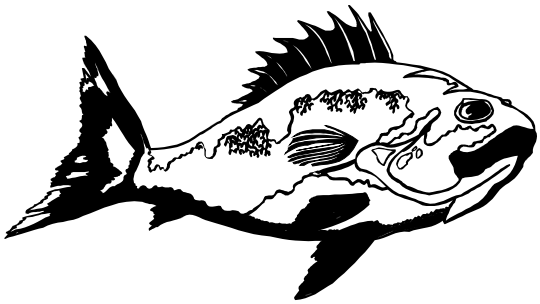
Resource sheet: State of the ocean 4

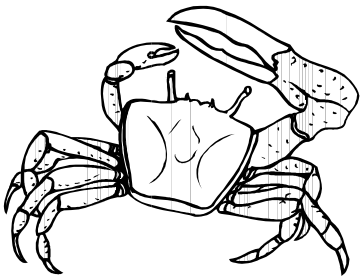


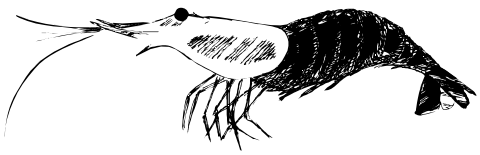


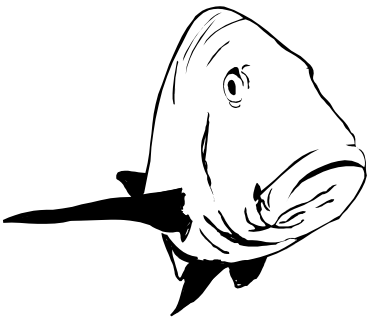


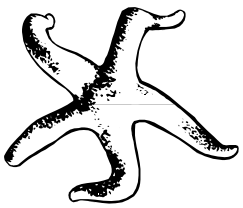


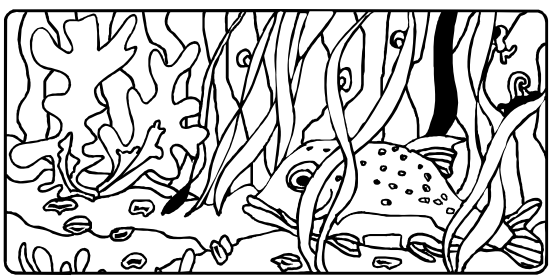


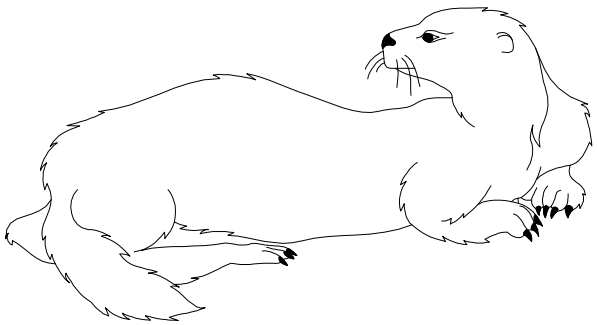












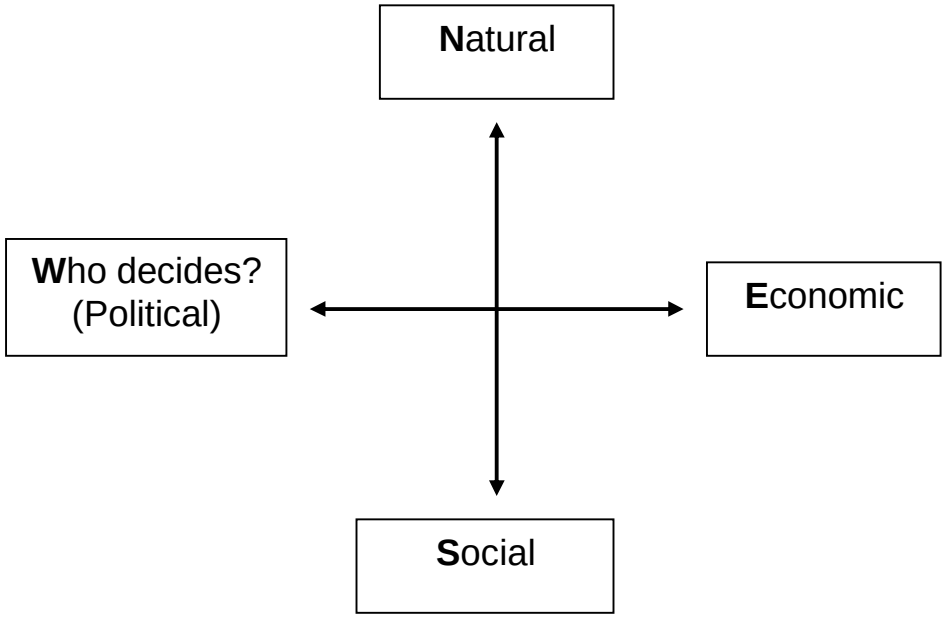
Resource sheet: Brink hotspots 1

Revisit www.panda.org/about_wwf/where_we_work/ecoregions/global200/pages/list.htm to identify and record the environmental threats to the following marine ecoregions that the Brink expeditioners will visit.

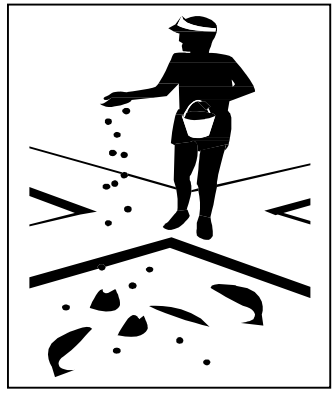
	Global 200 Ecoregions			
	238	**216**	**199**	**222**
	Northeast Brazil Shelf Marine	Canary Current	Mediterranean Sea	Great Barrier Reef
Environmental threats				

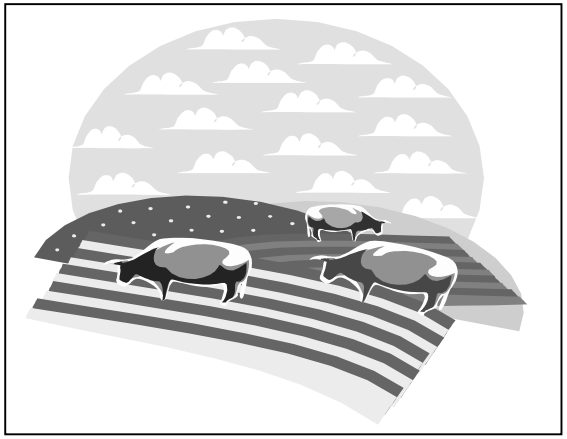
Resource sheet: Brink hotspots 2

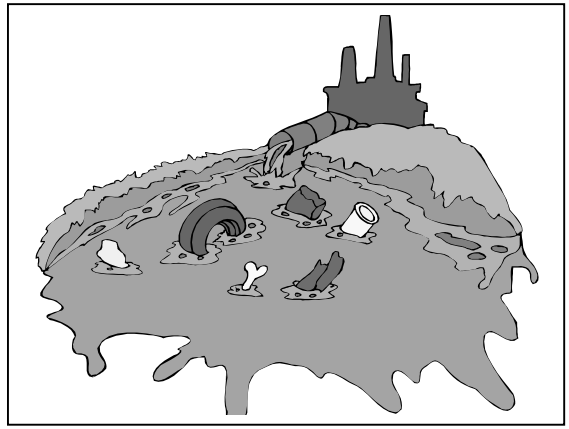
Mediterranean Sea (Ecoregion 199)

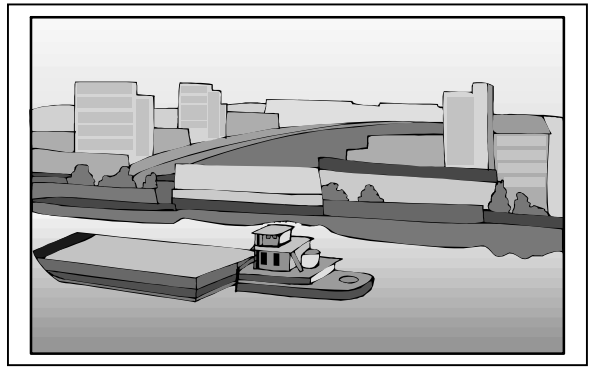


Resource sheet: Human activities pictures









Resource sheet: Sample consequence chart