

Primary and Secondary School Resources Audit

**(Desktop Research of Existing Australian Seafood, Aquaculture and Wild-Catch School
Resources Currently Available Nationally)**

Conducted by Honey and Fox Pty Ltd

August 2019



Disclaimer

Whilst Honey and Fox Pty Ltd has taken all reasonable steps to check all listed resources for appropriateness and that content is not misguided in regards to the Australian seafood industry, some teacher and school resources could only be accessed with a school email or via registration/subscription to portals. As such, the FRDC should independently check all resources for appropriateness, factual correctness and that scientifically valid information is included as part of the resource before promoting.

Some teacher and school resources have been located from old FRDC reports and therefore may be out of date, contain old links to the resources or have since been updated since publication in a FRDC report. As a result, the FRDC should independently check that all resources are suitable before promoting.

Some teacher and school resources identified span a number of themes and may include both primary and secondary school curriculum. As such, resources have been grouped according to the dominant theme and grade suitability.

Honey and Fox Pty Ltd do not claim they have captured every resource available online or offline as part of this audit process.

Contents

Background	1
Methodology.....	1
Recommended Next Steps for the FRDC	3
Marine and Freshwater Habitats and Environment	5
PRIMARY SCHOOL RESOURCES	5
Marine and Freshwater Habitats and Environments.....	42
SECONDARY SCHOOL RESOURCES	42
Recreational Fishing.....	54
PRIMARY SCHOOL RESOURCES	54
Recreational Fishing Theme.....	62
SECONDARY SCHOOL RESOURCES	62
General Fish and General Seafood Species.....	70
PRIMARY SCHOOL RESOURCES	70
General Fish and General Seafood Species.....	86
SECONDARY SCHOOL RESOURCES	86
Aquaculture.....	92
PRIMARY SCHOOL RESOURCES	92
Aquaculture.....	102
SECONDARY SCHOOL RESOURCES	102
Seafood Handling, Filleting and Processing	108
PRIMARY SCHOOL RESOURCES	108
Seafood Handling, Filleting and Processing	109
SECONDARY SCHOOL RESOURCES	109
Industry Careers and Business	110
PRIMARY SCHOOL RESOURCES	110
Industry Careers and Business	111
SECONDARY SCHOOL RESOURCES	111
Indigenous Fishing	115
PRIMARY SCHOOL RESOURCES	115
Indigenous Fishing	116



SECONDARY SCHOOL RESOURCES	116
Health, Nutrition and Cooking	118
PRIMARY SCHOOL RESOURCES	118
Health, Nutrition and Cooking	122
SECONDARY SCHOOL RESOURCES	122
Fisheries Management and Sustainability	125
PRIMARY SCHOOL RESOURCES	125
Fisheries Management and Sustainability	131
SECONDARY SCHOOL RESOURCES	131

Background

A significant number of primary and secondary school and teacher resources currently exist nationally. They have been created by a large variety of organisations including government entities, education organisations and the Fisheries Research and Development Corporation (FRDC).

An audit was commissioned by the FRDC, to be undertaken by Honey and Fox Pty Ltd, to locate as many primary and secondary school and teacher resources within a set time frame of seven days.

This desktop research would form Stage 1 of a much larger suite of activities to be determined by the FRDC in due course. For example, Stage 2 may result in developing a strategy to ensure all resources could be made available through one portal and where appropriate, located existing resources could be adapted for other industry species (or updated) and then promoted widely for use in Australian schools.

Methodology

This project collected existing primary and secondary teacher and school resources through a variety of methods. These included:

- Face to face meetings with relevant FRDC staff to locate primary and secondary school and teacher resources on the FRDC website, Trello storage cloud and provision of key contacts to mine for relevant resources.
- Desktop online research to locate existing resources online.
- Capturing relevant school and teacher resources from the FRDC final reports available online on the FRDC website
- Contacting key contacts to locate resources.

A visit to the FRDC office in June 2019 and alternative investigations identified the following people and organisations to make contact with in regards to locating resources. The results of this activity are as below:

Person Contacted	Provided Resources or Input
University of Wollongong	✓
National Seafood Industry Leadership Program	✓
Torres Strait Regional Authority	✓
OceanWatch	✓
Marine Discovery Centre	X Tim Hoile (Retired)
Michael Burke	✓
Brett McCallum	✓

Sydney Fish Market	✓
Australian Fishing Management Authority	✓
Chris Calogeras	✓
Australian Barramundi Farmers Association	x
Josiah Pitt	✓
Tasmanian Seafood Industry Council	✓

All identified resources located were then compiled into this comprehensive report that includes a description of each resource, the learning intention/s and a link to the resource.

All resources were grouped according to a theme. The nine themes are:

- Marine and freshwater habitats and environments
- Recreational fishing
- Indigenous fishing
- Aquaculture
- Fisheries management and sustainability
- General fish and seafood species
- Seafood handling, filleting and processing
- Industry careers and business
- Health, nutrition and cooking

This audit did not include:

- Mapping resources against curriculum (but if this information was available, it was captured for each resource entry as part of this report).
- Any strategic recommendations or analysis of existing resources for adaption or update.
- Arranging for the resources to be published online on the FRDC website or other platforms (e.g. PrimeZone or Marine Discovery Centres) is not included (but all material locations have been included as hyperlinks or information provided on where they can be sourced).
- Face to face visits/meetings with identified key contacts.

Recommended Next Steps for the FRDC

The FRDC now needs to decide what to do with the identified resources provided in this report such as:

1. Creation of a platform on the FRDC website to house all the available and existing resources (or provide resources to existing platforms such as PrimeZone or with the Marine Discovery Centres)
2. Identify gaps that may exist in each theme to develop new suitable resources
3. Identify resources that should be updated or that could be adapted to suit other industry sectors
4. Identify overseas resources that are good frameworks and models for gaps and develop resources based on that identified framework
5. Consider a cost benefit analysis of the resources (identify the investment amount and then determine the level of uptake of resources into schools and use in the classroom)

Resource Overview Table (as a result of this audit):

Resource Theme	Level	Quantity of Resources Available (Low, Medium, High)
Marine and freshwater habitats and environments	Primary	High
Marine and freshwater habitats and environments	Secondary	High
Recreational fishing	Primary	High
Recreational fishing	Secondary	High
Indigenous fishing	Primary	Low
Indigenous fishing	Secondary	Low
Aquaculture	Primary	High
Aquaculture	Secondary	High
Fisheries management and sustainability	Primary	Medium
Fisheries management and sustainability	Secondary	Medium
General fish and seafood species	Primary	High
General fish and seafood species	Secondary	High
Seafood handling, filleting and processing	Primary	Low

Seafood handling, filleting and processing	Secondary	Medium
Industry careers and business	Primary	Low
Industry careers and business	Secondary	Medium
Health, nutrition and cooking	Primary	Medium
Health, nutrition and cooking	Secondary	Medium

Marine and Freshwater Habitats and Environment

PRIMARY SCHOOL RESOURCES

Resource 1 – Marine Links Education Kit

What it is:

Marine Links is a marine and fisheries education resource kit for use by teachers in Tasmanian primary and secondary schools. The kit has been developed to align with school curriculums and contains practical marine teaching aids and information.

- Educational Resource Kit (marine textbooks, fish display posters, pamphlets, maps, fisheries awareness brochures, a set of model fishing gear including lobster pots/rings, nets and setlines, moulds of recreational fish species.
- Lesson Plans (classroom exercises suitable for Grades 5-8)
- General Teaching Resources

It is recommended that teachers use the Marine Links Education Kit in partnership with experienced Fishcare Volunteers. The Marine Links Kit is also available to borrow from Fishcare Coordinators or the Woodbridge Marine Discovery Centre. The components of the kit can be borrowed by teachers to use independently or in conjunction with the Fishcare Schools Program.

Learning intention:

- To provide students with an understanding of the environment in which fisheries and aquaculture in Tasmania use

Links to resources:

Kits –

[Dep. Of Primary Industries, Parks, Water and Environment \(n.d.\) *Marine Links Education Kit*. Retrieved from https://dpiwwe.tas.gov.au/sea-fishing-aquaculture/publications-and-products/marine-links-education-kit](https://dpiwwe.tas.gov.au/sea-fishing-aquaculture/publications-and-products/marine-links-education-kit)

[Dep. Of Primary Industries, Parks, Water and Environment \(n.d.\) *Marine Links*. Retrieved from https://dpiwwe.tas.gov.au/Documents/Marine-Links---Education-Folder.pdf](https://dpiwwe.tas.gov.au/Documents/Marine-Links---Education-Folder.pdf)

[Dep. Of Primary Industries, Parks, Water and Environment \(May, 2011\) *Volunteer Lesson Guides*. Retrieved from https://dpiwwe.tas.gov.au/Documents/Marine-Links-Volunteer-Lesson-Guides.pdf](https://dpiwwe.tas.gov.au/Documents/Marine-Links-Volunteer-Lesson-Guides.pdf)

[Dep. Of Primary Industries, Parks, Water and Environment \(n.d.\) *Marine Education for Schools Brochure*. Retrieved from https://dpiwwe.tas.gov.au/Documents/Marine-Education-Resources-Schools-Brochure.pdf](https://dpiwwe.tas.gov.au/Documents/Marine-Education-Resources-Schools-Brochure.pdf)

Dep. Of Primary Industries, Parks, Water and Environment (n.d.) *Marine and Coastal Habitats*. Retrieved from <https://dpiipwe.tas.gov.au/Documents/Marine-Links-Unit-1---Marine-Habitats.pdf>

Dep. Of Primary Industries, Parks, Water and Environment (n.d.) *Marine Life*. Retrieved from <https://dpiipwe.tas.gov.au/Documents/Marine-Links-Unit-2---Marine-Life.pdf>

Dep. Of Primary Industries, Parks, Water and Environment (n.d.) *Sustainable Fisheries*. Retrieved from <https://dpiipwe.tas.gov.au/Documents/Marine-Links-Unit-3---Sustainable-Fisheries.pdf>

Dep. Of Primary Industries, Parks, Water and Environment (n.d.) *Marine Reserves*. Retrieved from <https://dpiipwe.tas.gov.au/Documents/Marine-Links-Unit-4---Marine-Reserves.pdf>

Dep. Of Primary Industries, Parks, Water and Environment (n.d.) *Human Influences*. Retrieved from <https://dpiipwe.tas.gov.au/Documents/Marine-Links-Unit-5---Human-Influences.pdf>

Resource 2 - Marine and Freshwater Discovery Centre's Schools Excursion Program (Indoor-Based)

What it is:

The Marine and Freshwater Discovery Centre's schools program introduces students to the wonders of the marine and freshwater environment. All their sessions include opportunities for students to interact with live animals and provide hands on experiences through field trips, the use of technology and a range of specimens available at the centre.

All programs have been developed to cover the Victorian Curriculum and are suitable for years 3-6.

Five options for an indoor based school session:

- Seaweed, sea stars and sand (1.5 hours at \$10 per student) - What's living and non-living in the sea? Through close observation, hands on exploration and discussion, students will discover the importance of living and non-living things in the sea.
- It's our coast to care for (1.5 hours at \$10 per student) - Students will explore the wonders of the marine environment, create mini habitats and investigate ways in which they can care for these special places and the plants and animals that live there.
- Defences and disguises (1.5 hours at \$10 per student) - How do animals in the sea defend and disguise themselves and why? Students become underwater detectives and their mission is to find the answers to these questions. The clues they collect will help them to construct the "ultimate marine animal".
- Weird and wonderful (1.5 hours at \$10 per student) - What features do marine animals have for survival in the sea? Students will become a marine scientist and explore the concepts of structure, function, adaptations and classification.



- Guess who's coming to dinner? (1.5 hours at \$10 per student) How is it all connected? Students identify interactions between animals and piece together a food chain of a marine habitat, ending up in a watery web.

Link to resource:

Victorian Fisheries Authority (November 2018) *Foundation – 2 Programs*. Retrieved from: <https://vfa.vic.gov.au/education/marine-and-freshwater-discovery-centre/education-program/schools-f-10-program/f-2-programs>

Resource 3 - Marine and Freshwater Discovery Centre's Schools Excursion Program (Outdoor-Based)

What it is:

The Marine and Freshwater Discovery Centre's schools program introduces students to the wonders of the marine and freshwater environment. All their sessions include opportunities for students to interact with live animals and provide hands on experiences through field trips, the use of technology and a range of specimens available at the centre.

All programs have been developed to cover the Victorian Curriculum and are suitable for Years 3- 6.

Three options for an outdoor based school excursion:

- Rockpools and/or beachcomb (Point Lonsdale rockpools – 2 hours at \$11 per student) or Queenscliff beach – 2 hours at \$11 per student) - Sucking feet, stinging tentacles and a seaweed coat to hide. Students uncover the mysteries of the curious creatures that make the rockpools their home and explore the beach for the fascinating flotsam and jetsam that wash up on our shores.
- Mudflat meander (Swim Bay – 2 hours at \$11 per student) - Explore the wonders that live in and around the mud! Search for crabs, snails, worms and amazing amphipods in the unique Swan Bay environment.
- Marine biology cruise (2.5 hours with a specialised teacher included - \$700 or 2 hours with a specialised teacher - \$650). Students will examine creatures from a sample taken from the bottom of Port Phillip and observe their amazing structures that help them survive in the sea. The cruise also visits an Australian Fur Seal haul out site and Australasian Gannet colony in Port Phillip.

Link to resource:

Victorian Fisheries Authority (November 2018) *Foundation – 2 Programs*. Retrieved from: <https://vfa.vic.gov.au/education/marine-and-freshwater-discovery-centre/education-program/schools-f-10-program/f-2-programs>

Resource 4: Marine Habitat Print Teacher Resources

What is it:

A series of print resources, including posters to support classroom learning related to the following habitat themes:

- 50 Ways to Care for Our Coast
- Climate Change Fishing Change
- Bays and Estuaries
- Kelp Forests
- Open Water
- Rocky Reefs
- Seagrass Meadows and Mudflats
- Saltmarshes and Mangroves
- Sandy Beaches and Dunes
- An ABC of Cool Water Wonders poster
- Beach Discoveries poster
- Cool Water Wonders poster

Learning intention:

- I will understand the marine environment and how this is important to fisheries

Links to resources:

Victorian Fisheries Authority (November 2018) *50 Ways to Care for Our Coast*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/50-ways-to-care-for-our-coast> Victorian Fisheries Authority (November 2018) *Foundation – 2 Programs*. Retrieved from: <https://vfa.vic.gov.au/education/marine-and-freshwater-discovery-centre/education-program/schools-f-10-program/f-2-programs>

Victorian Fisheries Authority (November 2018) *Climate Change Fishing Change* Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/climate-change-fishing-change>

Victorian Fisheries Authority (November 2018) *Bays and Estuaries Poster*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/bays-and-estuaries-poster>

Victorian Fisheries Authority (November 2018) *Kelp Forests Poster*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/kelp-forests-poster>

Victorian Fisheries Authority (November 2018) *Open Water Poster*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/open-water-poster>

Victorian Fisheries Authority (November 2018) *Rocky Reefs Poster*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/rocky-reefs-poster>

Victorian Fisheries Authority (November 2018) *Seagrass Meadows and Mudflats Poster*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/seagrass-meadows-and-mudflats-poster>

Victorian Fisheries Authority (November 2018) *Saltmarshes and Mangroves Poster*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/saltmarshes-and-mangroves-poster>

Victorian Fisheries Authority (November 2018) *Sandy Beaches and Dunes*. Retrieved from: <https://vfa.vic.gov.au/education/teachers-resource/sandy-beaches-and-dunes>

Victorian Fisheries Authority (November 2018) *An ABC of Cool Water Wonders*. Retrieved from: https://vfa.vic.gov.au/_data/assets/image/0005/338531/An-ABC-of-Cool-Water-Wonders.jpg

Victorian Fisheries Authority (November 2018) *Beach Discoveries Poster*. Retrieved from: https://vfa.vic.gov.au/_data/assets/image/0006/338532/Beach-Discoveries-Poster.jpg

Victorian Fisheries Authority (November 2018) *Cool Water Wonders*. Retrieved from: https://vfa.vic.gov.au/_data/assets/image/0007/338533/Cool-Water-Wonders.jpg

Resource 5: Cairns Aquarium Excursion

What it is:

An excursion for primary school students where they will follow the journey of a raindrop as it descends from the mountain ranges, joins creeks, streams and flooded billabongs, travels through the rainforest, past the mangroves, through the Great Barrier Reef and finally into the depths of the Coral Sea. Their education programs are designed for all ages and are aligned to learning outcomes of the National Australian Curriculum's 'Biological Science' and 'Science as a Human Endeavour' strand.

Price for primary students is \$20 per student and the teaching program includes a guided 2-hour tour with an AquaNut educator, a hands-on interactive session at the Terrestrial and Marine touch tank, a teacher's handbook and a student worksheet.

The excursion focuses on the following habitats:

- River Systems
- Creeks and Streams
- Flooded Waterways and
- Billabongs
- Tropical Rainforest
- Forest FloorLife in the Mangroves
- The Great Barrier Reef
- The Coral Sea

The excursion is linked to the following curriculum for each grade:

file:///C:/Users/Emily/Downloads/Education_Programs_V2_15018.pdf

Learning intention:

- I will understand conservation and protection models of Australia's precious fish resources and habitats.

Link to resource:

[Cairns Aquarium \(2019\). *Education Programs for Local Schools*. Retrieved from https://www.cairnsaquarium.com.au/cairns-animal-education#education](https://www.cairnsaquarium.com.au/cairns-animal-education#education)

Resource 6: OCEAN KIDS School Excursion and Overnight Adventure Camp (With Supporting Worksheets) - Queensland

What it is:

Curriculum supported and instructor led based OCEAN KIDS Program school excursions using exploration, problem solving, questioning and investigating, interactive activities. Each excursion is three hours (or there is an overnight adventure camp) and suitable for Grades K-6.

Program also caters for special needs students.

Excursion options include:

- Habitats (K-Year 2) – This excursion highlights the wonder of the aquatic world and allows for a journey of discovery where problem solving and care for the marine environment are encouraged and fostered. Links to curriculum include: ACSSU211, ACSSU002, ACSIS024, ACSIS037 ACSIS011, ACSIS024, ACSIS037 & ACSISU044
- External features (Years 1 -2) – This excursion teaches students about the wonderful objects in the sea, and their shapes, sizes, names & colours and why animals and plants are designed the way they are for their survival. Links to curriculum include: ACMMG009, ACMNA005, ACSSU005, ACSHE013, ACSIS233 & ACSIS012 & ACIS017
- Animal Breeding (Years 1-2) - This excursion is designed to teach students about plants and animals of the aquatic world and the ways in which they change and grow over time through the exploration of 16 different interactive zones. Links to curriculum include: ACSSU002, ACSIS024, ACSSU1030, ACSIS037, ACSIS011, ACSIS024, ACSIS037 & ACSSU044
- Life Cycles (Years 3 and 4) – This excursion looks at the different life cycles of animals in aquatic environments and how they differ from plants. Links to curriculum include: ACSSU072, ACSHE051, ACSHE062
- Classification (Years 3 and 4) – This excursion will introduce students to a variety of habitats and the fascinating animals which call them home. Students will deepen their understanding of the differences between living, once living and products of living things by examining ocean artefacts and a range of unique organisms. Links to curriculum include: ACSSU044 & ACSHE083

- Food Webs (Years 3 and 4) – This excursion is designed for students to explore a variety of marine habitats and investigate the lives of the species who live there. Links to curriculum include: ACSSU094, ACSSU073, ACSSU078 & ACSSU096, ACSHE051, ACSHE062
- Adaptations (Years 5 and 6) – This excursion is designed to teach students all about the three different adaptations animals and plants have to survive in the aquatic environment – structural, functional and behavioural. This program also looks at relationships between animal structural and functional adaptations. Links to curriculum include: ACSSU043, ACSSU094, ACSHE083, ACSHE100
- Conservation (Suitable for all primary grades) – This excursion will teach students about how science is used to protect aquatic habitats and how people in our local community work together to save endangered species. Students will also investigate different renewable resources. Links to curriculum include: ACSSU112, ACSSU116 & ACSSU075

Worksheets are also provided for teachers to download and use in the classroom prior to the excursion or after for each excursion option.

Cost is \$19.50 per student/accompanying teachers for the three-hour excursion options or \$115.00 per student/accompanying teacher per Adventure Camp.

Learning intentions:

- I will recognise and compare the needs of living creatures, including their homes and plants needed to survive
- I understand why marine animals are the way they are to maximise their survival
- I can recognise the different characteristics of many different marine animals
- I can describe the different stages of the life cycles of many different marine animals
- I can use tools to identify animals based on their physical characteristics and classify them into groups
- I can identify the roles species have in food chains and the impact humans can have on these.
- I understand how science is used to protect marine environments and animals

Links to resources:

Sealife Sunshine Coast. (2019). *Guided Excursion Programs Primary*. Retrieved from [https://www.underwaterworld.com.au/schools/guided-tour-program-primary/Sealife Sunshine Coast](https://www.underwaterworld.com.au/schools/guided-tour-program-primary/Sealife%20Sunshine%20Coast). (2019). *Ocean Kids Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3682/sea-life-ocean-kids-worksheet_habitats_foundation_nz-level-12.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids Habitats Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3683/sea-life-ocean-kids-worksheet_habitats_stage-1-year-12_nz-level-12.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids External Features Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3680/sea-life-ocean-kids-worksheet_external-features_stage-1-year-1_nz-level-12.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids Animal Breeding Worksheet* Retrieved from https://www.underwaterworld.com.au/media/3677/sea-life-ocean-kids-worksheet_animal-breeding_stage-1-year-12_nz-level-12.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids Life Cycles Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3684/sea-life-ocean-kids-worksheet_life-cycles_stage-2-year-34_nz-level-34.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids Classification Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3678/sea-life-ocean-kids-worksheet_classification_stage-2-year-34_nz-level-34.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids Food Webs Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3681/sea-life-ocean-kids-worksheet_food-webs_stage-2-year-34_nz-level-34.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids Adaptions Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3676/sea-life-ocean-kids-worksheet_adaptations_stage-3-year-56_nz-level-56.pdf

Sealife Sunshine Coast. (2019). *Ocean Kids Conservation Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3679/sea-life-ocean-kids-worksheet_conservation_all-primary-stages_nz-living-world.pdf

Resource 7 – One in a Thousand: The Miraculous Life of the Sea Turtle

What it is:

A DVD of a story of a sea turtle stranded on a beach that leads the student on a journey of discovery about its life and the many dangers and threats the species must overcome in the oceans and on the nesting beaches.

Learning intentions:

- I will understand sea turtle biology
- I will understand sea turtle conservation techniques

Link to resource:

Seaweek. (March 2007). *Australian Sea Turtles*. Retrieved from http://www.mesa.edu.au/seaweek2007/info_sheets/Sea_Turtles.pdf

Copy of DVD in FRDC office

Resource 8: OCEAN KIDS School Excursion (With Supporting Worksheets) - Melbourne

What it is:

Curriculum supported and instructor led based OCEAN KIDS Program school excursion program.

Aligned with the Victorian Curriculum with a focus on STEM disciplines, the programs bring students face-to-face with marine animals, inspiring their curiosity about the natural world and how they can help to protect it.

Excursion options include:

- Habitat (Years K to Year 2) - Students embark on an underwater journey to meet the animals on display and discover their unique features. They will identify the basic needs of living things and learn about the diverse ways animals survive in their habitats. Students will also learn how some animals' features are adapted to their environment and make comparisons with familiar animals. Links to curriculum include: VCSSU042, VCSSU043, VCSSU041, VCSIS050, VCSIS051
- Adaptations and Classifications (Years 3 and 4) - SEALIFE educators will introduce students to a variety of habitats, investigating how animals have adapted to survive in a variety of conditions, and how these influence their growth and survival. Students will deepen their understanding of the differences between living, once living and products of living things by examining ocean artefacts and a range of unique organisms. They will be given the tools to identify animals based on physical characteristics and classify them into groups. Links to curriculum include: VCSSU057, VCSSU058, VCSSU056
- Food Webs and Life Cycles (Years 3 and 4) - Students will explore a variety of marine habitats and investigate the lives of the species that live there. They will identify the roles species have in food chains and the impact humans can have on these. They will also observe animals in different stages of their life cycles and learn about the diverse ways marine creatures have young. Links to curriculum include: VCSSU058, VCSSU057, VCSSU056
- Extreme Survival (Years 5 and 6) – This excursion option has a focus on extreme habitats including coral reefs, open ocean, rock pools and Antarctica. Students will investigate how animals have adapted to survive in a variety of conditions, and how these influence their growth and survival. Students will also participate in a hands-on investigation using model jaws to discover how dentition and jaw shape are adapted to different diets. Links to relevant curriculum include: VCSSU074, VCSSU075, VCSSU056, VCSSU079
- Conservation (Years K to 6) - This excursion will introduce students to different species as they learn about sustainability in our oceans. Students will get up close with animals from diverse habitats and discuss some of the human impacts threatening their survival. They will explore these issues and leave empowered to make a difference by learning how small actions can make a big change. Links to relevant curriculum: VCSSU042, VCSSU043, VCSSU041, VCSIS050, VCSIS051

Worksheets and teacher scripts are also provided for teachers to download and use in the classroom prior to the excursion or after for each excursion option.

There is also a Teacher's Club called the Merlin Teachers' Club which provides special teacher offers, competitions and behind the scenes pictures and videos suitable for classroom use.

Cost is \$18.70 per student and \$28.05 for each accompanying teacher for a two-hour excursion option.

Excursions also cater for special needs students

Learning intentions:

- I can identify the basic needs of living things and learn about the diverse ways animals survive in their habitats.
- I understand the characteristics of living, once living and products of living things and the external features of animals
- I understand how marine animals have evolved to adapt and survive
- I understand the life cycle of the marine environment and how animals are part of this and the food chain.
- I understand how healthy habitats are important to the marine ecosystem
- I understand the different types of marine habitats in Australia and how marine animals have adapted for survival
- I understand how conservation issues and actions impact marine sustainability

Links to resources:

[Sealife. \(2019\) Guided Primary Excursion Programs. Retrieved from https://www.melbourneaquarium.com.au/schools/guided-programs-primary/](https://www.melbourneaquarium.com.au/schools/guided-programs-primary/)

[Sealife. \(2019\) Free School Resources. Retrieved from https://www.melbourneaquarium.com.au/schools/school-resources/](https://www.melbourneaquarium.com.au/schools/school-resources/)

[Sealife. \(2019\) World Turtle Day. Retrieved from https://www.melbourneaquarium.com.au/media/6798/sea-life-melbourne-world-turtle-day-primary-school-resources.pdf](https://www.melbourneaquarium.com.au/media/6798/sea-life-melbourne-world-turtle-day-primary-school-resources.pdf)

Resource 9: Alien Fish with Dr Dave

What it is:

A video on introduced species to the Murray-Darling Basin and the impact they have on native fish stocks.

Learning intention:

- I understand what introduced species are and their impact on habitats.

Link to resource:

[Mdbamedia \(April 2012\) Alien Fish – With Dr Dave. Retrieved from https://www.youtube.com/watch?v=USRk17C526w&list=PLC1CAEE22BDF5BD7D&index=10&feature=plpp_video](https://www.youtube.com/watch?v=USRk17C526w&list=PLC1CAEE22BDF5BD7D&index=10&feature=plpp_video)

Resource 10: Ocean Guardians Saving the Shearwater Birds- Social Action (60 min lesson)

What it is:

Accompanied by a video, in this social action lesson, students will become ocean guardians by designing their own solutions to reducing throw away plastic. Students will explore how waste plastic links to the current plight of the Shearwater in the video from Blue the Film.

Includes teacher and student worksheets (which are accessible by signing up and logging in)

Links to relevant curriculum include:

- Year 3 & 4 HASS Inquiry and skills - Pose questions to investigate people, events, places and issues (ACHASSI052, ACHASSI073)
- Locate and collect information and data from different sources, including observations (ACHASSI053, ACHASSI074)
- Interact with others with respect to share points of view (ACHASSI059, ACHASSI080)
- Reflect on learning to propose actions in response to an issue or challenge and consider possible effects of proposed actions (ACHASSI060, ACHASSI081)
- Present ideas, findings and conclusions in texts and modes that incorporate digital and non-digital representations and discipline specific terms (ACHASSI061, ACHASSI082)
- Year 3 Science - Science knowledge helps people to understand the effect of their actions (ACSHE051)
- Year 4 Science - Science knowledge helps people to understand the effect of their actions (ACSHE062)
- Year 3 English - Identify the audience and purpose of imaginative, informative and persuasive texts (ACELY1678)
- Year 4 English - Identify characteristic features used in imaginative, informative and persuasive texts to meet the purpose of the text (ACELY1690)
- General capabilities: Critical and creative thinking.
- Cross-curriculum priority: Sustainability OI.4, OI.5, OI.7, OI.9.
- Relevant parts of Year 3 achievement standards: Students pose questions and locate and collect information from sources, including observations, to answer these questions. They examine information to identify a point of view and interpret data to identify and describe simple distributions. Students draw simple conclusions and share their views on an issue. They reflect

on their learning to suggest individual action in response to an issue or challenge. Students communicate their ideas, findings and conclusions in oral, visual and written forms using simple discipline-specific terms.

- English Year 3: They understand how language can be used to express feelings and opinions on topics.
- Year 4: Students recognise the significance of events in bringing about change and the importance of the environment. They identify the interconnections between components of the environment and between people and the environment. Students locate and collect information and data from different sources, including observations, to answer these questions. They share their points of view, respecting the views of others. Students reflect on their learning to propose action in response to an issue or challenge and identify the possible effects of their proposed action. They present ideas, findings and conclusions using discipline-specific terms in a range of communication forms.
- English Year 4: Students create structured texts to explain ideas for different audiences.

Learning intention:

- Students will understand the impact our plastic use has on the environment and how to take action to reduce plastic waste.

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: Ocean Guardians Saving the Shearwater Birds – Social Action – Year 3 & 4.](https://www.coolaustralia.org/activity/blue-ocean-guardians-saving-the-shearwater-birds-social-action-year-3-4/) Retrieved from <https://www.coolaustralia.org/activity/blue-ocean-guardians-saving-the-shearwater-birds-social-action-year-3-4/>

Resource 11: Without Blue There is No Green. Video with Comprehension. Q&A (60 min lesson)

What it is:

This lesson incorporates clips from Blue the Film as learning inspiration. Students are introduced to the topics of the unit by exploring how they feel about the ocean and some of the animals that live there. Students are then asked to consider what life in the ocean is like and investigate the concept that without BLUE (the ocean) there is no GREEN (the land). Students respond to this concept by developing their own creative piece to inspire others to connect to the ocean.

Includes teacher and student worksheets (which are accessible by signing up and logging in).

Links to relevant curriculum include:

- Year 5 English - Plan, draft and publish imaginative, informative and persuasive print and multimodal texts, choosing text structures, language features, images and sound appropriate to purpose and audience (ACELY1704)
- Year 6 English - Plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience (ACELY1714)
- Year 5 Science - Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083)
- Year 6 Science - Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE100)
- Syllabus outcomes: EN3-2A, ST3-7PW.
- General capabilities: Critical and creative Thinking, Literacy.
- Cross-curriculum priority: Sustainability OI.1.
- Relevant parts of Year 5 English achievement standards: Students create imaginative, informative and persuasive texts for different purposes and audiences.
- Relevant parts of Year 6 English achievement standards: Students create detailed texts elaborating on key ideas for a range of purposes and audiences.
- Relevant parts of Year 5 Science achievement standards: Students discuss how scientific developments help us solve problems.
- Relevant parts of Year 6 Science achievement standards: Students explain how scientific knowledge helps us to solve problems.

Learning intention:

- Students understand that the health of life on land is dependent upon healthy oceans.

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: Without Blue There Is No Green – Years 5 & 6. Retrieved from https://www.coolaustralia.org/activity/blue-without-blue-no-green-years-5-6/](https://www.coolaustralia.org/activity/blue-without-blue-no-green-years-5-6/)

Resource 12: Ocean Health Creative Writing (90 min lesson)

What it is:

Accompanied by a video, in this finding out lesson, students will use visible thinking routines to respond to a clip from Blue the Film exploring the importance of the ocean and the changes occurring to ocean ecosystems. They will build their understanding of creative writing and meaning communicated using sensory language. Using visual images and information about the state of the ocean as stimulus, students will develop their creative writing and editing skills through an activity wherein they use sensory language to create meaning about the significance of the ocean.

Includes teacher and student worksheets (which are accessible by signing up and logging in).

Links to curriculum include:

- Plan, draft and publish imaginative, informative and persuasive texts, selecting aspects of subject matter and particular language, visual, and audio features to convey information and ideas (ACELY1725)
- Edit for meaning by removing repetition, refining ideas, reordering sentences and adding or substituting words for impact (ACELY1726)
- Syllabus outcomes: EN4-2A, EN4-4B
- General capabilities: Literacy, Personal and Social Capability, Ethical Understanding, Critical and Creative Thinking, Information and Communication Technology (ICT).
- Cross-curriculum priority: Sustainability.
- Relevant parts of Year 7 English achievement standards: Students demonstrate understanding of how the choice of language features, images and vocabulary affects meaning. They understand how the selection of a variety of language features can influence an audience. Students create structured and coherent texts for a range of purposes and audiences. They demonstrate understanding of grammar, use a variety of more specialised vocabulary and accurate spelling and punctuation.

Learning intentions:

- To build understanding of creative writing and meaning communicated using sensory language.
- To respond to a variety of visual stimulus and how sensory language can be used to communicate and engage about various elements of this role in the global environment.

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: Ocean Health Creative Writing – English – Year 7. Retrieved from https://www.coolaustralia.org/activity/blue-ocean-health-creative-writing-english-year-7/](https://www.coolaustralia.org/activity/blue-ocean-health-creative-writing-english-year-7/)

Resource 13: How Are We Connected to the Ocean? Sea Story Stones. (60 min lesson)

What it is:

This lesson incorporates clips from Blue the Film as learning inspiration. Students are introduced to the topics of the unit by exploring their personal connections to the ocean and taking part in a mindfulness exploration of the ocean. This allows students to establish a personal connection to the ocean by engaging with their senses, including listening, moving and feeling. Students then create ocean symbols on sea story stones. They then participate in creative and interactive storytelling about the ocean using their own sea story stones.

Teacher and student worksheets are available to download by signing up and logging in.

Links to relevant curriculum include:

- Foundation English - Create short texts to explore, record and report ideas and events using familiar words and beginning writing knowledge (ACELY1651)
- Year 1 English - Create short imaginative and informative texts that show emerging use of appropriate text structure, sentence-level grammar, word choice, spelling, punctuation and appropriate multimodal elements, for example illustrations and diagrams (ACELY1661)
- Year 2 English - Create short imaginative, informative and persuasive texts using growing knowledge of text structures and language features for familiar and some less familiar audiences, selecting print and multimodal elements appropriate to the audience and purpose (ACELY1671)
- Foundation Health and Physical Education - Identify and describe emotional responses people may experience in different situations (ACPPS005)
- Identify actions that promote health, safety and wellbeing (ACPPS006)
- Practise personal and social skills to interact positively with others (ACPPS004)
- Years 1 and 2 Health and Physical Education - Identify and practise emotional responses that account for own and others' feelings (ACPPS020)
- Explore actions that help make the classroom a healthy, safe and active place (ACPPS022)
- Syllabus outcomes: ENe-2A, EN1-2A, INES1.3, IPES1.11, SLES1.13, PHES1.2, COES1.1, COS1.1, INS1.3, IRS1.11, SLS1.13.
- General capabilities: Critical and Creative Thinking.
- Cross-curriculum priority: Sustainability OI.7.
- Relevant parts of Foundation English achievement standards: Students understand that their texts can reflect their own experiences.
- Relevant parts of Year 1 English achievement standards: Students create short texts for a small range of purposes.
- Relevant parts of Year 2 English achievement standards: Students create texts, drawing on their own experiences, their imagination and information they have learnt.
- Relevant parts of Foundation Health and Physical Education achievement standards: Students use personal and social skills when working with others in a range of activities. They identify and describe the different emotions people experience.
- Relevant parts of Years 1 and 2 Health and Physical Education achievement standards: Students recognise how strengths and achievements contribute to identities. They identify how emotional responses impact on others' feelings.

Learning intention:

- Students understand how they feel about the ocean and the creatures that live there.

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: How Are We Connected To the Ocean? Sea Story Stones – F to 2.](https://www.coolaustralia.org/activity/blue-connected-ocean-sea-story-stones-f-2/)
Retrieved from <https://www.coolaustralia.org/activity/blue-connected-ocean-sea-story-stones-f-2/>

Resource 14: Plastic not so Fantastic. (60 minute lesson)

What it is:

This lesson incorporates clips from Blue the Film as learning inspiration. Students explore the different types of plastics that are found in our oceans. They begin by participating in a prior knowledge quick draw activity to tune them into the issue of plastic waste. They then conduct an experiment to observe how plastic and liquid sources of pollution interact with our oceans. Following an analysis of their results, students return to their quick draw activity to record how their thinking has changed over the course of this lesson.

Teacher and student worksheets are available to download by signing up and logging in.

Links to relevant curriculum include:

- Year 5 Science - Solids, liquids and gases have different observable properties and behave in different ways (ACSSU077)
- Decide variables to be changed and measured in fair tests, and observe measure and record data with accuracy using digital technologies as appropriate (AC SIS087)
- Compare data with predictions and use as evidence in developing explanations (AC SIS218)
- Reflect on and suggest improvements to scientific investigations (AC SIS091)
- Year 6 Science - Changes to materials can be reversible or irreversible (ACSSU095)
- Identify, plan and apply the elements of scientific investigations to answer questions and solve problems using equipment and materials safely and identifying potential risks (AC SIS103)
- Compare data with predictions and use as evidence in developing explanations (AC SIS221)
- Reflect on and suggest improvements to scientific investigations (AC SIS108)
- Syllabus outcomes: ST3-12MW, ST3-4WS.
- General capabilities: Critical and Creative Thinking.
- Cross-curriculum priority: Sustainability OI.7.
- Relevant parts of Year 5 Science achievement standards: Students classify substances according to their observable properties and behaviours. Students use equipment in ways that are safe and improve the accuracy of their observations. They compare patterns in their data with predictions when suggesting explanations.
- Relevant parts of Year 6 Science achievement standards: Students compare and classify different types of observable changes to materials. They follow procedures to develop investigable questions and design investigations into simple cause-and-effect relationships, and identify where improvements to their methods or research could improve the data.

Learning intentions:

- Students understand how different materials (hard and soft plastics, liquids and oils) interact with the ocean,
- Students understand how different types of waste impact our oceans.

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: Plastic Not So Fantastic – Years 5 & 6.](https://www.coolaustralia.org/activity/blue-plastic-not-fantastic-years-5-6/) Retrieved from <https://www.coolaustralia.org/activity/blue-plastic-not-fantastic-years-5-6/>

Resource 15: Ocean Conservation

What it is:

A series of fact sheets designed for students for use in the classroom on a variety of fishing and ocean conservation topics.

Note – some of the fact sheets discuss global overfishing issues which can cause confusion within an Australian context

Learning intentions:

- To create advocacy and behavioural change.
- To understand more about the ocean environment and the conservation measure that take place

Links to resources:

[Coolaustralia.org \(n.d.\) Topic: Ocean Conversation.](https://www.coolaustralia.org/ca_topic/ocean-conservation/) Retrieved from https://www.coolaustralia.org/ca_topic/ocean-conservation/

[Coolaustralia.org \(n.d.\) Plastic Pollution Factsheet.](https://prod-media.coolaustralia.org/wp-content/uploads/2017/09/06163638/Blue_Plastic-Pollution-Factsheet_CI_FINAL2.pdf) Retrieved from https://prod-media.coolaustralia.org/wp-content/uploads/2017/09/06163638/Blue_Plastic-Pollution-Factsheet_CI_FINAL2.pdf

[Coolaustralia.org \(n.d.\) Coral Reefs Factsheet.](https://prod-media.coolaustralia.org/wp-content/uploads/2017/06/06163703/Blue_Coral-Reefs-Factsheet_CI_FINAL2.pdf) Retrieved from https://prod-media.coolaustralia.org/wp-content/uploads/2017/06/06163703/Blue_Coral-Reefs-Factsheet_CI_FINAL2.pdf

[Coolaustralia.org \(n.d.\) Our Oceans Factsheet.](https://prod-media.coolaustralia.org/wp-content/uploads/2017/06/06163612/Blue_Our-Oceans-EL-and-Primary_CI_FINAL3.pdf) Retrieved from https://prod-media.coolaustralia.org/wp-content/uploads/2017/06/06163612/Blue_Our-Oceans-EL-and-Primary_CI_FINAL3.pdf

[Coolaustralia.org \(n.d.\) Our Oceans Factsheet.](https://prod-media.coolaustralia.org/wp-content/uploads/2017/06/06163612/Blue_Our-Oceans-EL-and-Primary_CI_FINAL3.pdf) Retrieved from https://prod-media.coolaustralia.org/wp-content/uploads/2017/06/06163612/Blue_Our-Oceans-EL-and-Primary_CI_FINAL3.pdf

Resource 16: Cool Water Wonders

What it is:

A poster showing the different and common marine species found within Victorian waters

Learning intention:

- I understand the variety of fish and seafood found in Victorian waters and can identify and label them

Link to resource:

[Victoria Fisheries Authority \(2019\) Cool Water Wonders of Victoria's Marine National Parks and Sanctuaries](https://vfa.vic.gov.au/_data/assets/image/0007/338533/Cool-Water-Wonders.jpg). Retrieved from https://vfa.vic.gov.au/_data/assets/image/0007/338533/Cool-Water-Wonders.jpg

Resource 17: ABC of Cool Water Wonders

What it is:

A poster showing typical species of marine life in Victoria using the alphabet to name and describe them

Learning intention:

- I can name species of marine life for each letter of the alphabet

Link to resource:

[Victoria Fisheries Authority \(2019\) Cool Water Wonders of Victoria's Marine National Parks and Sanctuaries](https://vfa.vic.gov.au/_data/assets/image/0007/338533/Cool-Water-Wonders.jpg). Retrieved from https://vfa.vic.gov.au/_data/assets/image/0007/338533/Cool-Water-Wonders.jpg

Resource 18: Beachcombers Education Kit

What it is:

A comprehensive teacher's guide with activities, excursions and information about beaches, fishing and sustainability.

Contains worksheets materials on the following topics:

- Beachcombing Basics
- Site Choice
- Pre-excursion Activity Ideas
- Conducting your beachcombing field trip
- Post-excursion Activity Ideas
- List of species you may find on the beach

Learning intentions:

- I will have a full understanding of the beach, beachcombing and how it links to fishing and the industry.
- I can describe the dangers and consequences to the industry if beaches are not cared for appropriately.

Link to resource:

Government of Western Australia. (n.d.) *Beachcombing*. Retrieved from <http://beachcombers-kit.fish.wa.gov.au/beachcombing/>

Resource 19: Sustaining our World (60-minute lesson plan)

What it is:

A 60-minute lesson plan in which students investigate sustainable fishing practices. Kit includes a number of teaching resources and is suitable for Year 4.

A subscription to the portal is required to obtain access.

Linkages to curriculum include:

- CHASSK090 - Humanities and Social Sciences, Knowledge and Understanding Geography - The use and management of natural resources and waste, and the different views on how to do this sustainably.
- ACHASSK086 - Humanities and Social Sciences, Knowledge and Understanding History - The nature of contact between Aboriginal and Torres Strait Islander Peoples and others, for example, the Macassans and the Europeans, and the effects of these interactions.
- ACHASSI082 - Humanities and Social Sciences, Inquiry and Communication Skills - Present ideas, findings and conclusions in texts and modes that incorporate digital and non-digital representations and discipline-specific terms
- ACHASSI081 - Humanities and Social Sciences, Inquiry, Evaluating and Reflecting - Reflect on learning to propose actions in response to an issue or challenge and consider possible effects of proposed actions.
- ACHASSI078 - Humanities and Social Sciences, Inquiry and Analysing - Interpret data and information displayed in different formats, to identify and describe distributions and simple patterns.
- ACHASSI080 - Humanities and Social Sciences, Inquiry, Evaluating and Reflecting - Interact with others with respect to share points of view.
- ACHASSI079 - Humanities and Social Sciences, Inquiry, Evaluating and Reflecting - Draw simple conclusions based on analysis of information and data.

Learning intentions:

- I understand the use and management of natural resources sustainably.
- I propose actions to an issue or challenge and consider possible effects.

Link to resource:

[Teacherstarter \(2019\). Lesson 9: Sustainable Fishing. Retrieved from https://www.teachstarter.com/au/lesson-plan/sustainable-fishing/](https://www.teachstarter.com/au/lesson-plan/sustainable-fishing/)

Resource 20: Protecting Our Fishing Future

What it is:

A teacher's portal providing lesson plans and accompanying worksheets developed by AFMA.

Learning intentions:

- I understand environmental sustainability and fisheries management.
- I understand the importance of protecting the future of our fisheries.

Link to resource:

[For Teachers For Students \(n.d.\) Protecting Our Fishing Future. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/)

[For Teachers For Students \(n.d.\) Protecting Our Fishing Future – Facts for Students. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/facts/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/facts/)

[For Teachers For Students \(n.d.\) Protecting Our Fishing Future – Lessons and Activity Sheets. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/lesson-ideas/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/lesson-ideas/)

[For Teachers For Students \(n.d.\) Protecting Our Fishing Future – Extra Resources. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/extra-resources/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/extra-resources/)

Resource 21: Who Lives Where?

What it is:

A teacher's kit consisting of lesson plans, PowerPoint lessons, articles and factsheets that covers the following topics:

- Diversity of marine habitats in Western Australia.

- The different marine habitats and animal species that inhabit that habitat.
- Threats to different marine habitats.
- Benefits to the wider marine ecosystem of each habitat type.

Links to relevant curriculum include:

- ACELY1682
- ACELY1694
- ACELY1704
- ACHGK014
- ACHGK051
- ACSHE062
- ACSSU043
- ACSSU073
- ACSSU094

Learning intentions:

- I can describe the different marine habitats found in Western Australia and the animals that live there
- I understand the threats to different marine habitats
- I can describe the benefits to the wider marine ecosystem of each habitat.

Link to resource:

[Marine Waters \(n.d.\) Who Lives Where. Retrieved from http://marinewaters.fish.wa.gov.au/resources/who-lives-where/#.XQOXiBYzaUk](http://marinewaters.fish.wa.gov.au/resources/who-lives-where/#.XQOXiBYzaUk)

Resource 22: What's a Fish?

What it is:

A series of lesson plans, with supporting posters and articles where students will learn about the features used to classify fish and compare them to features of other organisms. The lesson focuses closely on the external features of bony fish and how they help fish to survive underwater.

Links to relevant curriculum include:

- ACSHE021
- ACSIS027
- ACSIS057
- ACSIS090
- ACSIS093
- ACSIS213
- ACSSU017

- ACSSU043
- ACSSU044
- ACSSU111

Learning intentions:

- I can list characteristics of fish
- I can label bony parts of a fish and describe their functions

Link to resource:

Marine Waters (n.d.) *What's A Fish*. Retrieved from <http://marinewaters.fish.wa.gov.au/resources/whats-a-fish/#.XQOYHhYzaUk>

Resource 23: Habitat Protectors

What it is:

A teacher's kit that contains lesson plans, articles, PowerPoint lessons, fact sheets, posters and YouTube videos to support students to investigate the role seagrass meadows play in providing an important nearshore habitat for marine organisms. Students will also identify risks to the integrity of seagrass communities and investigate improved management strategies. Topics covered include:

- Beachcomber
- Biodiversity
- Ecosystems
- Human Impacts
- Seagrasses

Links to relevant curriculum include:

- ACHGK070
- ACSHE217
- ACSSU094

Learning intentions:

- I recognise seagrass meadows are as an important and fragile marine habitat
- I can investigate and measure turbidity
- I understand how light availability affects the growth of plants.

Link to resource:

Marine Waters (n.d.). *Habitat Protectors*. Retrieved from <http://marinewaters.fish.wa.gov.au/resources/habitat-protectors/#.XQOYjBYzaUk>

Resource 24: Rainbow Fish Ocean Zones

What it is:

The Rainbow Fish: Ocean Zones is an activity kit where students will learn about the different zones in the ocean and how organisms adapt to survive in these environments.

Topics covered include:

- Adaptations
- Biodiversity
- Biology
- Ocean Zones

Links to relevant curriculum are:

- ACELA1453
- ACELA1786
- ACELY1646
- ACELY1648
- ACELY1656
- ACELY1789
- ACSHE021
- ACSIS012
- ACSIS014
- ACSIS233
- ACSSU211

Learning intentions:

- I understand that the ocean is made up of very different zones.
- I have knowledge of the organisms that inhabit the different zones of the ocean.
- I understand that organisms have adaptations that help survive in the different ocean zones

Link to resource:

Marine Waters (n.d.) *Rainbow Fish Ocean Zones*. Retrieved from <http://marinewaters.fish.wa.gov.au/resources/rainbow-fish-ocean-zones/#.XQOazxYzaUk>

Resource 25: Sustaining River Life

What it is:

This program is suitable for K-12 Curriculum and contains an activity guide book for teachers called 'Sustaining River Life'. This resource is part of the Upper Murrumbidgee Waterwatch and its project partners encourage educators to reproduce and use for educational and non-commercial purposes in whole or in part (barring photographic material).

Waterwatch coordinators can assist with field trips or teachers can use the activities book to create a self-guided excursion.

Learning intentions:

- I understand the eco-system of the river system
- I can conduct water quality and habitat assessments
- I understand the necessary requirements for river health

Link to resource:

[Waterwatch. \(October 2015\) Waterwatch Education Program. Retrieved from http://www.act.waterwatch.org.au/Education%20SRL.html](http://www.act.waterwatch.org.au/Education%20SRL.html)

Resource 26: Marine Links Teacher Kit

What it is:

The *Marine Links* Kit also contains an education folder focusing on curriculum areas for Grades 5-8 students. There are 5 teaching units which are:

- Unit 1 - Marine and Coastal Habitats
- Unit 2 - Marine Life
- Unit 3 - Sustainable Fisheries
- Unit 4 - Marine Reserves
- Unit 5 - Human Influences

The kit includes:

- Marine textbooks
- Fish display posters
- Pamphlets, maps and fisheries awareness brochures
- A set of model fishing gear including lobster pots/rings, nets and setlines
- Moulds of recreational fish species
- Classroom exercises

Links to relevant curriculum:

- Science - Working scientifically, Life and living
- English - Speaking and Listening, Reading and Viewing, Writing
- SOSE – Natural and Social Systems, Investigation, Communication and Participation
- Technology - Information

Link to resource:

[Department of Primary Industries, Parks, Water and Environment \(n.d.\) Marine Links Education Kit.](https://dpiwwe.tas.gov.au/sea-fishing-aquaculture/publications-and-products/marine-links-education-kit)
Retrieved from <https://dpiwwe.tas.gov.au/sea-fishing-aquaculture/publications-and-products/marine-links-education-kit>

Resource 27: Woodbridge Marine Discovery Centre School Excursions

What it is:

The Woodbridge Marine Discovery Centre offers school excursions (Years K to 12) to challenge students of all ages to learn about, discover and care for the marine environment through diverse shore and sea-based programs.

Built out over the waters of the D'Entrecasteaux Channel, the Centre is in the ideal location to help Tasmanian students learn about their marine environment. The Centre houses fully equipped teaching areas, an aquarium room, marine pond, touch tanks and lots of displays as well as a large collection of cool temperate marine species. The Centre also has its own 13.5m research vessel, the *Penghana*, and a marine farming lease.

The *RV Penghana* provides an excellent floating classroom for secondary students to explore the Channel environment in more depth. It is fully equipped with up-to-date GPS, radar and sonar equipment as well as oceanographic and biodiversity sampling equipment, a variety of fishing technologies and an underwater video camera.

Staff at the Centre also run professional development seminars for teachers, take part in community events and run school holiday activities. Outreach programs are also taken to other parts of the state.

Learning intentions:

- I understand the diversity of invertebrates found in the Channel
- I can investigate what lives in the intertidal zone
- I can perform experiments into the effects of marine pollution
- I can make marine-inspired art works
- I can study live specimens looking at how they fit into the Channel food web and how they have adapted to their environment.

Link to resource:

Marine Discovery Centres Australia (2019). *Woodbridge Marine Discovery Centre, Tasmania*. Retrieved from <https://www.mdca.org.au/centres/woodbridge/>

Resource 28: Marine Pests and Threats in Australian Waters

What it is:

A school project ideas generator based on the topic of marine pests that inhabit Australian waters

Learning intentions:

- I can critically examine pests and threats to marine life
- I can identify strategies provided for minimising identified threats

Link to resource:

AUSMEPA (n.d.) *Marine Pests and Threats in Australian Waters*. Retrieved from <https://www.ausmepa.org.au/students/student-research/pests/>

Resource 29: Marine Stormwater Pollution

What it is:

This website education program is aimed to help people protect our marine environment. Students will learn how easy it is for careless people to pollute our seas and oceans but at the same time how easy it is to prevent marine pollution.

Along with this information, teachers can download curriculum materials and activity sheets. There is enough material for teachers to organise a unit of work on marine stormwater pollution.

Learning intentions:

- I understand how to find out if the sea is polluted
- I understand that that most marine pollution originates from land
- I understand that litter in the sea harms sea creatures and pollutes the seawater
- I can recognise where pollution comes from
- I can identify who is responsible for pollution

Link to resource:

AUSMEPA (n.d.) *Marine Stormwater Pollution*. Retrieved from <https://www.ausmepa.org.au/marine-stormwater-pollution/>

Resource 30: Rock Pool Excursions

What it is:

Run by the Bondi Marine Discover Centre, the Centre's Marine Biologist Guides provide students with a hands-on investigation of the genuinely 'wild' marine life that lives on the rock platforms around Sydney.

Learning intentions:

- I understand the structure, function and adaptations of local marine organisms
- I understand Aboriginal heritage through rock engravings and can then link it all together by looking at man's impact on our local environment.

Link to resource:

Marine Discovery Excursions Bondi (n.d.) *Education*. Retrieved from <http://www.marinediscovery.org.au/education.html>

Resource 31: Central Coast Marine Discovery Excursions

What it is:

The Central Coast Marine Discovery Centre (CCMDC) offers a range of fieldwork and excursion programs for primary and secondary students. They provide engaging excursions where students gain hands on experience, collect first-hand data and explore the wonders of our coastal and marine environments. A typical program runs for 4.5 hours and is delivered by qualified CCMDC staff.

Costs are \$732 (incl GST) for maximum of 60 students for full day program (2 CCMDC teachers) or \$470 (incl GST) for less than 30 students (1 CCMDC Teacher).

The following programs are offered for primary school students, with links to COG's units, HSIE or Science & Technology:

- Marine Discovery Program (Stage 1) – The Stage 1 program is focused on discovery. Students use their senses to explore the marine world including touching marine creatures and beach specimens, listening to marine sounds and observing features of marine environments. Their imagination and sense of wonder will be engaged as they explore the Marine Discovery Centre, create marine crafts and gain an awareness of marine environments and some of the impacts

that we have upon them. The day can also include a walk in the remnant wetland, a visit to Terrigal Beach to create marine masterpieces in the sand or even a search for rock pool animals at Bateau Bay Rock Platform.

- Marine Discovery Program (Stage 2) – The Stage 2 program begins at the Marine Discovery Centre (Terrigal) where students investigate the sea life in the Centre’s live aquaria, touch live animals & preserved specimens and discover more about our marine world and local ecosystems via displays. Students use upcycled and household materials to create marine crafts and learn about some of the issues related to marine debris. The remainder of the day may include a visit to Terrigal Beach, Terrigal Lagoon or through the wetlands to investigate the local environment. Students identify the vegetation and animals found living in these ecosystems and may undertake water quality testing, water bug surveys and/or beachcombing activities.
- Marine Studies (Stage 3) - This program has a greater focus on students collecting data to investigate interactions between living things and their environment. The day begins at the Centre with a round robin of activities, including a tour of the centre and completion of a Junior Marine Scientist Quiz. Following this, students investigate the local ecosystems surrounding the MDC which may include the wetlands, mangroves, lagoon, beach and rock platform. Students will have the opportunity to use scientific equipment to collect data on the physical characteristics of these ecosystems and undertake surveys to identify the plants and animals living there.
- Coastal Studies (Stage 2/3) (Bateau Bay Beach) - Students study this local coastal environment through exciting and hands on activities to gain an understanding of how beaches are formed, what is living (and non-living) on beaches and rock platforms and why we need to protect them. The day begins with a short walk through the National Park from Crackneck Lookout to Bateau Bay. Activities include:
 - Beachcombing - discover the marine environment from items washed up on the shore
 - Hands on experiments to investigate how beaches are formed
 - A close look at sand dune plants – how do they survive & why do we need them?
 - Exploration of the rock platform and identification of living things found there
 - Marine themed games & activities
- Catchment Study (Stage 3) - Students undertake a study of the catchment of a local Central Coast creek or river system, sites may include Kincumber, Narara, Wyong or Mangrove Creek. The day will involve travelling from the top of the catchment to the bottom – with stops along the way to test water quality, investigate habitat, sample water bugs and discover local issues. Students will use a variety of scientific equipment to gather first-hand data. Workbooks are provided and a bus is required for the whole day. The Mangrove program can be arranged to include a visit to Mangrove dam.

- Estuary Waterwatch (Stage 3) - The Estuary Waterwatch program investigates the health of an estuary by looking specifically at vegetation (mangroves / saltmarsh), fauna, habitat values and water quality. Students gain valuable field skills by using a range of scientific equipment to collect data and deduce why it is so important to look after their local environment. Locations include Tuggerah Lakes, Brisbane Water or one of Gosford's coastal lagoons.

Learning intentions:

- I can engage with the marine environment and foster an understanding of their importance and the need for protection.

Link to resource:

[Central Coast Marine Discovery Centre \(2013\). School Programs. Retrieved from https://www.ccmdc.org.au/modules/xt_conteudo/index.php?id=11](https://www.ccmdc.org.au/modules/xt_conteudo/index.php?id=11)

Resource 32: Into the Blue

What it is:

The Fisheries Group of DBIRD (Department of Business, Industry and Resource Development) have produced an educational package focusing on the marine environment. The aim of this kit (which includes teacher resources and lesson plans) is to increase students understanding of marine habitats and the responsibility that everyone shares in ensuring that it remains in good health.

The kit consists of:

- Module 2 (for middle primary learners, Band 2) – This kit uses the book "Treacherous Travels of Tasman Turtle" by Simon McLean. The story follows Tasman's travels through the ocean and the challenges he has to overcome along the way.
- Marine Education Posters & Pamphlets – This kit contains a set of posters and fliers centred around a "gutful of plastic" and coast care
- Module 3 (for upper primary learners, Band 3) – This kit uses the book "Blueback" by Tim Winton. The story centres around the life of the character Abel, from his childhood in a small fishing village to his life as a marine biologist.

Note: The book referred to in Module 2 is currently out of print and may not be available in all stores at present but is to be re-released in the future. Another good book that is available in most stores is 'Turtle song' written by Alan Brown.

Learning intention:

- I understand how important marine habitats are and that we are all responsible for healthy, marine environments

Link to resource:

[MESA \(2015\). *Into the Blue*. Retrieved from http://www.mesa.edu.au/friends/nt/default.asp](http://www.mesa.edu.au/friends/nt/default.asp)

Resource 33: Seaweeek

What it is:

Seaweeek is a national initiative conducted annually to focus community awareness, provide information and encourage an appreciation of our marine and coastal environments. Each year a different theme is chosen. For example, the theme for Seaweeek 2019 was ‘The Sea Made Earth Habitable’. The theme provides a focus for students in schools and for communities to inform and inspire them about the diversity of our marine and coastal environments and how, through good management and individual action, we can all contribute towards the sustainability of these environments.

This site has a wide range of resources and information about many topics related to Marine and Coastal Environments. These include some of the following.

- Vic Marine Ed Resource Guide - Whilst developed for Victorian teachers, the majority would be useful to Marine Educators throughout Australia
- Putting a Toe in the Water - A Teachers' Guide to Getting Started with Coastal and Marine Studies in Tasmania. This forty-page book (released June 2002) contains practical activities, ideas and worksheets for teachers interested in integrating coastal and marine studies into their teaching. Whilst developed for Tasmanian teachers, much of it would be useful to Marine Educators throughout Australia.
- Coasts and Marine Schools Project - This is a comprehensive Professional Development program for the development of skills and strategies for including marine education programs in school curricula. The 15 modules and the supporting materials, including Black Line Masters and a Field Activities Guide, are designed to promote inclusion of coastal and marine content in school programs from Kindergarten to
- Ocean Literacy - Ocean Literacy means understanding the ocean’s influence on you and your influence on the ocean. There are 7 principles of Ocean Literacy — ideas scientists and educators agree everyone should understand about the ocean.
- The World Of Crabs - An entire unit of work on crabs that includes a range of activities and games for students that can complete the entire unit or just engage with some of the activities and games as fillers or lessons. The unit can be adapted for any age student but is probably best suited for Upper Primary.
- The A To Z Of Australian Marine Life - This webpage has numerous applications for classroom teaching, particularly in Upper Primary and Middle Years Science. The associated link to “Using the A to Z in teaching” outlines a few ways to use the resource with students, including food chains and food webs, creating fact sheets, research tasks, literacy tasks and many more.
- Life on Australian Seashores by Keith Davies - Although dated, this website resource gives

teachers and students a detailed overview of Australian Seashores. It includes pages on Rocky Shores, Tides and Intertidal Zonation, as well as Environmental and Biological Factors affecting Australian Seashores. This is a useful resource for Middle or Senior High School Science or Geography Students looking at factors affecting biodiversity, ecology, taxonomy and coastal geomorphology. The premise of the website is for students to understand the zonation across rocky shores. As the name suggests, all information and examples are Australian. The website includes a WebQuest and questions for students as well as a list of research questions and information for exploring Australian Seashores.

- Ocean Culture – People And The Sea - The activities listed on this page are mostly for Upper Primary Students and include:
 - Design your own Marine Park, where students learn about the purpose, planning and zoning within marine parks;
 - Ocean Culture Activities, which are creative and engaging activities to run in class such as Create and Underwater City and Theatre of the Sea; and
 - Be a Marine Conservation Scientist for a Day, where students gain an understanding of how Conservationists manage the relationship between people and the sea. This activity can easily be updated to engage students with current technologies. For example, students create an iMovie documentary on a day in the life of a Marine Conservation Scientist.
- Sharks and Sustainability - This 61 page document includes information and activities for a wide range of topics involving sharks. Year levels of students for these activities range, with each activity are clearly marked with targeted year levels. Topics include:
 - Sharks in time (evolution)
 - Tuning in on sharks
 - Cultural shark (Indigenous perspectives)
 - Stormwater – an issue for sharks
 - Researching sharks
 - Biology of sharks
 - Shark art
 - Great debate
 - Why sharks are important
 - Appendix – FAQs, Fact Sheets
- Oceans Of Life – Ours To Explore; Ours To Restore - This resource could be adapted for something as simple as asking Upper Primary students to research the five oceans on Earth, right up to Senior High School Students learning about oceanography, ocean governance, bathymetry and the vertical zonation of oceans. There are also a number of teaching units for Years 1 to 9.
- Marine Bycatch Matters - The resources here are complete online teaching units downloadable as PDFs for Prep to Year 3, Years 4 to 7, Years 8 to 10 and Years 11 to 12. There are information sheets which are also downloadable as PDFs. These have many applications for student research or even as stimulus material for writing tasks.

Learning intention:

- I understand that our oceans and marine environments (and those animals and plants that inhabit them) are fragile and we are all responsible for the health and management of them.

Link to resource:

[AAEE \(n.d.\) SeaWeek 2019: *The Ocean Made Earth Habitable*. Retrieved from http://www.aeee.org.au/events/seaweek/](http://www.aeee.org.au/events/seaweek/)

Resource 34: Marine WATERS – WA Teacher Education Resources

What it is:

The aim of the Marine WATERS is to provide a range of experiences that will develop knowledge, awareness, skills and attitudes that lead to individual behaviours consistent with living with our marine environment in a sustainable manner. Marine WATERS provides teachers and students with the opportunity to participate in both field-based and classroom teaching-learning programs. These will give students the knowledge and skills that will enable them to make better decisions about what they do and the impact they have on the coastal and marine environment.

The lesson plans available on Marine WATERS give students the tools to address outcomes across the Western Australian curriculum framework and new Australian curriculum. Furthermore, by modifying the activities, teachers may be able to address additional learning area outcomes or they may be able to adapt them for use by students at an earlier or later phase of development.

Learning intentions:

- I have increased my knowledge of aquatic biology and ecology
- I understand the science behind the management of our marine environment
- I have increased my knowledge and of the people and the communities in Western Australia that play an important part of the marine and coastal environments

Link to resource:

[Marine Waters \(2019\) *Marine Waters*. Retrieved from https://marinewaters.fish.wa.gov.au/](https://marinewaters.fish.wa.gov.au/)

[Marine Waters \(2019\) *For Teachers*. Retrieved from https://marinewaters.fish.wa.gov.au/discover/for-teachers/](https://marinewaters.fish.wa.gov.au/discover/for-teachers/)

Resource 35: The Great Barrier Reef Marine Park Authority (GBRMPA) Reef Guardian Stewardship Program

What it is:

The Reef Guardian program began with schools in 2003 to encourage the community to take action for a healthier Reef. Students team up with others in their community to actively participate in activities aimed at improving catchments, water quality, sustainability, and reef health. This includes environmental and sustainability projects within their classrooms, their school grounds and local areas such as native habitat re-vegetation, cleaning up beaches and recycling. Schools and teachers involved in the program have access to annual activities and education resources to assist with delivering curriculum on the Great Barrier Reef.

The teaching units have been developed from the key focus areas of the Great Barrier Reef Outlook Report 2009 and are linked to the Australian Science Curriculum. The units encourage students, teachers and their communities to follow the main aim of Reef Guardians — to be stewards of the environment.

Learning intentions:

- I have understanding and appreciation for the reef and its connected ecosystems.
- I am a reef steward and I promote a community culture of custodianship for reef protection.
- I can see the bigger picture when it comes to reef protection and I can make a positive difference.

Link to resources:

[Great Barrier Reef Marine Park Authority \(2018\). *Resources by Grade*. Retrieved from http://www.gbrmpa.gov.au/learn-about-the-reef/resources-by-grade](http://www.gbrmpa.gov.au/learn-about-the-reef/resources-by-grade)

[Great Barrier Reef Marine Park Authority \(2018\). *Science Teaching Units*. Retrieved by http://www.gbrmpa.gov.au/our-partners/reef-guardians/reef-guardian-schools/science-teaching-units](http://www.gbrmpa.gov.au/our-partners/reef-guardians/reef-guardian-schools/science-teaching-units)

Resource 36: The Living Murray Story

What it is:

This is a collection of lesson plans, worksheets, videos, posters, data, games and apps to bring the Murray River and the Murray–Darling Basin to life in the classroom.

The Living Murray Story is a recent chapter in the history of managing the Murray River. It is an attempt to restore the health of the Murray River by returning water to the environment and building water

management structures to deliver water to the Murray's wetlands, floodplains and forests. There are obvious and significant economic advantages to the recreational fishing and tourism industries through having healthy fish populations and healthy rivers; In addition, recreational fishing is still a popular activity throughout the Basin.

The Living Murray Story is also a people story, about the many who have worked to make the vision of the program a reality. The lesson plans and worksheets have been designed so that they can be used with or without a copy of The Living Murray Story at hand. They are linked to the Australian curriculum and are designed for use by teachers of years 4 to 10 Geography, History, Science or Mathematics.

Learning intentions:

- I understand that water is a precious resource
- I know that qualities of 'healthy water' are and understand that maintaining the quality of water is crucial for a healthy environment, agriculture, and communities.
- I can identify the ways Aboriginal Australians of the Basin have practiced environmental management both traditionally and in the present day, and how these are shaped by environmental world views
- I understand the importance and interconnected environments of wetlands. I know the life-cycle of water and understand food webs
- I understand the importance of macroinvertebrates in wetland food webs.

Link to resource:

[Murray Darling Basin Authority. \(n.d.\) Education. Retrieved from http://www.mdba.gov.au/what-we-do/education/teachers/lesson-plans-and-worksheets/tlm-teacher-supplement](http://www.mdba.gov.au/what-we-do/education/teachers/lesson-plans-and-worksheets/tlm-teacher-supplement)

Resource 37: 3D Animated Underwater Cube

What it is:

An immersive technology cube that uses AR to create an underwater world of rock lobsters, abalone, mussels and fish that features Tasmanian industry fishing statistics.

Learning intentions:

- I understand more about the Tasmanian seafood industry and can recite interesting industry facts and figures
- I understand that the Tasmanian seafood industry offers interesting and fulfilling career pathways

Link to resource:

Contact Julian Harrington - Tasmanian Seafood Industry Council

jharrington@tsic.org.au

Resource 38: My Murray-Darling Basin Sticker Mapping Activity

What it is:

Cartography by stickers! Students follow the instructions on the back of the Map Worksheet to build a map of the Murray–Darling Basin.

This activity is designed to be teacher facilitated for year 4 to 6 students in groups or individually. It is suitable as an introduction to the Murray–Darling Basin for older students.

Teachers can download and print the Map Worksheets. Each student requires a Map Worksheet and a sticker sheet. The sticker sheets can be ordered from the Education Resources webpage on the link below. The sticker sheets are A4 and have two sets of stickers to each A4 page.

A teacher guide is also provided as part of the kit.

Learning intention:

- I understand the food production and growing areas associated with the Murray-Darling Basin

Link to resource:

[Murray Darling Basin Authority. \(n.d.\) My Murray-Darling Basin Sticker Mapping Activity. Retrieved from https://www.mdba.gov.au/publications/products-posters/my-murray-darling-basin-sticker-mapping-activity](https://www.mdba.gov.au/publications/products-posters/my-murray-darling-basin-sticker-mapping-activity)

Resource 39 – Interactive Education Models

What it is:

Created by the Marine Discovery Centre a large suite of education models (interactive, table-top models) are available for teaching about a wide variety of marine topics. They include:

- Oceanography - The Oceanography model shows the importance of seagrass, steep and shallow seabeds, and other beach management concepts.
- Climate change model - The new Climate Change interactive model with sliding panels shows what would happen if we have a 2m sea-level rise. It also challenges the user to discover better behaviours to reduce climate change.

- Marine debris model - The new Marine Debris interactive model has choices for the learner to make - both good and bad choices are highlighted. Our oceans need everyone's support to reduce the plastics in their environment. Featuring a great white shark, leafy sea dragon, sea lions and much more!
- Touchscreen - The touchscreen allows up to 6 students at a time to interact with the presentation.
There are three presentations featuring Henley Beach, Port Noarlunga and Rapid Bay in SA
- Marine habitat model - The new Marine Habitat Model allows the visitor to explore 3 different habitats including the rocky shore, the sandy shore and the Intertidal zone between low tide and high tide.
- Sustainable fishing in SA model – This model enables students to learn about up-to-date findings of fisheries research and best practice techniques and learn new techniques, practices and ideas to handle and release unwanted/undersized fish that will increase their survival rates.
- Stormwater and litter model – Students need to make the right choices to save the beach. The right-side flashes when the answers are correct.
- Stormwater and litter model - The Stormwater and Litter model is highlighting stormwater and littering issues. This is an innovative, multi-level interactive model, which promotes a better understanding of stormwater and littering issues.
- From catchments to our coast model - This model shows all the pollution going down the river and stormwater into the oceans and shows steps to help reduce our impact on the marine environment. It shows the pollution going down the river and stormwater into the oceans. Making the correct choices, by using the different coloured buttons, pollution will be reduced.
- Local marine creature's model - The Local Marine Creature model promotes the special creatures and plants that we have in our own backyard including sea dragons, algae, echinoderms, molluscs and shorebirds including the Hooded Plover. It also features introduced species in our local habitat and in our marine environment.
- Wetlands board game – The Wetlands Board Game model is a game where the learner is made aware of what they can do inside and outside the home. It includes catchment management, biodiversity and ecosystem restoration information. A dice and marker is used to get from start to finish and you can move forward for positive actions.
- Our coastline needs your help model – This is an interactive model for the wider community to gain a better understanding of the issues facing our coastline. It is a touch screen that features good and bad catchment illustration.
- Climate change model – This model highlights the effect of the climate changes and what we can do about it.
- Gone fishing model – Using a joystick/rod, students catch various fish and crabs as they swim across the screen. At the end of the fishing, the screen shows how many of each species were caught and how many were too small.
- Good fishing practices model – This model features a touchscreen involving 6 types of bait and 6 creatures. Visitors need to make the correct choice of bait to discover how they can catch these species. Further information from the model highlights biofouling, introduced species and increasing survival rates and more.



- Beach combing model – This model utilises a metal detector so that when it is held over a beachcombing item, e.g. a fibre ball, its corresponding living item, e.g. a seagrass plant, lights up on the display panel.

Learning intention:

- I understand the dynamics of our marine and freshwater habitats and can activate simple measure to protect them

Link to resource:

[Marine Discovery Centre \(2018\) *Models Created At The Marine Discovery Centre*. Retrieved from http://www.marinediscoverycentre.com.au/Marine_Discovery/models/Models.html](http://www.marinediscoverycentre.com.au/Marine_Discovery/models/Models.html)

Marine and Freshwater Habitats and Environments

SECONDARY SCHOOL RESOURCES

Resource 1 - Marine and Freshwater Discovery Centre's Schools Excursion Program (Indoor-Based)

What it is:

The Marine and Freshwater Discovery Centre's schools program introduces students to the wonders of the marine and freshwater environment. All their sessions include opportunities for students to interact with live animals and provide hands on experiences through field trips, the use of technology and a range of specimens available at the centre.

All programs have been developed to cover the Victorian Curriculum and are suitable for years 7-10.

Four options for an indoor based school session:

- Sink or swim: Structure and Function of Marine Plants and Animals (1.5 hours at \$12 per student) -Students become marine biologists and look at the unique structures that some marine animals possess and discover the purpose of these structures.
- Sex in the sea – laboratory based (1.5 hours at \$12 per student) - Students discover some of the simple and complex reproductive strategies in the sea.
- Heads, tails, fins and scales: Fish dissection (1.5 hours at \$17 per student) - A variety of fish will be used and comparisons made of the body structures, gut contents, internal organs and specialised structures.
- Understanding climate change impacts on fisheries – (1.5 hours @\$12 per student) - The impacts of climate change on world fisheries are presenting significant risks and new opportunities, particularly in "hot spot" areas across the globe. The south-eastern coast of Australia, including Victoria's coastline, is one of these "hot spots", and provides an ideal case study for later years students who are investigating climate change issues. This excursion is a hands-on session that will include an investigation of live plankton, use of an interactive model and a number of other fun and challenging small group activities.

Learning intention:

- I will understand the marine environment and how this is important to fisheries

Link to resource:

Victorian Fisheries Authority. (2019). *Years 7-10 Programs*. Retrieved from <https://vfa.vic.gov.au/education/marine-and-freshwater-discovery-centre/education-program/schools-f-10-program/7-10-programs>

Resource 2 - Marine and Freshwater Discovery Centre's Schools Excursion Program (Outdoor-Based)

What it is:

The Marine and Freshwater Discovery Centre's schools program introduces students to the wonders of the marine and freshwater environment. All their sessions include opportunities for students to interact with live animals and provide hands on experiences through field trips, the use of technology and a range of specimens available at the centre.

All programs have been developed to cover the Victorian Curriculum and are suitable for years 7-10.

Four options for an outdoor based school excursion:

- Marine biology cruise (2.5 hours with a specialised teacher at \$700) - Students will examine creatures from a sample taken from the bottom of Port Phillip and observe their amazing structures that help them survive in the sea. The cruise also visits an Australian Fur Seal haul out site and Australasian Gannet colony in Port Phillip.
- Rocky shore diversity (2 hours at \$12 per student) - Students explore the wonderful diversity of a rocky shore platform and discover the fantastic adaptations these animals have.
- Mudflat meander (2 hours at \$12 per student) - Discover the secrets that lurk in and on the mudflat of the internationally significant Swan Bay. Students will sample various micro-habitats to become familiar with the inhabitants and the importance of this special place.
- Shore snorkel (Queenscliff, 10 students to 1 instructor, 2.5 hours at \$300 for 10 students or \$600 for up to 20 students) - During the snorkel, students will be able to closely observe a variety of marine animals and plants in their natural habitats and appreciate the beauty of Victoria's marine diversity.
- Swan Bay canoe explorers (Swan Bay, 8 students to 1 instructor, 2.5 hours at \$300 for 8 students and \$600 for up to 16 students) - Learn the basics of canoeing while discovering some of the wonders of Swan Bay. This activity involves using canoes to access one of this region's most important fish nurseries and an internationally significant wader bird habitat.
- Dynamic dunes: Sand dune investigation (Queenscliff, 2 hours at \$12 per student) - Coastal environments are tough! To survive, plants must cope with salt, wind shifting sands and human impacts. While visiting a sand dune system, students will sample, observe and record changes in vegetation and physical conditions.

Learning intention:

- I will understand the marine environment and how this is important to fisheries

Link to resource:

Victorian Fisheries Authority. (2019). *Years 7-10 Programs*. Retrieved from <https://vfa.vic.gov.au/education/marine-and-freshwater-discovery-centre/education-program/schools-f-10-program/7-10-programs>

Resource 3: OCEAN TEENS School Excursion and Overnight Adventure Camp (With Supporting Worksheets)

What it is:

Curriculum supported and instructor led based OCEAN TEENS Program school excursions using exploration, problem solving, questioning and investigating, interactive activities. Each excursion is three hours (or there is an overnight adventure camp) and suitable for Grades 7-12.

Program also caters for special needs students.

Excursion options include:

- Classification (Years 7 and 8, Years 11 and 12) – This excursion gives students an insight into biological classification systems and teaches them how to group animals by looking at observable characteristics, using basic keys to help identify species and gives them an introduction to hierarchical systems and scientific names. Links to curriculum include: ACSSU185 & ACSSU111
- Food webs (Years 7 – 10) - This excursion looks at how and why food chains and food webs function, and the roles and interactions of varying organisms within them. Links to curriculum include: ACSSU150, ACSSU175 & ACSSU176
- Conservation (Years 7 – 10) – This excursion touches upon the effects human activities such as carbon emissions and habitat destruction have on aquatic ecosystems. It also teaches students the basics of laws, guidelines, environmental rehabilitation and monitoring. Links to curriculum include: ACSSU176, ACSSU189, ACSSU116, ACSHE135 & ACSHE160
- Habitats – (Years 11 and 12) – This excursion allows students to explore the ecology of aquatic communities by doing abundance and richness surveys and looking at methods of monitoring environmental factors. Links to curriculum include: MB2.1 MB2.2 MB3.2
- Adaptations (Years 11 and 12) - This excursion explores the structural, functional and behavioural adaptations that enhance an organisms' survival in the wild. Links to curriculum include: MB1.4 MB1.6 MB2.1 MB2.2 MB3.2
- Water quality (Years 11 and 12) – Students will discover how an open system aquarium operates and the implications that arise if strict water quality standards are not met. This program teaches students how important water quality is to maintain marine and aquatic health. Links to curriculum include: OC2.1, OC2.2 OC 2.3
- Tourism (Years 11 and 12) - Students will discover how the Aquarium operates as a successful QLD business. Links to curriculum include: MB1.4, 1.5, 1.6, 2.1, 2.2, 3.1, 3.2, 3.3; CS1.5, 1.6, 1.7, 3.2; OC2.1, 2.2; MS1.1, 1.2, 2.6

Worksheets are also provided for teachers to download and use in the classroom prior to the excursion or after for each excursion option.

Cost is \$19.50 per student/accompanying teachers for the three-hour excursion options or \$115.00 per student/accompanying teacher per Adventure Camp.

Learning intentions:

- I can identify species using hierarchical systems and I understand scientific species names.
- I understand how food webs work and how organisms interact within the web
- I understand how human activities impact on marine environments
- I understand the laws, policies and procedures in place to protect marine habitats
- I understand how marine habitats are monitored for health
- I can conduct water quality tests and understand how poor water quality affects marine and aquatic health
- I have learnt business skills and the keys to a successful and profitable business

Links to resources:

Sealife (2019). *Guided Excursion Programs Secondary*. Retrieved from <https://www.underwaterworld.com.au/schools/guided-tour-program-secondary/>

Sealife (2019). *Ocean Teens – Worksheet Classifications*. Retrieved from <https://www.underwaterworld.com.au/media/3789/sealife-oceanteens-worksheet-classifications.pdf>

Sealife (2019). *Ocean Teens – Habitats Worksheet*. Retrieved from <https://www.underwaterworld.com.au/media/3790/sealife-oceanteens-worksheet-habitats.pdf>

Sealife (2019). *Ocean Teens – Adaptations Worksheet*. Retrieved from <https://www.underwaterworld.com.au/media/3793/sealife-oceanteens-worksheet-adaptations.pdf>

Sealife (2019). *Ocean Teens – Food Webs Worksheet*. Retrieved from https://www.underwaterworld.com.au/media/3687/sea-life-ocean-teens-worksheet_food-webs_stage-5-year-910_nz-level-78.pdf

Sealife (2019). *Ocean Teens – Food Webs Stage 4 Worksheet* Retrieved from https://www.underwaterworld.com.au/media/3686/sea-life-ocean-teens-worksheet_food-webs_stage-4-year-7-8_nz-level-56.pdf

Sealife (2019). *Ocean Teens – Water Quality Worksheet*. Retrieved from <https://www.underwaterworld.com.au/media/3792/sealife-oceanteens-worksheet-waterquality.pdf>

Sealife (2019). *Ocean Teens – Tourism Worksheet*. Retrieved from <https://www.underwaterworld.com.au/media/3791/sealife-oceanteens-worksheet-tourism.pdf>

Resource 4: OCEAN TEENS School Excursion (With Supporting Worksheets) - Melbourne

What it is:

Curriculum supported and instructor led based OCEAN TEENS Program school excursion program.

Aligned with the Victorian Curriculum with a focus on STEM disciplines, the programs offer secondary students the opportunity to examine real-life case studies, many based on unique research and animals in Melbourne. Programs cover topics including reproduction, water chemistry, symbiosis, conservation and classification. The Marine Careers program also allows for students to discover the range of roles they could find in the industry.

Excursion options include:

- Classification (Years 7 and 8) - With a supported worksheet, students will learn how and why classification is an important skill set for scientists. Students will consider the physical and behavioural features of animals on display, then draw upon similarities and differences that exist to organise species into taxonomic groups. They will also have an opportunity to practice their classification skills through the use of the dichotomous key. Links to curriculum include: VCSSU091
- Food webs (Years 7 to 10) – With a supported worksheet, students will learn why and how food chains and food webs function, and the roles and interactions of varying organisms within them. Through real-life case studies, students will observe and discover a range of unique physical and behavioural adaptations and interactions utilised by marine life to find food, and their survival attributes. Students will also consider the impact human activity can have on these systems and consider the concept of sustainability and renewable resources. Links to curriculum include: VCSSU093, VCSSU121
- Reproduction (Years 7 to 10) – With a supported worksheet, students will explore the range of unique reproductive strategies utilised by our marine life, and the implications of this knowledge for conservation. This includes the opportunity to examine real-life case studies, based on the unique animals and research within our facility. Links to curriculum include: VCSSU094, VCSSU119, VCSSU120 as well as VCE Biology.
- Conservation (Years 7 to 10). Supported by a worksheet, educators will guide and inspire students to unpack the meaning and purpose of conservation. As they explore a range of conservation issues and marine case studies, students will consider the challenges faced by marine communities due to a range of human impacts, and importantly the actions we can take to better care and conserve our natural environments. Links to curriculum include: VCSSU093, VCSSU100, VCSSU101, VCSSU116 as well as VCE Unit 1: Biological Science and VCE Unit 3: Environmental Science
- Marine careers (Years 7 to 10) - Students will be introduced to the range of career pathways and roles offered by pursuing work within the marine science and ecotourism industries. In addition

to a presentation designed to inspire and encourage students to think about their future career options, this program also includes a guided tour of the building, highlighting the many layered departments involved in running the aquarium, from marketing to retail, food and beverage to curatorial.

- Water chemistry (Years 11 to 12) – With a supported worksheet, students will learn about the practical applications for water chemistry within SEALIFE Melbourne aquarium. Students will learn how the nitrogen cycle within a closed environment is managed, the role and management of pH on marine and freshwater systems, and the impact of water quality on a range of organisms both at the aquarium and in the wild. Students also have the opportunity to conduct their own ammonia and pH testing. Links to curriculum include: VCE Unit 1 Biology and Chemistry
- Environments and ecosystems (Years 11 to 12) – With a supported worksheet, students will learn the difference between an environment and an ecosystem, including the role of symbiotic relationships to maintain healthy communities. The use of structural, physiological and behavioural adaptations of a range of marine animals will be discussed and compared. Through case studies and observations, students will also explore factors which impact ecosystem function, including human impacts. Links to curriculum include: VCE Unit Biology

Worksheets and teacher scripts are also provided for teachers to download and use in the classroom prior to the excursion or after for each excursion option.

There is also a Teacher's Club called the Merlin Teachers' Club which provides special teacher offers, competitions and behind the scenes pictures and videos suitable for classroom use.

Cost is \$18.70 per student and \$28.05 for each accompanying teacher for a two-hour excursion option.

Excursions also cater for special needs students

Learning intentions:

- I understand the taxonomy of living organisms and marine fauna and their physical and physiological functional groups
- I can use the dichotomous key to sort marine fauna into their families and species names
- I understand the concept of food chains and food webs
- I understand the concepts of animal adaptations, symbiotic relationships, trophic levels and homeostasis
- I understand the concept of sustainability and renewable resources on a marine ecosystem as well as introduced species
- I understand the biological advantages and disadvantages of sexual and asexual reproduction as well as each form of reproduction
- I understand conservation implications for understanding species reproductive strategies
- I understand the IUCN Conservation Statuses and how conservation issues and actions impacts marine sustainability
- I can undertake a water sample and analyse it for salts, acids and bases.
- I understand the environmental impacts of pollution on water chemistry

Links to resources:

[Sealife \(2019\). Guided Excursion Programs Secondary.](https://www.underwaterworld.com.au/schools/guided-tour-program-secondary/) Retrieved from <https://www.underwaterworld.com.au/schools/guided-tour-program-secondary/>

[Sealife \(2019\). World Turtle Day.](https://www.melbourneaquarium.com.au/media/6799/sea-life-melbourne-world-turtle-day-secondary-school-resources.pdf) Retrieved from <https://www.melbourneaquarium.com.au/media/6799/sea-life-melbourne-world-turtle-day-secondary-school-resources.pdf>

Resource 5: Blue the Film (60 min lesson)

What it is:

An interactive website, video and student investigation around ocean changes affecting coral reefs.

This lesson incorporates clips from Blue the Film as learning inspiration. Students investigate the causes of ocean warming and ocean acidification and analyse their impact on coral reefs. They begin by watching and responding to a clip about how the ocean is changing and discuss the details of some of these changes. Using the jigsaw classroom method, students then work in groups to undertake research into ocean acidification and coral reefs and will then work in different groups to make a scientific poster describing how increased carbon dioxide in the atmosphere affects the coral reefs. Finally, students are asked to watch another clip and to reflect on how their impressions of this clip are influenced by the scientific knowledge they acquired throughout this lesson.

Includes teacher and student worksheets (log in required to access resources)

Links to relevant curriculum include:

- Year 9 Science - Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer (ACSSU179)
- People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities (ACSHE160)
- Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (ACSI170)
- Syllabus outcomes: SC5-16CW, SC5-13ES, SC5-7WS.
- General capabilities: Critical and Creative Thinking.
- Cross-curriculum priority: Sustainability OI.1.
- Relevant parts of Year 9 Science achievement standards: Students describe examples of important chemical reactions and describe social and technological factors that have influenced scientific developments. They use appropriate language and representations when communicating their findings and ideas to specific audiences.

Learning intentions:

- I understand changing ocean habitats.
- I can undertake research into ocean acidification and how this impacts coral reefs.

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: Ocean Changes Affecting Coral Reefs](https://www.coolaustralia.org/activity/blue-ocean-changes-affecting-coral-reefs-science-year-9/). Retrieved from <https://www.coolaustralia.org/activity/blue-ocean-changes-affecting-coral-reefs-science-year-9/>

Resource 6: The Great Australian Fisheries Challenge

What it is:

The great Australian fisheries challenge provides students with a challenging and engaging environment in which to learn about fisheries management in three different fisheries. Through direct interaction with each fishery, students learn how to find a balance between the ecosystem, fish stocks and the economics of a fishery.

Resource includes links to scientific research and developments in sustainable fishing practices.

Learning intentions:

- I understand the importance of accurate scientific research to maintain sustainable practices.
- I can investigate strategic research planning/ committees, processes and current research.

Link to resource:

[Australian Fisheries Management Authority. \(n.d.\) Educational](https://www.afma.gov.au/resources/educational). Retrieved from <https://www.afma.gov.au/resources/educational>

Resource 7: Marine Science (2014 University Pathway) – Marine Research Skills - QLD

What it is:

This syllabus is suitable for Years 11 and 12 student and has a number of key concepts (four areas of study) that relate to:

- Marine biology
- Oceanography
- Conservation and sustainability
- Marine research skills (water and boat safety are covered in this study area)

Links to relevant curriculum include:

- CS1.4 - Aquaculture and recreational and commercial fishing place demands on marine ecosystems which must be monitored to ensure sustainable futures (e.g. overfishing, ocean ranching)
- CS2.6 - Education of stakeholders is essential to encouraging sustainable management practices (e.g. consumers, recreational and commercial fishers)

Learning intentions:

- I understand the key concepts of marine biology and how they relate to the different organisms that live in marine environments and how they interact with each other.
- I understand the key concepts of oceanography how this relates to the cycling of water, nutrients and pollution through the world's oceans and how this impacts on climate.
- I understand the key concepts associated with conservation and sustainability and the ways that human activities impact on marine environments and how negative impacts can be minimised.
- I can safely conduct investigations on marine environments from the shore or in the water.

Link to resource:

Queensland Curriculum and Assessment Authority. (2019) QCAA. Retrieved from <https://www.qcaa.qld.edu.au/>

Resource 8: Marine Science (University Pathway) – Marine Research Skills - Queensland

What it is:

A syllabus package that is suitable for Year 11 and 12 students that has four areas of study:

- Marine biology
- Oceanography
- Conservation and sustainability
- Marine research skills.

Links to relevant curriculum include:

- CS1.4 - Aquaculture and recreational and commercial fishing place demands on marine ecosystems which must be monitored to ensure sustainable futures (e.g. overfishing, ocean ranching)
- CS2.6 - Education of stakeholders is essential to encouraging sustainable management practices (e.g. consumers, recreational and commercial fishers. Water and boat safety are covered in the Marine Research Skills study area.

Learning intentions:

- I understand the key concepts of marine biology and how this relates to the different organisms that live in marine environments and how they interact.
- I understand the key concepts of oceanography and how this relates to the cycling of water, nutrients and pollution through the world's oceans and how this impacts on climate.
- I understand conservation and sustainability key concepts and can demonstrate the ways that human activities impact on marine environments and how negative impacts can be minimised.
- I have marine research skills and can demonstrate how to safely conduct investigations in marine environments from the shore or in the water.

Link to resource:

Queensland Curriculum and Assessment Authority. (2019) QCAA. Retrieved from <https://www.qcaa.qld.edu.au/>

Resource 9: Reef Beat Education Program and Climate Change Education Program

What it is:

A suite of educational resources for teachers and students about climate change and the Great Barrier Reef including videos, activity books, teaching units, websites, posters and animations

Learning intentions:

- I can describe the carbon cycle and four global systems
- I can investigate greenhouse gases and carbon dioxide and describe the relationship with climate change.

Link to resource:

Great Barrier Reef Marine Park Authority. (2018). *Climate Change*. Retrieved from <http://www.gbrmpa.gov.au/learn-about-the-reef/resources-by-theme/climate-change>

Resource 10: Central Coast Marine Discovery Excursions

What it is:

The Central Coast Marine Discovery Centre (CCMDC) offers a range of fieldwork and excursion programs for primary and secondary students. They provide engaging excursions where students gain hands on

experience, collect first-hand data and explore the wonders of our coastal and marine environments. A typical program runs for 4.5 hours and is delivered by qualified CCMDC staff.

Costs are \$732 (incl GST) for maximum of 60 students for full day program (2 CCMDC teachers) or \$470 (incl GST) for less than 30 students (1 CCMDC Teacher).

The following programs are offered for secondary school students, based on syllabus outcomes in both Science and Geography:

- Temperate Marine Biodiversity Study: A Case Study of the ExHMAS Adelaide Stage 5 (Virtual Excursion) - Yr. 9 – Science and Marine & Aquaculture Technology students will perform an in-depth study of the biodiversity of the temperate marine ecosystem surrounding the Ex-HMAS Adelaide artificial reef without leaving the classroom! With the aid of Smartboard technology, students will learn how scientists can study ocean biodiversity as well as how to ID fish, the history of the Ex-HMAS Adelaide, artificial reefs, differences between marine & terrestrial animals and much more as they view and analyse BRUVS (Baited Remote Underwater Video Stations) footage to investigate changes in biodiversity.
- Interactions - Science Stage 4 students develop skills in using geographical instruments, mapwork and recording data as they investigate a local environment. Possible locations include Gosford Coastal Lagoons, Bateau Bay or Tuggerah Lakes.
- Coastal Management - Geography Stage 5 students will investigate a case study of Terrigal / Wamberal in terms of coastal management. Students will carry out field work activities designed to gain an understanding of coastal beach processes. These include vegetation identification, beach profiles, measurement of abiotic factors and water quality monitoring. They will also look at how the area has changed through history and how decision makers are planning for the future.
- Local Ecosystems - Biology Stage 6, Yr. 11 students gather data using a range of scientific equipment to investigate the distribution, abundance and adaptations of living things on local rock platforms or in estuaries. Students will measure physical factors of the ecosystem and undertake transect or quadrat surveys to identify distribution and abundance of biota present. Students will then investigate adaptations of living things to their environment.
- Water for Living – Senior Science Stage 6, Yr. 11 students undertake a study of the catchment of Wyong River. The day will involve travelling from the top of the catchment to the bottom – with stops on the way to investigate the water quality, habitat, water bugs and local issues. A workbook provided. This program also includes a visit to Mangrove Dam.
- Ecosystems at Risk - Geography Stage 6, Yr. 12 students will look at Avoca Lagoon which is used as a case study to investigate the endangered Green and Gold Bell Frog. Students perform a kayak-based survey of the lagoon including an investigation of water quality and how urban development impacts on endangered ecological communities. Students look specifically at human impacts.

- Marine & Aquaculture Technology Stage 5 Programs for Marine & Aquaculture Technology are adapted to meet individual school requests, however, these programs may include the following:
 - Module 8: Rock Platforms Students perform a firsthand investigation of life on a local rock platform & study the animals and plants present, their distribution, abundance and adaptations to the pressures of an intertidal environment.
 - Module 29: Fish Biology - Join Marine Discovery Centre Educators for a fish dissection and investigation of its external features and internal organs. Excursions may also include a visit to the Marine Discovery Centre & studies of animals in our aquaria.

Learning intention:

- I have gained invaluable field skills through the study of local ecosystems.

Link to resource:

Central Coast Marine Discovery Centre. (2013) *Schools Programs*. Retrieved from https://www.ccmdc.org.au/modules/xt_conteudo/index.php?id=11

Resource 11: Wet Paper

What it is:

Wet Paper is a Queensland based publishing house, which produces curriculum materials for secondary schools wishing to educate students about the sea.

Since 1987 Wet Paper have published 42 secondary and 28 primary school books. Their books and marine education resources are used throughout Australia and the South Pacific and are kept up to date by coordinating the skills of experienced Australian marine consultants, illustrators, designers and photographers.

Teachers can buy or rent books, e-books, worksheets, flip books, videos and pdf files (which can be used either online or offline)

Learning intention:

- n/a

Link to resource:

Wet Paper. (2013). *Publications*. Retrieved from <http://www.wetpaper.com.au/>

Recreational Fishing

PRIMARY SCHOOL RESOURCES

Resource 1 – “Let’s Go Fishing” Information Cards

What it is:

A series of information cards that explain fishing and aim to teach the fishing basics, including information on the four most commonly caught marine species (Bream, Flathead, Snapper and King George Whiting) and the four most commonly caught freshwater species (Rainbow Trout, Redfin, Golden Perch and Murray Cod)

Learning intention:

- I will understand the most common types of fish caught in Victoria recreationally and how to fish for them and where to go

Links to resources:

Victorian Fisheries Authority (2019). *Let’s Go Fishing For Bream*. Retrieved from:
https://vfa.vic.gov.au/_data/assets/pdf_file/0011/338627/Lets-go-fishing-card-bream-for-the-web.pdf

Victorian Fisheries Authority (2019). *Let’s Go Fishing For Flathead*. Retrieved from:
https://vfa.vic.gov.au/_data/assets/pdf_file/0008/338642/Lets-go-fishing-card-flathead-for-the-web.pdf

Victorian Fisheries Authority (2019). *Let’s Go Fishing For Snapper*. Retrieved from:
https://vfa.vic.gov.au/_data/assets/pdf_file/0005/338657/Lets-go-fishing-card-snapper-for-the-web.pdf

Victorian Fisheries Authority (2019). *Let’s Go Fishing For King George Whiting*. Retrieved from:
<https://vfa.vic.gov.au/education/fishing-info-for-kids/lets-go-fishing-card-king-george-whiting>

Victorian Fisheries Authority (2019). *Let’s Go Fishing For Rainbow Trout*. Retrieved from:
https://vfa.vic.gov.au/_data/assets/pdf_file/0007/338686/Lets-go-fishing-card-rainbow-trout-for-the-web.pdf

Victorian Fisheries Authority (2019). *Let’s Go Fishing For Redfin*. Retrieved from:
https://vfa.vic.gov.au/_data/assets/pdf_file/0004/338701/Lets-go-fishing-card-redfin-for-the-web.pdf

Victorian Fisheries Authority (2019). *Let’s Go Fishing For Golden Perch*. Retrieved from:
https://vfa.vic.gov.au/_data/assets/pdf_file/0005/360239/Lets-go-fishing-card-golden-perch-for-the-web.pdf

Victorian Fisheries Authority (2019). *Let's Go Fishing For Murray Cod*. Retrieved from: https://vfa.vic.gov.au/data/assets/pdf_file/0006/338730/Lets-go-fishing-card-Murray-cod-for-the-web.pdf

Resource 2 - Kid's Fishing

What it is:

Kids Fishing education video with local fishing information from Narooma, New South Wales. The bream fishing takes place by a group of kids in the inner Wagonga Inlet which is a series of connected bays and estuary systems.

Learning intentions:

- To explore recreational fishing in New South Wales.
- To think reflectively on environmental practices and benefits to the NSW fishing industry.

Link to resource:

Kidsfishing (May 2016). *Australian PRAWN Fishing – Kids Fishing*. Retrieved from <https://www.youtube.com/watch?v=t7WEGOzUEzs>

Resource 3: Get Hooked....It's Fun to Fish

What it is:

Using education mascots Snappy and Squirt, the Get Hooked... It's Fun to Fish educational program is designed for primary school stages 2 and 3 students in NSW.

The program is free and schools need to register to take part. Upon registration, the school receives:

- A Teachers Manual – which features colour coded outline of the 6 Junior Fishing Codes, in class and field-based activities and educational resources
- A fun resource kit – a box packed with everything needed to run the activities in the Teachers Manual.
- An interactive DVD – takes students on a fishing journey with keen junior fishers and apply the knowledge learned from each code.
- Enthusiastic accredited volunteers – trained Fishcare volunteers can come into the classroom and help with any Get Hooked... it's Fun to Fish activity.
- Get Hooked Fishing Workshop – registered schools are invited to attend a free practical fishing workshop.

- Get Hooked... it's Fun to Fish is made up of six teaching modules which form a Junior Fishing Code and are derived from the National Code principles. The Junior Fishing Codes have been aligned to the Australian Curriculum and meet syllabus outcomes across all Key Learning Areas.

The program consists of:

- Code 1: 'Take only what you need' - The importance of the food chain and how taking too many of one species of fish may affect the entire chain, so only take enough for your own.
- Code 2: 'Fish with friends' - Safety near waterways, awareness of safe fishing conditions and also the importance of always having a responsible fishing friend to go fishing with you.
- Code 3: 'You're the solution to water pollution' - How to identify and reduce the impact their actions may have on waterways, in particular the impact litter can have on aquatic species.
- Code 4: 'Put the little ones back' - Students investigate the rules and regulations that relate to the size of fish you are allowed to catch and why we need to keep certain species and sizes of fish for the future.
- Code 5: 'Don't leave your tackle behind' - Students develop an understanding of the ways they can reduce the risk to aquatic species by ensuring they are responsible and careful fishers with a respect to the environment they are fishing in.
- Code 6: 'Quality catchments equal quality fish' - Students investigate the complex nature of a catchment and develop an understanding of the impacts of human activity in one waterway and how it can impact the entire catchment.

Learning intentions:

- I have the basic skills necessary about recreational fishing with the view that it will become a lifelong interest of mine
- I understand the concept of sustaining quality aquatic habitats by practicing safe and responsible fishing

Link to resource:

[Department of Primary Industries. \(n.d.\) Get Hooked...It's Fun to Fish. Retrieved from https://www.dpi.nsw.gov.au/fishing/recreational/resources/fishing-workshops/get-hooked](https://www.dpi.nsw.gov.au/fishing/recreational/resources/fishing-workshops/get-hooked)

Resource 4: Young Guns Fishing Adventures

What it is:

Young Guns Fishing Adventures provide school excursions/incursions for both primary and high school and elective sports programs for high schools. They also service special needs students and school holiday programs through vacation care centres.

Young Guns Fishing Adventures currently operate excursions out of 70 sites across Sydney, Newcastle, Gold Coast and Melbourne.



Learning intentions:

- I understand fishing techniques
- I understand sustainable fishing
- I understand biological life cycles and ecosystems and how I can have a minimal impact

Link to resource:

[Young Guns Fishing Adventures. \(2018\). Welcome to Young Guns Fishing Adventures. Retrieved from http://www.younggunsfishing.com.au/](http://www.younggunsfishing.com.au/)

Resource 5: School Fish

What it is:

School Fish is a dedicated schools education program run by the Mackay Recreational Fishers Alliance Inc. The program consists of:

- Classroom activity – typically one hour in duration. Topics covered include personal safety, angler responsibility, bag limits, fish identification, why there are rules and regulation and caring for the environment.
- School yard activity – a more interactive session that covers knot tying, casting plugs, bait presentation, cast net throwing and looking after rod/reels.
- Field Trip – typically 5 hours in duration, classes experience bait gathering and fishing. Another option is the ‘commercial crabber’ activity which includes how to identify, tie, look after, and cook mud crabs,

The cost to students is free for primary and \$10 per student for secondary.

Learning intentions:

- I understand how to stay safe and keep others safe while fishing
- I understand my responsibilities when it comes to fishing
- I know how to identify fish caught
- I know how to respect the environment and others fishing around me
- I know how to tie a knot, cast a pug, how to use bait, how to cast a net and how to look after my rod and reel

Link to resource:

[Mackay Recreational Fishers Alliance Inc. \(n.d.\) Help Us Catch Fish Thieves. Retrieved from http://www.mackayrecfishersalliance.org/projects.html](http://www.mackayrecfishersalliance.org/projects.html)

Resource 6: PIRSA Fishwatch: The FISHCARE Program

What it is:

The FISHCARE program, was established in 1994 and is managed by the governments Primary Industries and Regions SA (PIRSA). PIRSA has developed a program where their FISHCARE volunteers speak to Years 4-5 about the reasons why there are rules in place for fishing in South Australia.

PIRSA has 1 volunteer in each of the 9 teams who is trained to give school talks. They attend the school with at least one other volunteer who helps them with the fishing pool activity.

The school program is broken up into 3 parts:

- The first discusses what a world without fish would be like and why there are rules, such as size limits, catch limit, closed seasons and closed areas.
- Fish are shown on a PowerPoint presentation and students use the Size, Bag, Boat & Possession limit brochure to work out what the size limit, bag limit and boat limit is.
- A fishing game where students need to catch a laminated fish that they think they would be able to keep (if it was real). This also gives the opportunity to show students how to measure fish and also explain the rules in regards to introduced species.

Learning intentions:

- I understand the rules and regulations associated with recreational fishing
- I can measure a fish and determine if it has reached the legal size limit

Link to resource:

[PIRSA \(n.d.\). Fishcare Volunteers. Retrieved from https://pir.sa.gov.au/fishing/fishcare_volunteers](https://pir.sa.gov.au/fishing/fishcare_volunteers)

Resource 7: Junior Fisher Log Book- TARFish

What it is:

TARFish is the government recognised, fully independent peak body which was established to look after the interests of recreational marine fishers in Tasmania. TARFish has produced a Junior Fisher Log Book which encourages children to record their catches and fish more. The logbook was a project funded by the Tasmanian Governments FishWise Community Grants Program. The peak body visits school fairs where the 20 page log book is distributed to 6-10 year old school children. Copies are free and a tackle box is also supplied. This is an informal program where interested schools contact the peak body; most of the delivery to schools is done by FishCare.

Learning intentions:

- I look after our fisheries by taking no more than my immediate needs
- I understand and follow all fishing rules

- I understand and help to restore and protect fisheries and fish habitat
- I know how to protect the environment
- I treat fish carefully by using only legal tackle and quickly and correctly returning unwanted fish to the water
- I respect other fishers by showing courtesy towards all people and obtaining permission when fishing on private property
- I can fish safely

Link to resource:

TARFish (n.d.) *Junior Fisher Log Book*. Retrieved from <https://dpiwwe.tas.gov.au/Documents/Junior-Fisher-Log-Book-Final.pdf>

Resource 8: Recfishwest, WA Fishing Clinic Programs

What it is:

The Recfishwest Fishing Clinics have a broad aim of promoting responsible fishing practices and correct fish handling techniques. The clinics promote the “Fish Today for Tomorrow” message, encouraging people to fish in a sustainable manner. This program addresses many aspects of recreational fishing including basic fishing skills, the use of appropriate equipment, the reasons behind fishing rules, correct fish handling techniques and fishing safety.

In addition to teaching the basics of safe and ethical angling to children and youth, the program combines mentoring and positive life skills within a conservation and education package.

The objectives of the program are to:

- Encourage fishing as a healthy outdoor family activity
- Promote the importance of sustainability of natural resources
- Promote good health and environmental practices within the fishing community
- Promote the enjoyment of the recreational fishing experience and good fishing practices
- Increase the use of sun protection measures used by recreational and sport fishers for the prevention of skin cancer in adults
- Promote fishing as an activity at which youths can excel to better self-esteem

Learning intentions:

- I understand the conservative approach to fishing consistent with the ‘Fish today for Tomorrow’ message.
- I can practice “catch and release” and good catch handling techniques

Link to resource:

[Recfishwest. \(2019\). Recfishwest SunSmart Fishing Clinics. Retrieved from https://recfishwest.org.au/fishing-clinics/](https://recfishwest.org.au/fishing-clinics/)

Resource 32: Into the Blue

What it is:

The Fisheries Group of DBIRD (Department of Business, Industry and Resource Development) have produced an educational package focusing on the marine environment. The aim of this kit (which includes teacher resources and lesson plans) is to increase students understanding of marine habitats and the responsibility that everyone shares in ensuring that it remains in good health.

Module 1 (for early childhood learners, Band 1) uses "The Eagle and the Gull" Dreamtime story from the Bardi people of North Western Australia. The story illustrates the influence people can have upon natural resources when used unwisely. Teachers have access to a story, a poster and suggested activities.

Learning intentions:

- I understand the special connection indigenous people have with the marine environment
- I understand that the marine environment is fragile and it is everyone's shared responsibility to ensure the ocean is healthy and clean.

Link to resource:

[MESA. \(2015\). Into the Blue. Retrieved from http://www.mesa.edu.au/friends/nt/default.asp](http://www.mesa.edu.au/friends/nt/default.asp)

Resource 33: Sunfish Angler Education Manual (CD)

What it is:

Sunfish QLD is the state's peak recreational fishing group and consults all the major state-wide fishing organisations. Sunfish have a professionally developed and (voluntarily) run Angler Education Program including professional quality instruction for junior anglers and an Education Manual for School curriculum use.

This education manual consists of 3 units comprising a total of 28 lessons that provide detailed lesson objectives, materials and content including classroom procedures.



Learning intentions:

- I understand the evolution and history of fishing.
- I know how to catch a fish, where to fish
- I know how to hook and release a fish
- I can care, prepare and cook my catch
- I can keep myself and others safe while fishing
- I can shore (land base) fish
- I know the different tackle types, baits, lines, knots and hooks
- I can make a lure and maintain my lure
- I can maintain my tackle
- I can locate fish
- I can fish from a boat

Link to resource:

[Sunfish Queensland Inc. \(2015\). *Angler Education Angler Ed Instructors*. Retrieved from https://www.sunfishqld.com.au/education.php?m=5](https://www.sunfishqld.com.au/education.php?m=5)

Recreational Fishing Theme

SECONDARY SCHOOL RESOURCES

Resource 1: Prepare to Survive – Know the Five

What it is:

A video produced by Maritime Safety Victoria to ensure all recreational fishers know the following fundamental steps to ensure their survival.

Learning intention:

- I understand the importance of boating safety when fishing and what I need to do to remain safe.

Link to resource:

[Victorian Fisheries Authority. \(2019\). *Boating Safety*. Retrieved from https://vfa.vic.gov.au/education/boating-safety](https://vfa.vic.gov.au/education/boating-safety)

Resource 2: Hook, Line and Sinkers

What it is:

A teacher's kit consisting of lesson plans, booklets, posters, fact sheets and vision paper that teaches students of the social amenity and economic benefits of recreational fishing to the community. Students will learn how to apply sustainable behaviours and attitudes when fishing and how to care for the marine environment. Students will also learn skills of recreational fishing such as how to cast, bait up and safely remove hooks from fish.

Links to relevant curriculum include:

- ACELY1676
- ACELY1682
- ACELY1688
- ACELY1694
- ACELY1704
- ACELY1792
- ACELY1804

- ACELY1808
- ACELY1816
- ACSHE035
- ACSHE051
- ACSHE062
- ACSHE120
- ACSHE160
- ACSHE220
- ACSSU073
- ACSSU112
- ACSSU176

Learning intentions:

- I can recognise the role the Department of Fisheries plays in managing our fish stocks and aquatic resources.
- Comprehend the social and economic value of recreational fishing the community.
- Learn and apply best practices in recreational fishing.
- Learn and put into practice correct fishing techniques and skills.

Link to resource:

[Marine Waters. \(2019\). Hook, Line and Sinker. Retrieved from http://marinewaters.fish.wa.gov.au/resources/hook-line-and-sinker/#.XQOaLxYzaUk](http://marinewaters.fish.wa.gov.au/resources/hook-line-and-sinker/#.XQOaLxYzaUk)

Resource 3: Fishing for Sport (in fresh water and saltwater locations)

What it is:

A program for junior secondary students organised by NSW DPI Education Officers based at different coastal and freshwater locations. Programs are run using NSW DPI Fish Care Volunteers to mentor years 7-10 in fishing skills and knowledge.

Fishcare volunteers undertake the sessions and provide loan rods, reel and tackle while the school generally provides the bait.

Learning intentions:

- I understand fishing rules and regulations
- I know how to fish safely and exhibit responsible fishing skills
- I know how to bait, rig and cast

Link to resource:

Department of Primary Industries (n.d.). Kids Fishing Workshops. Retrieved from <https://www.dpi.nsw.gov.au/fishing/recreational/resources/fishing-workshops/kids>

Resource 4: Coast and Marine Education Syllabus Years 8 – 10 (Queensland)

This syllabus is suitable for middle school students. The subject area is organised into five strands which are:

- Practices and skills
- Industry
- Oceanography
- Ecology
- Conservation

A recreational fishing focus is included in the Industry strand

Learning intentions:

- I understand what equipment I need to catch a fish such as tackle and bait
- I understand what retail shops sell and how they are organised
- I can build a fishing rod, crab pot/dilly
- I understand the regulations associated with recreational fishing

Link to resource:

Queensland Curriculum and Assessment Authority (2019). QCAA. Retrieved from <http://www.qsa.qld.edu.au/20319.html>

Resource 5: Marine and Aquatic Practices (TAFE Pathway) – Queensland

What it is:

Syllabus suitable for Years 11 and 12 students, where there are five core areas to Marine and Aquatic Practices. These are:

- Safety and Management
- Commercial
- Environmental
- Recreational
- Cultural

Learning intentions:

- I can identify common pieces of fishing equipment
- I can demonstrate the assembly of a variety of fishing rigs (rods, lines and tackle)
- I can demonstrate fishing methods
- I can investigate Indigenous protocols for fishing within local areas
- I can explain national, state and local regulations relevant to fishing.

Link to resource:

Queensland Curriculum and Assessment Authority (2019). QCAA. Retrieved from <http://www.qsa.qld.edu.au/20319.html>

Resource 6: Marine Studies (Current University Pathway) - Queensland

What it is:

Syllabus suitable for Year 11 and 12 students, this program has seven core topics that must be included in a course of study:

- Boating
- Navigation
- Marine communication
- Personal water skills
- Oceanography
- Marine biology
- Managing marine resources

The syllabus also allows for students to select additional elective topics which are:

- Recreation and tourism
- Maritime history
- Marine engines
- Marine hazards and rescue
- Aquaculture
- Pollution and local management issues
- Recreational fishing

Learning intentions:

- I understand the history and the nature of fishing and aquaculture
- I can recognise the value of wise management of the sea as a finite resource
- I can respect the rights of other users of the marine environment.
- I understand the different types of marine engines and general maintenance of them

- I understand the array of marine hazards and ways to avoid them
- I understand typical marine rescue operations
- I understand what is bait and can undertake bait-gathering
- I understand fisheries regulations
- I know the materials used in rod and reel manufacture
- I understand the properties of fishing rods
- I know the types of reels and their mechanisms
- I can construct and maintain fishing tackle
- I understand terminal tackle
- I know the types and application of various lures
- I can prepare and cook catch
- I know freezing and storage methods

Link to resource:

Queensland Curriculum and Assessment Authority (2019). QCAA. Retrieved from <http://www.qsa.qld.edu.au/20319.html>

Resource 7: Fishcare Tasmania Education Program

What it is:

The Fishcare Schools Program is aimed at early learning to Year 12 students and is divided between activities directly involving participation with schools and broader community-based activities. The Fishcare Schools Program is divided into three activities:

- **School Classroom Activities:** Students are introduced to the basic principles of sustainability using the marine environment and how fish inter-relate to their habitat and basic requirements to survive. The Schools Program introduces limitations such as bag, possession and size limits and why they are put in place to protect the fish and to maintain a sustainable resource. Through a basic understanding of fish physiology, students become aware of humane treatment of fish they intend to keep and methods to increase survival of released fish.
- **School Fishing Clinics and Field Excursions:** Students are introduced to recreational sea fishing and the basic equipment needed. The course increases their awareness of size limits and measuring fish, and the correct handling methods to improve fish survival on release by using de-hookers and gently releasing undersize catches. Students are shown practical examples of humane treatment of fish (iki jime) and their preparation for consumption to increase the meat return and reduce fish wastage. Field excursions enable an onsite investigation of coastal and intertidal habitats and organisms and to determine localised environmental influence on these marine habitats.
- **School Fairs:** Fishcare attends school fairs to promote Fishcare activities to the broader school community through the use of a display trailer and a fishing pool. The pool introduces the principles of fish identification to determine size and possession restrictions using entertaining,

visual and tactile activities. The trailer provides a colourful platform for the distribution of guides, rulers and other information specific to recreational fishing.

Learning intentions:

- I understand the various influences humans have on the marine habitat and the effects on fish stocks through extensive use.
- I understand how changes to the marine environment impact on fish stocks and the sorts of measures individuals can take to ensure there is fish for the future

Link to resource:

Department of Primary Industries, Parks, Water and Environment. (n.d.) *Fishcare Schools Program*. Retrieved from <https://dpiwpe.tas.gov.au/sea-fishing-aquaculture/community-resources/fishcare-tasmania/fishcare-schools-program>

Resource 8: Western Australian Certificate of Education (WACE) – Marine and Maritime Studies

What it is:

The Year 11-12 Marine and Maritime Studies syllabus is divided into three content areas:

- Marine
- Maritime
- Concepts and skills

There is a specific focus on the fishing industry and tourism in the Marine section (Environmental and Resources Management). Each unit is defined with a particular focus and a selection of learning contexts through which the specific unit content can be taught and learnt. The cognitive difficulty of the content increases with each stage.

Learning intentions:

- I understand marine ecosystems, ocean tides and how to conduct various water tests.
- I can examine Western Australian recreational and commercial fishing issues and solutions
- I understand the importance of plankton and coral communities in the marine environment.
- I understand the major resource management issues affecting Australia's marine environment, including pollution, water quality and over-fishing

Link to resource:

Schools Curriculum and Standards Authority (2014). *Senior Secondary Courses*. Retrieved from http://www.scsa.wa.edu.au/internet/Senior_Secondary/Courses/WACE_Courses

Resource 9: FishCare School Clinics (Victoria)

What it is:

Fishcare has a base of staff and dedicated volunteers consisting of passionate anglers, retired professionals, marine biology students and employees of various councils, Catchment Management Authorities and agencies who deliver school clinics and workshops on the topics of:

- Fish identification and understanding of fisheries rules and regulations
- Providing a real fishing experience
- Awareness of aquatic pest species and their impacts upon our local environments;
- Impact of marine debris and litter
- Basic fishing instruction, including casting, knot tying and selecting appropriate tackle;
- Sustainable fish handling and release techniques
- Fishing safety

There are two parts to this Fishcare clinic; a theory session (Indoor session of 30-45 mins) and a fishing session (1 – 1.5 hours). The clinic can be run on one day or over multiple days. The theory session may contain:

- Fish Identification - understanding and demonstrating relevant rules and regulations, as well as learning to investigate and determine rules and regulations for a variety of recreational fishing circumstances.
- Pest Species - Identification and best practice actions of various aquatic pest species such as European Carp, Northern Pacific Sea Stars, European Green Shore Crab etc.
- Fish Anatomy - Multiple basic puzzle based activity looking at fish anatomy to draw connections for participants between form and function of various body parts of fish, building an understanding of the roles/niches various species fill in different ecosystems as well as enabling participants to learn how to “target” various angling species.
- Fish Handling - By using demonstrations, Fishcare highlights the importance of fish handling to ensure safety for the fish and the angler. Using props to demonstrate and assess participants in landing methods, hook removal and release techniques.
- Plug Casting Lanes - Mastering a variety of casting techniques for all situations, participants target timber “fish” with casting plugs to build confidence in their technique and accuracy prior to getting onto the water.
- Knot Tying Station - A variety of knots with varying difficulty levels for different age groups. These can be incorporated in modern fishing techniques such as soft plastics and braid lines.
- Fishing Session - For the fishing session, Fishcare will supply all the equipment include rods, rigs, bait and expertise. They work with teachers to choose a location nearby that works best for the school and students.



Learning intentions:

- I understand the rules and ethics of fishing sustainably
- I can explain the size and catch limits and the importance of these rules.
- I understand what marine pests are and why they are harmful to the environment
- I know basic fish anatomy
- I can catch, handle and safely catch a fish

Link to resource:

Fishcare Victoria. (n.d.) *Workshops & Fishing Clinics*. Retrieved from <https://fishcare.org.au/workshops-fishing-clinics/>

General Fish and General Seafood Species

PRIMARY SCHOOL RESOURCES

Resource 1 – 1,2,3,4,5 I Once Caught a Fish Alive

What it is:

- A poster for a counting song based around a fish

Learning intention:

- I can count to 10

Link to Resource:

Victorian Fisheries Authority. (2018) *I Once Caught a Fish Alive*. Retrieved from https://vfa.vic.gov.au/data/assets/pdf_file/0010/339166/20130909151955_1-2-3-4-5-once-i-caught-a-fish-alive-V3-with-logo.pdf

Resource 2: Rainbow Fish Pack

What it is:

A resource pack with over 50 files with a fish, seafood and ocean focus. It has an excellent range of resources including writing templates and scaffolds, a matching game, guided reading questions and many literacy and early number activities and worksheets. There are also templates of all the characters for stick puppets. A story is also included about feelings and sharing which is in the form of a Power Point Presentation of the story.

There are also borders, labels and titles that will enable the class to create an instant, bright and informative display.

This resource is designed for Reception to Grade 3.

The cost of the pack is around \$10 Australian dollars.

Learning intentions:

- Cross-curricular topics related to the ocean and the seas
- English/creative writing/fiction
- Literacy for early years - drama and role play, speaking and listening, stories and books, writing, matching and numbers

- Understanding the world

Link to resource:

TES. (2019). *Rainbow Fish Resource Pack*. Retrieved from <https://www.tes.com/resources/search/?&q=fish>

Resource 3: Ollie's Island

What it is:

A series of interactive resources using stories, activities and games designed to teach students where food comes from and how it affects the world.

The resources focus on sustainability in some form so as to enable the broader community to understand and appreciate their connection with the natural world. Its objective is to reconnect the consumer to the environmental, social and economic impacts of their consumption so that they have an understanding and appreciation of where everything they eat, drink, use and wear comes from. The further objective is to encourage the user to identify their role within the chain, so that they recognise the potential positive outcomes of their own behavioural changes towards more sustainable actions.

The resources in the pack include:

- Animated movie (in 10 episodes) – DVD or online
- 50 interactive activities
- E-Book
- Practical real-life case studies to enhance understanding
- Extensive educator notes
- An Ollie's Island website

Learning intention:

- I will understand where my food (and seafood) comes from and understand the environmental, social and economic impacts of consumption

Link to resource:

Ollie's Island. (n.d.) *Australia*. Retrieved from <https://www.olliesworld.com/island/aus/index.htm>

Copy of DVD in FRDC Office

Resource 4 – Fish Classification Poster

What it is:

A poster that describes the biological characteristics of fish

Learning intention:

- I can recognise the unique external and internal features of a fish

Link to resource:

Teacherstarter. (n.d.). *Animal Classification Poster – Fish*. Retrieved from <https://www.teachstarter.com/au/teaching-resource/animal-classifications-poster-fish/>

Resource 5: Under the Ocean Border Trimmers

What it is:

Under the ocean themed classroom border trimmers for use in teaching about the marine environment and its unique animals as part of teacher topic displays boards

Learning intention:

- Not applicable

Link to resource:

Teacherstarter. (n.d.). *Under the Ocean – Border Trimmers*. Retrieved from <https://www.teachstarter.com/au/teaching-resource/under-the-ocean-border-trimmers/>

Resource 6: Grouping Aquatic Animal Posters

What it is:

A set of posters related to sharks, turtles, fish, octopus and sea stars for use in teaching about the marine environment and its animals

Learning intention:

- I can recognise features of aquatic animals and group accordingly.

Link to resource:

[Teacherstarter. \(n.d.\). Grouping Posters – Aquatic Animals. Retrieved from https://www.teachstarter.com/au/teaching-resource/grouping-posters-aquatic-animals/](https://www.teachstarter.com/au/teaching-resource/grouping-posters-aquatic-animals/)

Resource 7: Under the Ocean Teacher Resource Pack

What it is:

An extensive collection of under the ocean themed resources for use in teaching about the marine environment.

This teaching resource pack includes:

- Letter, Number and Punctuation Sets – V2
- Letters and Numbers Bunting
- Weekly Task Chart
- Numbers 1 to 100 Chart
- Word Wall Template
- Name Tags
- Desk Plate Alphabet and Number Line
- Diary Cover
- Portrait Page Borders
- Job Chart
- Class Rules
- Bathroom Break Poster
- Class List
- Monthly Overview
- Weekly Timetable
- Star Student Badges
- Landscape Page Borders
- Daily Goals
- Award Certificate
- Happy Birthday Chart
- Cut Out Decorations
- Tray Labels
- Title Poster
- Display Banner
- Desk Name Tags
- Letter, Number and Punctuation Sets
- PowerPoint Template

- Marine Word Wall Vocabulary
- Welcome Sign and Name Tags
- Border Trimmers
- Grouping Posters – Aquatic Animals

Learning intention:

- Not applicable – resources can be applied to many different subjects and as such, learning intentions

Link to resource:

[Teacherstarter. \(n.d.\). Under the Ocean – Classroom Theme Pack. Retrieved from https://www.teachstarter.com/au/teaching-resource-pack/under-the-ocean-classroom-theme-pack/](https://www.teachstarter.com/au/teaching-resource-pack/under-the-ocean-classroom-theme-pack/)

Resource 8: The Story of Seafood

What it is:

Teacher resource kit that includes worksheets, lesson plans, resource sheets and a story book associated with the complete ocean to plate story. Activities covered include:

- Oceans alive
- Commercial fishing
- Oceans around us
- Ocean to plate
- Caring for our oceans
- Caring for our coasts
- Pollution solutions
- Nutrition

Links to curriculum associated with English, Science and Environment, Maths, Technology, Health and Arts.

Learning intentions:

- I understand the complex system that is the ocean and how I can care for it
- I understand the difference between aquaculture and wild-catch fisheries
- I understand how the indigenous used to fish in the past
- I understand how seafood is caught, processed, packed and sold
- I understand that seafood is healthy and good for me

Link to resource:

Out of print. Hard copy in FRDC office.

Resource 9: Seafood Industry Partnership in Schools “Adopt a Fishing Boat” and “Adopt a Marine Farm”

What it is:

A report outlining a blue-print for a schools to implement an ‘Adopt a Fishing Boat’ and “Adopt a Marine Farm” program. The program creates educational partnerships between the seafood industry in Tasmania and educators of children from K to Year 10.

The program works by a class adopting a commercial working fishing boat, or a marine farm and the skipper/marine farmer adopts the class.

The Adopt a Fishing Boat program has been designed to be self-administered and dependent on class age, needs, individual teacher preferences and the level of commitment the fisherman/marine farmer is able to make. Partnerships can last from one day to an entire school year.

Learning intention:

- I understand the marine environment, the complexities of marine resource utilisation, and the daily life of a commercial fisherman or marine farmer.

Link to resource:

[Oceanwatch. \(n.d.\) *Seafood Industry Partnerships in Schools*. Retrieved from http://www.oceanwatch.org.au/Backup/wp-content/uploads/2010/02/Seafood-Industry-Partnerships-in-Schools-Information-for-teachers.pdf](http://www.oceanwatch.org.au/Backup/wp-content/uploads/2010/02/Seafood-Industry-Partnerships-in-Schools-Information-for-teachers.pdf)

Resource 10: Australian Seafood Posters

What it is:

A set of posters with real-life illustrations of commercial seafood species in Australia

Learning intention:

- I can see the variety of Australian seafood and why it is important to follow rules of sustainability to protect these species.

Link to resource:

[The Master Fish Merchants’ Association of Australia. \(2017\). *Seafood Posters*. Retrieved from https://www.mfma.com.au/merchandise/seafood-posters/](https://www.mfma.com.au/merchandise/seafood-posters/)

Resource 11: Marine Meanings

What it is:

A worksheet/interactive white board tool teachers can use in the classroom to discuss and teach about different meanings to words related to the marine and fishing sector.

Learning intention:

- I can expand my knowledge and vocabulary through researching word meanings.

Link to resource:

Australian Fisheries Management Authority. (n.d.) *Protecting our Fishing Future – Marine Meanings*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-meanings.pdf>

Resource 12: Fish Vocabulary

What it is:

A set of fish worksheet templates to use for writing fish vocabulary.

Learning intentions:

- I can identify a range of vocabulary connected to fisheries management and fishing
- I can arrange and present my vocabulary.

Link to resource:

Australian Fisheries Management Authority. (n.d.) *Protecting our Fishing Future – Fishy Words*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-fishy-words.pdf>

Resource 13: Know/What/Learned Chart

What it is:

A Know/ What/ Learned Chart as a worksheet and interactive white board tool teachers can use for teaching marine, fishing, seafood and aquaculture related topics

Learning intention:

- I can identify prior knowledge and set goals for my future learning.

Link to resource:

Australian Fisheries Management Authority. (n.d.) *Protecting our Fishing Future – KWL Chart*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-kwl.pdf>

Resource 14: Venn Diagram

What it is:

A Venn diagram template/ Interactive whiteboard tool for use in teaching on a variety of seafood and fishing related topics.

Learning intentions:

- I can present a comparison of fish species.
- I can highlight similarities and differences between species of fish and/or habitats.

Link to resource:

Australian Fisheries Management Authority. (n.d.) *Venn Diagram*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-venn.pdf>

Resource 15: Species Names versus Common Names

What it is:

Two worksheets enabling students to discover that seafood species have both a common and a scientific name.

Learning intentions:

- I can recognise scientific names for various species of fish and marine life.
- I can match the scientific name with the common name for various species.

Link to resources:

Australian Fisheries Management Authority. (n.d.) *Marine Match*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-match.pdf>
Australian Fisheries Management Authority. (n.d.) *Solutions*. Retrieved from

<https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-science-soln.pdf>

Resource 16: 3D Fish

What it is:

A template for students to make their own 3D fish

Learning intentions:

- I can follow instructions to make my own 3D fish.
- I can research a fish species and label parts of my own fish.

Link to resource:

Australian Fisheries Management Authority. (n.d.) *Solutions*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-fish-template.pdf>

Resource 17: Fish and Kids

What it is:

‘Certified Sustainable Seafood’ teacher resource kit that focuses on:

- Marine ecosystems
- Where seafood comes from
- The fishing industry
- Sustainability
- Food labelling
- Eating and cooking fish

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 a class.
- Two photocopiable activity sheets, one for each key stage, colour-coded in yellow and green different grades
- 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.

Learning intention:

- I understand the ocean to plate story

Link to resource:

Certified Sustainable Seafood MSC. (n.d.) *Teachers Pack*. Retrieved from <https://fishandkids.msc.org/en/teachers/teachers-pack-1>

Resource 18: KidsConnect Fish Facts

What it is:

A teacher kit bundle of 8 ready-to-use fish worksheets for students to learn about the many different species of fish, where they live, what they eat, and other basic biology.

Learning intentions:

- I know a variety of facts about fish.
- I understand different fish species
- I understand basic biology of fish

Link to resource:

Kidskonnnect. (2019). *Fish Facts and Worksheets*. Retrieved from <https://kidskonnnect.com/animals/fish/>

Resource 19: Exploring Sustainable Practices in Food and Fibre Production

What it is:

A teaching unit with five inquiry teaching sequences about sustainable management practices in food and fibre production. The material models how students can use a group task to investigate a range of primary industries that produce food and fibre in Australia and the sustainable management practices they use to do so. This unit encourages students to use a range of digital texts and learning objects to investigate the technology and science contexts of five agricultural industries. In addition, the unit covers management practices used to ensure the growth and survival of crops, forests, fish, seafood and livestock on farm.

Learning intentions:

- I can explore sustainable practices in food production, including seafood.
- I can draw conclusions between personal feelings and practices of sustainability.

Link to resource:

[Cotton Australia \(n.d.\) Exploring Sustainable Practices in Food and Fibre Production](https://cottonaustralia.com.au/uploads/resources/Year_5_and_6_-_Exploring_sustainable_practices_in_food_and_fibre_production.pdf). Retrieve from https://cottonaustralia.com.au/uploads/resources/Year_5_and_6_-_Exploring_sustainable_practices_in_food_and_fibre_production.pdf

Resource 20: Seafood Industry Discovery Tour

What it is:

Launched at The Hobart Wooden Boat Festival in February 2017, the Seafood Industry Discovery Tour is a series of interactive installations (lamp-post wraps) for use in a self-guided education tour. Each installation captures a facet of the seafood industry (e.g. commercial fisheries, aquaculture, science or recreation). The user's journey consists of answering a set of quiz questions along the way (based on information contained on the wraps). A tour map accompanies the tour containing the 7 quiz questions, along with promotional flyers.

Learning intention:

- I understand the different facets of the seafood industry in Tasmania

Link to resource:

Hard copy of report provided to FRDC

For more information contact John Ritchie john@roaring40sseafood.com or Emma Wilkie em.wilkie.dorp@gmail.com

Resource 21: Investigating Australian Approaches to Producing Fish, Seafood and Meat

What is it:

An educational unit for junior and secondary grades to teach students about product to plate concepts and for students to understand more about primary industries in Australia. Includes a teaching resource pack and links to Australian curriculum content descriptors.

The objectives of the educational resources are to:

Learning intentions:

- I understand the production processes involved in the seafood industry
- I understand the relationship between food and industry sectors

- I understand the ways food and animals are raised and grown.
- I can consider careers in primary industries and along the supply chain of food and fibre products
- I understand the relationship between food and fibre industries, individuals, communities, the environment and our economy.

Link to resource:

Primezone (n.d.) *Investigating Australian Approaches to Producing fish, Seafood and Meat*. Retrieved from <https://www.primezone.edu.au/resources/pdf/13.%20investigatingproducingfishseafoodmeat.pdf>

Resource 22: Fisheries Research YouTube Channel

What it is:

A video playlist for a range of videos related to the fishing industry including:

- Aquaculture
- Management and conservation
- Climate change
- Marine discovery centres
- Fish and seafood species
- Fish and seafood life cycles
- How seafood is grown, fished and farmed.

Learning intentions:

- I can identify various fish and seafood species and explain key features of them.
- I understand seafood species life cycles and how fish and seafood are farmed or caught.
- I understand the importance of a healthy marine environment to the Australian seafood industry and how the industry is managed and conserved

Link to resource:

FisheriesResearchAU (2011). *FisheriesResearchAU*. Retrieved from <https://www.youtube.com/user/FisheriesResearchAU>

Resource 23: Exploring the Production and Marketing of Seafood

What it is:

A video, a set of worksheets a lesson plan that investigates wild caught and aquaculture seafood species and the advantages and disadvantages of this type of food production.

Learning intentions:

- I can describe some of the changes in the industry due to new initiatives
- I can explain the differences between wild catch and aquaculture
- I can research and consider financial and environmental aspects between wild caught fisheries and aquaculture
- I understand the role sustainability plays in each food production system

Link to resource:

[Primezone \(n.d\) Exploring The Production and Marketing of Seafood.](http://primezone.edu.au/resources/VIDEO-Exploringseafood.html) Retrieved from <http://primezone.edu.au/resources/VIDEO-Exploringseafood.html>

Resource 24: Commercial Mud Crabs

What it is:

A video about the sustainable mud crab catch in New South Wales and how its prepared for our plates. Emphasises sustainable levels of fishing for the long term future of the industry.

Learning intentions:

- I can describe the sustainable mud crab catch industry sector in New South Wales
- I can explain the process of ocean to plate when it comes to Mud Crabs

Link to resource:

[Primary Industries Education Foundation Australia \(June 2017\). Commercial Mud Crabs.](https://www.youtube.com/watch?v=qizOEg8tNdM&feature=youtu.be) Retrieved from <https://www.youtube.com/watch?v=qizOEg8tNdM&feature=youtu.be>

Resource 25: Coastal Crabber – Life as a Professional Fisher

What it is:

A picture book about the everyday life of a modern-day fisher and how they look after the environment they work in. It includes sections on mud crabs, fishing methods, reporting methods, transporting and handling mud crabs and cooking with mud crabs.

Learning intentions:

- I can describe the daily life of a modern-day fisherman
- I understand various fishing models and how they impact sustainability.

Link to resource:

[Primezone \(n.d\) Coastal Crabber – Life as a Professional Fisher. Retrieved from https://www.primezone.edu.au/item_details.php?item_id=54&item_type=resource&content_list_id=2](https://www.primezone.edu.au/item_details.php?item_id=54&item_type=resource&content_list_id=2)

Resource 26: Salmon Science – Growing a Leaper

What it is:

This unit of work will provide students with content to explore how living things have structural features and adaptations that help them to survive. The unit focuses on farmed salmon.

Learning intentions:

- I can explore the unique features of salmon and adaptations of salmon to their environment.
- I can explore what physical conditions are required for growing fish in their environment
- I have developed a basic understanding of diffusion and osmosis to help understand how salmon adapt to fresh and salt water
- I understand how humans can replicate an environment to produce food
- I can investigate what science is incorporated into fish farming to improve yield and sustainability
- I can successfully take part in a virtual salmon dissection as a class

Link to resource:

[Primezone \(n.d\) Coastal Crabber – Salmon Science – Growing a Leaper. Retrieved from https://www.primezone.edu.au/resources/YR5-6-Tassal-1.html](https://www.primezone.edu.au/resources/YR5-6-Tassal-1.html)

Resource 27: Fish n Kids

What it is:

A website with animations/cartoons that explores the topics of fish fun facts, how to fish, games, jokes & stories, how to protect fish, how to keep fish as pets and fish cooking recipes.

There is also a section on the website related to school project ideas.

Learning intentions:

- I understand about recreational fishing, fishing licenses and bag and size limits
- I know the difference between salt and fresh water fishing
- I understand how fish stocks are maintained so they are sustainable
- I understand what is aquaculture
- I understand the important of artificial reefs

Link to resource:

[FishnKids. \(n.d.\) Fish'n'Kids. Retrieved from https://fishnkids.dpi.nsw.gov.au/home](https://fishnkids.dpi.nsw.gov.au/home)

Resource 28: Fish School

What it is:

An online training program that teaches children how to keep fish. Includes 'The Basics' course and an 'Advanced' course.

The Basics course covers topics such as:

- Species
- Anatomy
- Water quality
- Stocking my tank
- Compatibility

The advanced course consists of the topics:

- Water quality
- Feeding fish I and II
- Tank care
- Lighting and filtration

Learning intention:

- I understand how to keep fish in a domestic setting and what I need to do to ensure the fish stay healthy and disease free

Link to resource:

[Aquarium Industries \(2019\). Fish School. Retrieved from https://www.aquariumindustries.com.au/fish-school/](https://www.aquariumindustries.com.au/fish-school/)



Resource 29: NSW Fisheries Teacher Kits

What it is:

A set of two, teacher kits to support learning about the New South Wales seafood industry (and the Australian industry in general). These kits were designed to be used in conjunction with a set excursion activity at Coffs Harbour Fishermen's Cooperative and for the teachers to set the scene and get the students critically thinking, to support learning during the excursion and then, after the excursion, to cement knowledge back in the classroom.

Kit 1 focuses on Grades 2 to 4 and Kit 2 focuses on Grades 4 to 6. Both kits contain useful lesson plans linked to relevant curriculum, worksheets and a list of online and digital resources teachers can use to support the suggested lessons.

Learning intentions:

- I understand the different species caught by fishermen in NSW
- I understand how fishers ensure their catch is sustainable

Link to resource:

Contact Tricia Beatty – Professional Fishermen's Cooperative

CEO@pfai.com.au

General Fish and General Seafood Species

SECONDARY SCHOOL RESOURCES

Resource 1: Marine Studies Endorsed Content Course (Stage 6 Syllabus) – New South Wales

What it is:

A 30-hour core module program with 23 optional modules (and an optional personal interest project) course. After completing the core modules, schools are able to select from the optional modules to develop programs that respond to student needs and interests. These are electives and while they count towards the HSC they do not contribute to the Australian Tertiary Admission Rank (ATAR) for University entry.

The 30-hour core module consists of five, six-hour modules which are:

- Marine safety and first aid
- The marine environment
- Life in the sea
- Humans in water
- Marine and maritime employment

Relevant optional modules consist of:

- Dangerous marine creatures
- Anatomy and physiology of marine organisms
- Seafood handling and processing
- Marine engineering
- Boating and seamanship
- Skin diving and diving science

Learning intentions:

- I understand fish habitats and current state of Australian fish stocks and the effects of fishing on stocks
- I know the regulations covering both amateur and professional fishing
- I know the rules/regulations regarding species, size and bag limits that apply to amateur fishermen
- I understand the legal restrictions on professional fishing
- I understand the techniques used by amateur and professional fishermen such as catching bait suitable for at least two species of fish, selecting tackle suitable for river and beach fishing,

rigging lines to catch at least two species of fish, scaling, gutting and filleting a fish, fishing safety and crab or fish trapping

- I know the safety procedures for fishing from boats, rocks and beaches
- I understand the fishing methods of indigenous people
- I understand the value of professional fishing to the Australian economy
- I understand the effects of commercial and recreational fishing on national and global fish stock of selected species
- I can locate fish habitats in one coastal or local area
- I can identify and discuss the status of stocks of major commercial fish species
- I can demonstrate the legal requirements that must be met before a professional licence is granted
- I can demonstrate appropriate fishing techniques
- I can make some items of tackle, e.g. spinners, sinkers, feathers, etc
- I can make a legal crab or fish trap
- I can undertake a practical investigation of the advantages/disadvantages of professional fishing techniques
- I can identify the parts of trawl gear and explain their functions
- I can interpret a sonar chart
- I can locate fishing areas using GPS
- I can identify those changes to equipment that have been made to prevent damage to the marine environment or species (e.g. turtle excluders)

Link to resource:

[Education Standards Authority \(2019\). *Marine Studies Content Endorsed Stage 7 Syllabus*. Retrieved from http://educationstandards.nsw.edu.au/wps/portal/nesa/Advanced%20Search?search_query=Marine%20Studies%20Content%20Endorsed%20Course%20Stage%206%20Syllabus](http://educationstandards.nsw.edu.au/wps/portal/nesa/Advanced%20Search?search_query=Marine%20Studies%20Content%20Endorsed%20Course%20Stage%206%20Syllabus)

Resource 2 - Fishing Modules in SACE – South Australia

What it is:

The SACE is designed to give students increased flexibility, including greater opportunities to have diverse forms of learning and achievement recognised. The SACE enables students to include a significant amount of VET in their SACE studies.

As such secondary students have access to the following VET fishing and seafood modules as part of their secondary studies:

- Position fishing gear
- Adjust and position fishing gear
- Apply deckhand skills aboard a fishing vessel

- Apply fly fishing skills
- Communication in a fishing workplace
- Construct and repair fishing rods
- Construct and work simple fishing lures

Learning intention:

- I can demonstrate basic professional fishing skills

Link to resource:

[VET \(2008\). VET Module Reference. Retrieved from https://apps.sace.sa.edu.au/vetsearch](https://apps.sace.sa.edu.au/vetsearch)

Resource 3: Exploring the Production and Marketing of Seafood

What it is:

This is a unit with five inquiry teaching sequences about seafood production and marketing in Australia. This unit encourages students to investigate and make judgements about the production and marketing of seafood and explores the variety of technologies and methods used by the wild-catch and aquaculture industries to catch or farm seafood.

It also explores the challenges and opportunities that exist in seafood production in Australian and overseas contexts, including depletion and recovery of fish stocks, developing new aquaculture technologies, consumer perceptions, and media coverage.

Having explored these contexts in an Australian wild-catch or aquaculture sector, students then consolidate and present these understandings to an audience following the study. At each stage in the investigations, the students are encouraged to share their findings, arguments and explanations in a range of appropriate communication forms, selected for their effectiveness and to suit audience and purpose; using relevant terminology, and digital technologies.

The unit includes a pdf resource and supporting videos

Learning intentions:

- I can investigate and make judgements about the production and marketing of seafood in Australia.
- I can describe the technologies used in wild catch and aquaculture fisheries.

Link to resource:

[Primezone \(n.d.\) Exploring the Production and Marketing of Seafood. Retrieved from http://primezone.edu.au/resources/pdf/17.Exploring the production and marketing of seafood-FINAL.pdf](http://primezone.edu.au/resources/pdf/17.Exploring%20the%20production%20and%20marketing%20of%20seafood-FINAL.pdf)

Resource 4: Fish Names

What it is:

A website that demonstrates the correct names of Australian seafood species.

Australia has over 5000 native species of finfish, and many more crustaceans and molluscs. Several hundred of these species are important commercially, and many others support recreational activities such as fishing and diving. Australia also imports seafood products consisting of many other fish species from around the world to help satisfy the increasing demand for seafood.

Learning intentions:

- I recognise the importance of correctly naming fish species
- I can name a collection of species and recognise their origins

Link to resource:

Fishnames (2019). Australian Fish Names Database. Retrieved from <https://www.fishnames.com.au/>

Resource 5: Salmon Dissection

What it is:

A video showcasing a salmon dissection

Learning intentions:

- I can describe the dissection process
- I can define key related vocabulary and terms associated with anatomy, physiology and biology

Link to resource:

Think Digital. (2017). FarmVR – Salmon Dissection. Retrieved from <https://vimeo.com/album/4827296/video/239898804>

Think Digital. (2017). FarmVR – Salmon External Anatomy and Dissection. Retrieved from <https://vimeo.com/album/4827296/video/239775492>

Resource 6: Salmon Life Cycles

What it is:

A set of videos demonstrating the different stages of a salmon's life cycle:

- Embryo to Alevin
- Fry and Parr
- Smolt
- Adult

Learning intentions:

- I can describe the lifecycle of a salmon
- I can explain the care needed to ensure the survival of the salmon.
- I can describe the physical conditions required to Fry and Parr lifecycle stages
- I understand various elements connected to Salmon hatcheries.
- I can describe how smolt are managed before being transported to new sea pens
- I understand the importance of blood testing of salmon
- I can describe a variety of factors regarding the feeding processes of the salmon
- I can describe the housing of salmon in pens and why the pen size differ

Link to resources:

Think Digital. (2017). *FarmVR – Salmon Lifecycle: 1. Egg to Embryo to Alevin*. Retrieved from <https://vimeo.com/album/4827296/video/239771795>

Think Digital. (2017). *FarmVR – Salmon Lifecycle: 2. Fry and Parr*. Retrieved from <https://vimeo.com/album/4827296/video/239773043>

Think Digital. (2017). *FarmVR – Salmon Lifecycle: 3. Smolt*. Retrieved from <https://vimeo.com/album/4827296/video/239775189>

Think Digital. (2017). *FarmVR – Salmon Lifecycle: 3. Smolt to Adult*. Retrieved from <https://vimeo.com/album/4827296/video/239913846>

Resource 7: About Northern Territory Fisheries

What it is:

A series of fact sheets outlining the 11 main wild catch fisheries operating in the Northern Territory: Aquarium, Barramundi, Coastal Line, Coastal Net, Demersal, Mud Crab, Offshore Net and Line, Spanish Mackerel, Timor Reef and Trepanng and the two major aquaculture activities which include Pearl Oyster (*Pinctada maxima*)



culture and Barramundi farming (*Lates calcarifer*). Other products include sea cucumber (trepang), giant clams and freshwater plants.

Learning intentions:

- I understand the various wild-catch fisheries in the NT, each requiring separate licences and each operating under their own gear restrictions, within their own defined area and that they have their own management regulations.
- I understand the two major aquaculture activities operating in the NT
- I know that Sea Cucumber 'ranching' occurs on Goulburn Island and Groote Eylandt, with hatchery-produced juveniles used to restocked suitable areas at sea.

Link to resource:

Northern Territory Seafood Council (2019). *About Our Fisheries*. Retrieved from <https://www.ntsc.com.au/content/about-our-fisheries>

Aquaculture

PRIMARY SCHOOL RESOURCES

Resource 1: Artificial Reefs for Developing New Fish Farms

This is a teaching resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scootle.

Scootle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

Teacher resource video for students to discover a new type of fish farming. The Western Australian Government is building two prototype reefs to demonstrate how artificial reefs can be friendly to the environment and increase fish numbers. Watch as Brad Adams, an abalone farmer, shows you his experimental reefs. See how successful he is at sourcing his abalone.

Learning intention:

- To provide educational activities around production of artificial reefs and how these enhance wild-caught fisheries

Link to resource:

Scootle (July 2019). Retrieved from

<https://www.scootle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scootle and as such, the resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 2: The Conversation (Aquaculture)

Teacher resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scootle.

Scootle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

News articles, analytical pieces, investigations designed to promote conversations around the topic of aquaculture. There is one article that investigates the role of sustainable fish farming as world fish production overtakes world beef production.

Learning intention:

- To provide stimulus to initiate conversations around aquaculture.

Link to resource:

Scootle (July 2019). Retrieved from

<https://www.scootle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scootle and as such, the resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 3: Mussels on the Market and Down on the Mussel Farm

Teacher resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scootle.

Scootle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

Two videos demonstrating Australia's largest and deepest mussel farm located in the pristine waters on Tasmania's east coast. This video allows students to find out about green-lipped mussels growing in Spring Bay Seafoods' 1,700-hectare farm and the aquatic environment that supports them.

**Note this teacher resource incorrectly refers to blue-lipped mussels!*

Learning intention:

- To understand the aquaculture of green lipped mussels in a unique farm environment.

Link to resource:

Scootle (July 2019). Retrieved from

<https://www.scootle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scootle and as such, this resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 4: Aquaculture Fishes for the Future

Teacher resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scootle.

Scootle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

A video that explains we have the ability to make choices. When it comes to the food we choose to eat, some of our decisions could lead to large changes in food production. Choosing farmed fish supports the aquaculture industry. While this industry is not without its own environmental issues, can it contribute to sustainable fish stocks?

Learning intention:

- How the decisions we make regarding the consumption of food impacts food production.

Link to resource:

Scootle (July 2019). Retrieved from

<https://www.scootle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scootle and as such, the resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 5: Get Shucked Oysters

Teacher resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scootle.

Scootle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

A video about a Tasmanian oyster farmer producing and serving farm-fresh oysters on site on Bruny Island. In this clip, oyster farmer and business owner, Joe Bennett, describes how he established his business from very small beginnings and has grown it to satisfy consumer demand.

Learning intention:

- I understand one aspect of food production in Australia and how oysters are farmed

Link to resource:

Scootle (July 2019). Retrieved from

<https://www.scootle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scootle and as such, this resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 6: Salmon Growing in Tasmania

Teacher resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scootle.

Scootle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

A video about large-scale farming salmon at Huon Aquaculture in southern Tasmania. It illustrates the operation of the aquaculture business, its infrastructure, the salmon life cycle and the efficiency levels of salmon production gained.

Learning intention:

- I understand how salmon are farmed in Australia

Link to resource:

Scootle (July 2019). Retrieved from

<https://www.scootle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scootle and as such, this resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 7: Aquaculture Word Search

What it is:

A word search worksheet

Learning intention:

- To learn terminology related to aquaculture.

Link to resource:

National Aquaculture Association (n.d.) *Aquaculture Word Search*. Retrieved from <http://thenaa.net/pub/Aquaculture-Word-Search.pdf>

Resource 8: E-School Today Cool Basics on Aquaculture

What it is:

A web-based teacher resource on the topic of global aquaculture, with definitions, information and charts.

Learning intention:

- To understand terminology and concepts of aquaculture.

Link to resource:

ESchoolToday (2018). *What is Aquaculture?* Retrieved from <http://www.eschooltoday.com/aquaculture/what-is-aquaculture.html>

Resource 9: Aquaculture Encyclopedia

What it is:

Kids.net.au is a search engine for children, parents and teachers.

This is a child-based encyclopaedia with information about aquaculture, suitable for school project and school research assignments

Learning intention:

- To understand different forms of aquaculture

Link to resource:

Kids.Net.Au (2019). *Fish Farming*. Retrieved from http://encyclopedia.kids.net.au/page/fi/Fish_farming

Resource 10: KidZone

What it is:

A series of resources for teachers produced by the Centre of Excellence for Science, Seafood and Health centred on aquaculture. Includes workbooks and a teacher's manual mapped to curriculum.

Learning intention:

- I have a holistic understanding of what is aquaculture and how it works

Link to resource:

[Curtin University \(2014\). *Teacher Stuff*. Retrieved from http://cessh.curtin.edu.au/kidzone/teacher_stuff.cfm](http://cessh.curtin.edu.au/kidzone/teacher_stuff.cfm)

Resource 11: Get Shucked Oysters

What it is:

A video about a Tasmanian oyster farmer producing and serving farm-fresh oysters on site on Bruny Island. In this clip, oyster farmer and business owner, Joe Bennett, describes how he established his business from very small beginnings and has grown it to satisfy consumer demand.

Student learn about how this primary producer brings seafood products from the paddock in the sea to the plate on the table.

The video includes images of the oyster farm, the processing facility and the Get Shucked oyster bar where the final product is consumed.

Learning intentions:

- I can describe the process of starting a small oyster business
- I can describe an oyster farm
- I understand the process from ocean to plate in the oyster aquaculture industry.

Link to resource:

[Primezone. \(2016\). *Get Shucked Oysters*. Retrieved from https://www.primezone.edu.au/item_details.php?item_id=335&item_type=resource&content_list_id=2](https://www.primezone.edu.au/item_details.php?item_id=335&item_type=resource&content_list_id=2)

Resource 12: Growing Salmon Sustainably

What it is:

This resource aims to provide teachers of students in Years 5 to 6 with information to investigate fish farming/aquaculture in Australia and determine its future sustainability. Includes worksheets and a lesson plan.

Learning intentions:

- I have an understanding of the importance of aquaculture in providing the world with an important source of protein.
- I can explore the best environmental conditions and locations for farming aquatic species in a controlled environment.
- I can develop a flow chart to identify the supply chain, from hatchling to plate, of the Atlantic salmon, including the environmental and human influences each step involves.
- I have developed mapping skills to represent and explain the best environmental locations for Atlantic salmon farms in Tasmania and in North America and Europe.
- I can use data to predict the future of Atlantic salmon as a sustainable aquaculture product in Tasmanian waters
- I can investigate the various viewpoints relating to the environmental management of a sustainable farmed fish industry
- I can communicate my findings to an audience.

Link to resource:

[Primezone. \(2016\). *Growing Salmon Sustainably*. Retrieved from http://primezone.edu.au/resources/YR5-6-Tassal-Geog.html](http://primezone.edu.au/resources/YR5-6-Tassal-Geog.html)

Resource 13: Prawn Farming

What it is:

A video describing the prawn farming industry, a particular prawn farm/business and the high standards of the Australian industry. The video explains why this business is more like agricultural farming than fishing. The video includes images and descriptions of a prawn farm and the techniques and processes employed to produce the final prawn product.

Learning intentions:

- I can confidently describe the prawn farming industry
- I can describe why a prawn farm business is more like farming than fishing

Link to resource:

Primezone. (2016). *Prawn Farming - Aquaculture*. Retrieved from https://www.primezone.edu.au/item_details.php?item_id=324&item_type=resource&content_list_id=2

Resource 14: The Yabby Unit

What it is:

This unit of work provides students with the opportunity to investigate the importance of aquaculture production to our society through focusing on Australian freshwater crayfish production. The Yabby unit of work consists of four resources including a workbook, answer guide, and two major design folios.

The unit includes guides for practical activities, in-class extension investigations, mini design projects which will challenge student understanding and prepare them to complete one of two major projects for the unit to design and build an aquaponics system and then automate it using control technologies.

Additional activities suggested in conjunction with this unit involve students growing, managing and making observations on aquaponic plants and freshwater crayfish.

The unit is designed to cover outcomes from the NSW Technology Mandatory stage 4 Syllabus context areas agricultural technologies, engineered systems and digital technologies.

Learning intentions:

- I can investigate the importance of aquaculture
- I can explore yabbies and describe key features and their relevance to the seafood industry

Link to resource:

NSW DPI (n.d.) *The Yabby Unit*. Retrieved from <https://www.nswdpi-schools-program.com/yabby-unit>

Resource 15: Finding Farms

What it is:

A video accompanied by a lesson plan and worksheet that explores the topic of aquaculture and wild-catch fisheries.

Learning intentions:

- I understand the restrictions given to farmers

- I can explain how fish farming is different to farming on land
- I can list the steps fishers use to find their stock?
- I understand what is required for lobsters to be kept stress free.
- I can describe sustainable measures taken to ensure stocks are maintained.
- I understand the concept of legal size limits
- I understand the steps taken to bring lobsters from sea to plate

Link to resource:

Primezone. (2016). Video – Finding Farms. Retrieved from <https://www.primezone.edu.au/resources/VIDEO-Findingfarms.html>

Resource 16: Jeepers Creepers Salmon Leapers

What it is:

This unit of study will investigate the technology used to grow fish, with a focus on salmon.

This unit will provide students with the opportunity to investigate an industry challenge and use design and technology to produce an innovative solution. Design will form major part of this learning experience.

Learning intentions:

- I can investigate technologies used to grow salmon
- I can describe the increasing effect of human consumption on seafood stocks and how these and the environments are managed.

Link:

Primezone. (2016). Video – Jeepers Creepers Salmon Leapers. Retrieved from <http://primezone.edu.au/resources/YR5-6-Tassal-D&T-2.html>

Resource 17: Out and About on Farms

What it is:

This teaching unit and resource material aims to help teachers and students in junior primary classes explore Australian farms as places where people live. Students are given an insight into ways Australian farmers are producing food and fibre, for food, clothing and shelter. Students explore features of Australian farms using a range of media and represent these on collaborative maps. Students are given

an insight into why some places are important to people and ways Aboriginal and Torres Strait Islander Peoples and farmers care for places. During the unit, the students investigate places where different foods and fibres are produced in Australia; the features of these places; what makes them special; and how they are cared for. Having explored a variety of places where different foods and fibres are produced, students draw, scribe or write texts and create picture maps that are added to a class interest centre

Learning intentions:

- I can compare and contrast various farming models, including aquaculture
- I can provide insights into sustainable farming models, including aquaculture

Link to resource:

[Primezone. \(2016\). *Out and About on Farms*. Retrieved from http://primezone.edu.au/resources/pdf/2.Out and about on farms-FINAL.pdf](http://primezone.edu.au/resources/pdf/2.Out%20and%20about%20on%20farms-FINAL.pdf)

Aquaculture

SECONDARY SCHOOL RESOURCES

Resource 1: Aquaculture in Victoria Videos

What it is:

A collection of videos that will give students an overview of the different types of aquaculture conducted in Victoria based on the following themes:

- Aquaculture overview and the major aquaculture sectors in Victoria
- Abalone aquaculture sector
- Salmonid aquaculture sector
- Mussel aquaculture sector
- Queenscliff hatchery

Learning intention:

- To understand the key aspects of aquaculture in Australia.

Link to resource:

Victorian Fisheries Authority (2019). *Aquaculture Videos*. Retrieved from <https://vfa.vic.gov.au/aquaculture/aquaculture-videos>

Resource 2: Salmon Growing in Tasmania

Teacher resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scootle.

Scootle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

A teaching unit of work on aquaculture with a particular focus on the Tasmanian salmon farming industry. The unit provides a series of structured investigations leading to a design challenge which asks students to create an improved salmon pen.

Learning intention:

- I understand the sustainability around salmon farming

- I use my critical and creative thinking in a design and engineering context

Link to resource:

Scoutle (June 2019). Retrieved from

<https://www.scoutle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scoutle and as such, this resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 3: Investigation Australian Approaches to Producing Fish, Seafood and Meat

Teacher resource mapped to curriculum that can only be accessed with a school-based email address on the teacher portal Scoutle.

Scoutle is a national repository that provides Australian schools with more than 20,000 digital resources aligned to the Australian Curriculum.

What it is:

A resource video that aims to help teachers and students in junior secondary schools investigate new and existing production practices used to produce food. Students are given an insight into ways primary producers in the fisheries, meat and livestock sectors produce; process and bring their products to consumers.

Learning intention:

- I understand more how food is produced in Australia

Link to resource:

Scoutle (June 2019). Retrieved from

<https://www.scoutle.edu.au/ec/search?topic=%22Aquaculture%22&browseBy=topic>

**Note Honey and Fox does not endorse these resources as we do not have a subscription to Scoutle and as such, this resource could not be viewed. This resource would need to be vetted for appropriateness for the Australian aquaculture industry and whether they are presenting scientifically valid information.*

Resource 4: Lesson Planet Teacher's Kit

What it is:

Lesson Planet is a virtual curriculum department, for teachers where they can browse teacher-reviewed open educational resources, build, organise and manage curriculum, read inspiring teaching articles and share/store their own resources.

To access the resources, a small paid subscription is required.

This resource relates to a comprehensive set of teacher resources related to aquaculture that include:

Lesson plans

- Down on the salmon farm
- Aquaculture science
- Aquaculture feeding scenario (students determine the most cost-effective feed over a period of time)
- Environmental science – food fight
- Aquaculture water quality testing
- Pros and cons of aquaculture
- Salmon scavenger hunt
- Biologically altered fish
- Understanding PH, alkalinity and water hardness

Worksheets

- Aquaculture production system quiz
- Aquaculture production systems worksheet

Teaching PowerPoints and Videos

- Aquaculture
- Global aquaculture species
- Could underwater farming help fight climate change?

Learning intentions:

- I understand what aquaculture is and why it is important globally for food production
- I understand the breadth of issues related to aquaculture

Link to resource:

Lesson Planet (2019). *Aquaculture Teacher Resources*. Retrieved from <https://www.lessonplanet.com/lesson-plans/aquaculture/all>

**Note Honey and Fox does not endorse these resources as we do not have a subscription for Lesson Planet and as such, resources could not be viewed to vet them. All resources listed above would need to*

be vetted for appropriateness for the Australian aquaculture industry and whether they are scientifically valid. A number of resources were not included in this report due to their inappropriateness – the above listed may be suitable for use.

Resource 5 – Aquaculture School Projects Teacher Handbook

What it is:

A teacher’s handbook for implementation of simple, low cost equipment that can be used in the teaching of aquaculture projects. It covers equipment needed to house and grow animals and plants used in school-based aquaculture systems and practical exercises for school work programs.

Teaching units include:

- Making project equipment
- Maintaining water quality
- Livestock biology
- Growing food for aquaculture
- Breeding and feeding stock

Links with NSW and Queensland curriculum (but is likely to be out of date).

Learning intentions:

- I understand how to make and install basic operational aquaculture systems
- I understand how to monitor water quality and ensure water quality is at optimum quality for aquaculture production
- I understand the biology and physiology of key aquaculture species such as fish, crustacean, squid and prawns
- I understand and can successfully grow suitable food for aquaculture systems such as algae, artemia, rotifers, daphnia and worms
- I understand how to sex key aquaculture species such as crustaceans
- I understand feeding techniques for key aquaculture species

Link to resource:

National Library of Australia (n.d.). *Aquaculture: School Projects*. Retrieved from <https://catalogue.nla.gov.au/Record/4981445>

Hard copy also in FRDC office

Resource 6: Marine and Aquaculture Technology Content Endorsed Course Years 7–10 Syllabus - NSW

What it is:

A ‘Marine and Aquaculture Technology’ endorsed course content suitable for Years 7–10. It forms a key part of the Technological and Applied Sciences (TAS) Key Learning Area (KLA).

The Marine and Aquaculture Technology course teaches students about the emerging field of study related to sustainability of marine and related environments. The syllabus contains mandatory core 1 and 2 and a sufficiently broad range of optional modules to enable students to achieve the syllabus outcomes through a course of study reflecting their interests, location and resources. It can be studied as a 100-hour or 200-hour course. In a 100-hour course, students complete Core 1 and any five option modules. In a 200-hour course, students complete Core 1, Core 2 and six option modules additional to those in the first 100 hours.

The optional modules have been grouped into the following focus areas:

- Aquaculture
- Biology
- Ecology
- Leisure
- Management
- Employment
- General interest

The modules focus on:

- Module 18 – Fish Harvesting, introduces students to the methods used to catch fish. Students are required to relate each method to the behaviour and physiology of the animals being caught.
- Module 19 – Manufacturing Fishing Equipment, introduces assembly techniques for basic fishing tackle made from readily available components and construction of simple items such as sinkers and spinners from common materials. Students learn about:

Learning intentions:

- Module 18 – Fish Harvesting
 - I understand the procedures relating to obtaining an amateur fishing licence
 - I know the requirements for a professional fishing licence
 - I know how to tie different strength knots in fishing lines and how to select the correct hook for the type of fish being sought
 - I know how to select the correct bait for the type of fish being caught

- I understand the various methods used to catch fish including Aboriginal methods
- I understand the relationships between the method of capture to the physiology of the fish
- I know the different lines used to catch fish, including hand lines, pole line, rod and reel, long lines, drop lines and set lines
- I know the differences between and uses of trawl nets, gill nets and seine nets spears and their fish-catching functions
- I understand what a fish trap is and how they work
- I understand the features of fish species caught in the local area
- I know the employment opportunities associated with amateur and professional fishing
- I know how to catch bait, rig a handline or rod and reel, catch fish using a line and how to rig a bait net
- I can use a hand net (scoop or seine) and make a simple fish trap

Module 19 – Manufacturing Fishing

- I understand the techniques used to prepare and set up hand spools
- I can use a fishing rod manufacture from a blank sinker manufacture, spinner manufacture and rigging techniques for estuary and beach fishing
- I understand the employment opportunities available to me in fishing equipment manufacturing industries
- I can tie line on a hand spool, make spinners from a spoon and rig lines for beach and estuary fishing
- I can produce a fishing rod from a blank, make sinkers using a mould and can design and produce fish traps and crab traps

Link to resource:

[Board of Studies, NSW. \(September 2003\). *Marine and Aquaculture Technology*. Retrieved from http://educationstandards.nsw.edu.au/wps/wcm/connect/20521219-53ed-4acf-b53e-a968116d9329/marine_710_syl.pdf?MOD=AJPERES&CVID=](http://educationstandards.nsw.edu.au/wps/wcm/connect/20521219-53ed-4acf-b53e-a968116d9329/marine_710_syl.pdf?MOD=AJPERES&CVID=)



Seafood Handling, Filleting and Processing

PRIMARY SCHOOL RESOURCES

Nil resources, however this theme is covered by some resources in the recreational fishing theme and the health, nutrition and cooking theme.

Seafood Handling, Filleting and Processing

SECONDARY SCHOOL RESOURCES

Resource 1: Australian Seafood All Access Chef & Hospitality Tutorial Channel and West Coast Training E-Learning Tutorial Portal

What it is:

A selection of downloadable, best practice seafood tutorials in video form that covers the supply chain, processing, receiving and preparation (cooking) of finfish, oysters, lobster, prawns and sardine seafood species.

Learning intentions:

- I understand the complete product to plate story for finfish, oysters, lobsters, prawns and sardines
- I understand how to process and fillet finfish, oysters, lobsters, prawns and sardines so they are ready to cook
- I understand about shelf-life and product quality
- I can cook simple recipes using finfish, oysters, lobsters, prawns and sardines

Link to resource:

[Fishfiles Chef Tutorials \(n.d.\) Retrieved from https://vimeo.com/fishfilescheftutorials](https://vimeo.com/fishfilescheftutorials)

Industry Careers and Business

PRIMARY SCHOOL RESOURCES

Resource 1: Fish Tank Business Start-Up

What it is:

A Fish Tank business start-up learning resource for breeding fish and selling to the pet market. Students will examine the costs of food and equipment and buy items to help take care of the fish and the tank, whilst thinking about the business impact of each purchase. Budget template included to increase stock and maximise profit.

Learning intention:

- I have learnt business and maths skills

Link to resource:

[Scootle \(June 2019\). *Fish tank: Business Start-Up*. Retrieved from www.scootle.edu.au/ec/viewMetadata.action?id=L770&q=&topic=&start=0&sort=alignment&contentso](http://www.scootle.edu.au/ec/viewMetadata.action?id=L770&q=&topic=&start=0&sort=alignment&contentso)
[urce](#)

Resource 2: Fish and Chip Shop Role Play

What it is:

A collection of 'fish and chip shop' printable resources for a fish and chip shop business for children. Includes banners, food posters, labels etc.

Whilst an overseas resource

Learning intention:

- I can count, sight words and use creative play activities in my ready-made fish and chip shop.

Link to resource:

[SparkleBox \(n.d.\) *Fish and Chip Shop Role-Play Pack*. Retrieved from https://www.sparklebox.co.uk/5011-5020/sb5020.html](https://www.sparklebox.co.uk/5011-5020/sb5020.html)

Industry Careers and Business

SECONDARY SCHOOL RESOURCES

Resource 1: Being a Fisheries Officer

What it is:

A video about the rewarding and challenging career for a Fisheries Officer in an effort to promote this as a viable career option.

Learning intention:

- I can assess whether a Fisheries Officer position is the right career pathway for me after leaving school

Link to resource:

Victorian Fisheries Authority (2019). *Fisheries Officer Career*. Retrieved from <https://vfa.vic.gov.au/enforcement/fisheries-officers/fisheries-officer-career-victoria>

Resource 2: Careers in Aquaculture and Education Pathways

What it is:

An online platform that explains the variety of careers and roles in aquaculture and the education pathways to qualify for such careers

Learning intention:

- I understand the variety of positions and roles within the aquaculture sector
- I understand the education pathway I need to take and which vocational training qualifications I need to obtain

Link to resource:

Rural Skills Australia (2014). *Stepping Stones to a Rewarding Career*. Retrieved from <http://www.ruralcareers.net.au/aquaculture/>

Resource 3: Lucan Handley Marine Biologist Biographical Writing (60 min lesson plus writing time).

What it is:

In conjunction with a video, in this finding out lesson, students will examine biographical and reflective language and text structures. They will consider the experiences of marine biologist, Lucas Handley and how he has worked to make a difference to the environment. Using a selection of thinking, planning and writing tools, students will analyse the role of biographical and reflective language in communicating with audiences to inspire them to take action. Students will then produce a short biographic text, featuring Lucas Handley and his achievements/work with marine ecosystems, ocean health and marine science.

A teacher and student workbook to accompany the video can be downloaded by signing up and then logging in.

Links to relevant curriculum include:

- Year 8 English - Create imaginative, informative and persuasive texts that raise issues, report events and advance opinions, using deliberate language and textual choices, and including digital elements as appropriate (ACELY1736)
- Experiment with particular language features drawn from different types of texts, including combinations of language and visual choices to create new texts (ACELT1768)
- Syllabus outcomes: EN4-4B.
- General capabilities: Literacy, critical and creative thinking.
- Cross-curriculum priority: Sustainability OI.7, OI.9.
- Relevant parts of Year 8 English achievement standards: Students explain how language features, images and vocabulary are used to represent different ideas and issues in texts. They listen for and identify different emphases in texts, using that understanding to elaborate on discussions. Students understand how the selection of language features can be used for particular purposes and effects. They explain the effectiveness of language choices they make to influence the audience. They create texts for different purposes, selecting language to influence audience response. Students take into account intended purposes and the needs and interests of audiences. They demonstrate understanding of grammar, select vocabulary for effect and use accurate spelling and punctuation.

Learning intentions:

- To consider the experiences of a marine biologist and how he has worked to make a difference to the environment.
- Students will understand how biographical texts can be used to communicate individual stories and inspire action among audiences.

- Students will comprehend and apply their understanding of how combinations of written language and visual features can shape meaning and position audiences in relation individual stories and experiences that can inspire action among audiences.
- Understanding of different careers in marine biology

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: 'Lucas Handley' Biographical Writing – English – Year 8. Retrieved from https://www.coolaustralia.org/activity/blue-lucas-handley-biographical-writing-english-year-8/](https://www.coolaustralia.org/activity/blue-lucas-handley-biographical-writing-english-year-8/)

Resource 4: Shark Girl- Biographical Writing (90 minute lesson)

What it is:

This lesson incorporates clips from Blue the Film as learning inspiration. In this finding out lesson, students are introduced to biographical writing and will enhance their understanding of the experiences of young people working to make a difference. They will examine the story of Madison Stewart (Shark Girl) and use thinking, planning and writing tools to understand the role of biographical writing in engaging audiences with the achievements and work of people trying to make a difference. Students will then plan, draft and publish their own biographical writing.

A teacher and student workbook to accompany the video can be downloaded by signing up and then logging in.

Links to relevant curriculum include:

- Year 8 English - Understand and explain how combinations of words and images in texts are used to represent particular groups in society, and how texts position readers in relation to those groups (ACELT1628)
- Understand how conventions of speech adopted by communities influence the identities of people in those communities (ACELA1541)
- Experiment with text structures and language features to refine and clarify ideas to improve the effectiveness of students' own texts (ACELY1810)
- Syllabus outcomes: EN4-8D, EN4-4B.
- General capabilities: Literacy, personal and social capability, ethical understanding, critical and creative thinking, information and communication technology (ICT).
- Cross-curriculum priority: Sustainability.
- Relevant parts of Year 8 English achievement standards: Students understand how the selection of text structures is influenced by the selection of language mode and how this varies for different purposes and audiences. They understand how the selection of language features can be used for particular purposes and effects. Students explain the effectiveness of language choices they make to influence the audience. They create texts for different purposes, selecting language to influence audience response. They take into account intended purposes and the

needs and interests of audiences. Students demonstrate understanding of grammar, select vocabulary for effect and use accurate spelling and punctuation.

Learning intentions:

- I will understand the structural elements of biographical texts about individuals who aspire to make a difference.
- I will understand how language can be context-specific and unique to different communities, demonstrating their membership of particular groups.
- I will enhance their understanding of biography structures and the importance of these devices in communicating meaning about the experiences of individuals aspiring to make a difference.
- I have an understanding of different careers in marine biology

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: 'Lucas Handley' Biographical Writing – English – Year 8. Retrieved from https://www.coolaustralia.org/activity/blue-shark-girl-biographical-writing-english-year-8/](https://www.coolaustralia.org/activity/blue-shark-girl-biographical-writing-english-year-8/)

Resource 5: ALife

What it is:

The ALife program aims to replace the career guide that school leavers receive when they have finished high school as well as a key teaching resource for Year 10 students as part of their personal learning program. The Australian Seafood CRC invested in six seafood career profiles to highlight the diversity of careers within the industry. These are:

- Aquaculture farm hand
- Professional fisherman
- Aquaculture scientist
- Supply chain and quality manager
- Diver
- Oyster farmer

Learning intention:

- I can consider a career or further study in the seafood industry

Link to resource:

[Alife.net.au \(2008\). Retrieved from http://www.alife.net.au/index.php](http://www.alife.net.au/index.php)

Indigenous Fishing

PRIMARY SCHOOL RESOURCES

Resource 1: Indigenous Fishing Method

What it is:

Video showing a method of Indigenous fishing

Learning intentions:

- I will understand the various tools and strategies used by Indigenous Australians when fishing
- I will understand that Indigenous Australians have a special connection to the land and this in turn creates a naturally sustainable relationship between themselves and the ocean and rivers.

Link to resource:

My Place (n.d.) *Fishing*. Retrieved from http://myplace.edu.au/teaching_activities/1878_-_before_time/beforetime01bunda/2/fishing_bt.html?idSubtheme=3371

Resource 2: Turtle Trails

What it is:

A comic book that centres on Torres Strait communities and animals to ensure dugong and turtle populations are sustainably managed for future generations.

Learning intention:

- I understand the special connection Torres Strait Islanders have with the sea and the animals that inhabit the ocean
- I understand the importance of ensuring animals that Torres Strait Islanders hunt for food are sustainability managed for future generations to enjoy

Link to resource:

National Library of Australia. (n.d.) *Turtle Trails*. Retrieved from <https://catalogue.nla.gov.au/Record/5017071>

Indigenous Fishing

SECONDARY SCHOOL RESOURCES

Resource 1: Torres Strait Island Fishing Maps

What it is:

A collection of maps showing the areas in the Torres Strait where different species of seafood are caught

Learning intention:

- I understand the different regions of the Torres Strait and where various forms of fishing are undertaken.

Link to resource:

[Torres Strait PZJA \(n.d.\) Maps](https://www.pzja.gov.au/resources/maps). Retrieved from <https://www.pzja.gov.au/resources/maps>

Resource 2: Australian Curriculum: Science Aboriginal and Torres Strait Islander Histories and Cultures Cross-Curriculum Priority (Content Elaborations and Teacher Background Information for Years 7-10)

What it is:

A document that showcases the 95 new content elaborations for the Australian Curriculum: Science (K - 10) that address the Aboriginal and Torres Strait Islander histories and cultures cross-curriculum priority.

It also provides the accompanying teacher background information for each of the elaborations from Years 7 -10 to support secondary teachers in planning and teaching the science curriculum as Aboriginal and Torres Strait Islander histories and cultures enrich the curriculum through the development of considered and focused content that fits naturally within learning areas. This cross-curriculum priority enables teachers to deliver the learning area content at the same time as students develop knowledge, understandings and skills relating to Aboriginal and Torres Strait Islander histories and cultures.

Each of the new elaborations is supported by teacher background information that is intended to assist teachers in preparing culturally appropriate and scientifically rigorous classroom materials.

Learning intentions:

- I understand the connections between Aboriginal and Torres Strait Islander histories and cultures and core science concepts.



- I acknowledge that Aboriginal Peoples and Torres Strait Islander Peoples have worked scientifically for millennia and continue to contribute to contemporary science.

Link to resource:

ACARA (July 2019). Australian Curriculum: Science Aboriginal and Torres Straight Islander Histories and Cultures cross-curriculum priority. Retrieved from <https://www.australiancurriculum.edu.au/media/5086/ccp-tbi-7-10.pdf>

Health, Nutrition and Cooking

PRIMARY SCHOOL RESOURCES

Resource 1: Australian Seafood Omega 3 Posters

What it is:

A set of posters demonstrating popular Australian seafood rich in omega 3 and the average omega 3 PUFA content in Australian seafood and other food groups

Learning intentions:

- I understand Australian seafood is healthy and nutritious
- I understand Australian seafood is a rich source of Omega 3

Link to resource:

Master Fish Merchants' Association of Australia (2018). *Seafood Posters*. Retrieved from <https://www.mfma.com.au/merchandise/seafood-posters/>

Resource 2: KidZone

What it is:

A series of resources for teachers produced by the Centre of Excellence for Science, Seafood and Health centred on the health aspects of eating seafood. Includes a variety of dot to dot activities and handouts, colouring handouts, mazes and games.

Learning intentions:

- I understand the health benefits of eating seafood.
- I understand that Omega 3 is a very important fatty acid necessary for good health

Link to resource:

Curtin University (November 2013). *Centre of Excellence for Science, Seafood and Health*. Retrieved from <http://cessh.curtin.edu.au/kidzone/index.cfm>

Curtin University (November 2013). *Teacher Stuff*. Retrieved from http://cessh.curtin.edu.au/kidzone/teacher_stuff.cfm

Curtin University (November 2013). *Kids Stuff*. Retrieved from <http://cessh.curtin.edu.au/kidzone/more.cfm>

Resource 3: Cooking Games (Fish)

What it is:

A platform with a number of fish-based cooking teaching games all in animation.

Learning intentions:

- I can cook a variety of seafood dishes.
- I can choose ingredients to make a seafood dish for my friends and family

Link to resource:

CookingGames.com (n.d.) *Fish Games*. Retrieved from <http://www.cookinggames.com/games/fish/>

TopCookingGames (n.d.) *Fish and Chips*. Retrieved <http://www.topcookinggames.com/fish-and-chips.html>

Resource 4: KidSpot

What it is:

A collection of child-friendly seafood recipes

Learning intention:

- I can choose a seafood recipe and cook it

Link to resource:

Kidspot (2019). *Seafood Recipes*. Retrieved from <https://www.kidspot.com.au/kitchen/recipes/collection/seafood-recipes>

Resource 5: Healthy Eating Curriculum Pack

What it is:

A healthy eating curriculum pack for teachers, with lesson information and worksheets.

Note – Whilst seafood is mentioned in the pack, the focus is mostly on fruit and vegetables. There is an opportunity to provide more seafood resources to supplement this resource.

Learning intention:

- I understand the balance of food, including seafood required for a healthy diet.

Link to resource:

Education SA (n.d.). *Healthy Choices*. Retrieved from [https://www.education.sa.gov.au/sites/g/files/net691/f/curriculum_kit - healthy_choices.pdf](https://www.education.sa.gov.au/sites/g/files/net691/f/curriculum_kit_-_healthy_choices.pdf)

Resource 6: SmartStart Health Intervention Program and Nutritional Analysis Tool

What it is:

Using reviewed articles, studies, existing software and literature, approaches to screening and analysing diets and nutrition with both adults and children, a SmartStart Food Recorder was created.

This tool comprises of a 24-hour food intake diary and recall and asks 15 questions covering all major food types. It is designed to quickly and easily record the food consumed by a child and can be completed by an older child (aged 10 or more) or completed by a younger child with some help from an adult (parent or teacher).

The tool then forms part of an overall program which also offers a physical health and fitness measure, reporting and monitoring service. These are coupled with ongoing education interventions and support services for children, parents and schools.

A sophisticated software database produces reports each targeted in message and style to appeal to and provide useful information for children, parents, teachers and school principals.

Reliable health and fitness data is measured by trained and qualified SmartStart personnel (Measure Team Leaders) who visit schools on an annual basis. Feedback focuses on initially providing a profile of the child or group against normative data then tracking changes against their own personal profile. Reports provide positive messages, giving suggestions and advice relevant to any health and fitness issues identified.

The system was developed to provide reports that will build over the lifetime of individuals, which will provide them with the information necessary to make positive lifestyle choices. It will allow them to look back over their life and associate their behaviour with changing health profiles.

Additional support and activities such as teacher and class resources, lesson plans and idea for group activities were also created. SmartStart also offers personal visits by SmartStart staff to assist teachers and parents to target the individual, class or school health and policy issues and activities.



**Note – This program is no longer implemented in schools*

Learning intentions:

- I have increased my knowledge about good and poor nutrition.
- I can make positive lifestyle choices
- I can see how changes to my diet and physical activity has a positive impact on my overall health over time.

Link to resource:

FRDC (n.d.) Development and Incorporation of a Nutritional Software Program into the Existing 'Rob de Castella's SmartStart to life' School Program. Retrieved from <https://www.frdc.com.au/search?SearchKeyword=2003%2F246>

Health, Nutrition and Cooking

SECONDARY SCHOOL RESOURCES

Resource 1: Super Seafood

What it is:

A website that contains fact sheets and a booklet on the most up to date analysis of the nutritional value of Australian seafood as well as teacher resources under the banner of 'Bounty of the Sea'. The Bounty of the Sea package contains:

- Super Seafood Booklet
- Instructor Resource
- 'Bounty from the Sea' PowerPoint
- 'Bounty from the Sea' Handout
- Quick Seafood Quiz
- Quick Seafood Quiz Answer Sheet
- Student Task Handout
- Self-Assessment Handout/ Peer Assessment Handout

Learning intentions:

- I understand the nutritional content of popular Australian seafood
- I understand the 'whys' behind the fact that Australian seafood is a healthy option.
- I can compare and contrast various Australian seafood into levels of nutritional value

Link to resources:

[Super Seafood \(n.d.\) *Welcome to Super Seafood*. Retrieved from https://superseafood.com.au/](https://superseafood.com.au/)

[Super Seafood \(n.d.\) *Bounty from the Sea Resources*. Retrieved from https://superseafood.com.au/health/bounty-from-the-sea-resources/](https://superseafood.com.au/health/bounty-from-the-sea-resources/)

[Super Seafood \(n.d.\) *Recipes*. Retrieved from https://superseafood.com.au/recipes/](https://superseafood.com.au/recipes/)

[Super Seafood \(n.d.\) *What's In Australian Seafood?* Retrieved from https://superseafood.files.wordpress.com/2013/09/super-seafood-consumer-booklet-june-2014-web.pdf](https://superseafood.files.wordpress.com/2013/09/super-seafood-consumer-booklet-june-2014-web.pdf)

[Super Seafood \(n.d.\) *Downloads*. Retrieved from https://superseafood.com.au/downloads/downloads/](https://superseafood.com.au/downloads/downloads/)

Resource 2: Seafood in Schools

What it is:

A website with downloadable resources such as posters that provides ideas for incorporating seafood into a school lunch program. Includes:

- A teacher's guide
- Love your heart lesson plan
- Healthy eating with my plate lesson plan
- Portions matter
- Seafood nutrition
- Basic culinary techniques

Learning intentions:

- I will recognise simple ways of incorporating fish into food that can be eaten as part my school lunch
- I can identify key terms associated with the human body and nutrition.
- I understand heart disease and the associated risk factors.
- I can recognise preventative measures that can be taken to reduce risks of chronic disease.
- I can identify and define key nutrients.
- I can describe the health and nutritional benefits of the five food groups.
- I can choose healthy food options from each food group to meet daily nutrient and caloric needs.
- I understand the importance of portion sizes as it relates to total caloric intake and weight gain.
- I can identify daily serving size recommendations from the five food groups.
- I can recognize the categories on the Nutrition Facts label and use the label to make healthy food choices.
- I understand the health and nutritional benefits associated with eating seafood.
- I can recognise a variety of seafood that is available for consumption.
- I understand basic culinary terms and measurements.
- I can apply food safety best practices.
- I can demonstrate basic culinary skills

Note – Whilst a US resource, many of the resources can be applied and are relevant to Australia

Link to resource:

[Seafood Nutrition Partnership \(2019\). Seafood in Schools. Retrieved from https://www.seafoodnutrition.org/resources/seafood-in-schools/](https://www.seafoodnutrition.org/resources/seafood-in-schools/)

[Seafood Nutrition Partnership \(2019\). *A Nutrition Education Program to Promote A Healthy Heart*. Retrieved from https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Teachers-Program-Guide.pdf](https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Teachers-Program-Guide.pdf)

<https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Love-Your-Heart.pdf>

[Seafood Nutrition Partnership \(2019\). *Eating Heart Healthy*. Retrieved from https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Eating-with-MyPlate.pdf](https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Eating-with-MyPlate.pdf)

[Seafood Nutrition Partnership \(2019\). *Eating Heart Health: Portions Matter*. Retrieved from https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Portions-Manner.pdf](https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Portions-Manner.pdf)

[Seafood Nutrition Partnership \(2019\). *Eating Heart Health: Seafood Nutrition*. Retrieved from https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-School-Seafood-Nutrition.pdf](https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-School-Seafood-Nutrition.pdf)

[Seafood Nutrition Partnership \(2019\). *Eating Heart Health: Culinary Techniques*. Retrieved from https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Culinary-Techniques.pdf](https://www.seafoodnutrition.org/wp-content/uploads/2018/04/Seafood-in-Schools-Culinary-Techniques.pdf)

Resource 3: Smart Fish

What it is:

This is a program run by WAFIC where an industry representative (retailer or fisher) goes into schools with a chef to cook an under-utilised species. Suitable for secondary school hospitality electives

Programme focusses on educating about the industry, career options, fishing practices and sustainability.

Learning intentions:

- I have learnt possible career option in the Australian seafood industry
- I understand the fishing practices of a variety of species
- I understand how the fish has been sustainably caught
- I can cook a basic fish recipe

Link to resource:

Contact Dr Janet Howieson – Curtin University

J.Howieson@curtin.edu.au

Fisheries Management and Sustainability

PRIMARY SCHOOL RESOURCES

Resource 1: Protecting our Fishing Future

What it is:

Series of fact sheets and lesson plans created by AFMA about fisheries management in Australia.

Learning intentions:

- I can tell others about the work of the Australian Fisheries Management
- I can identify areas of my chosen classroom project topic and explain fisheries management
- I understand how the Australian government manages the Australian fishing industry to it remains sustainable

Links to resources:

[For Teachers For Students \(n.d.\) *Protecting Our Fishing Future*. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/)

[For Teachers For Students \(n.d.\) *Protecting Our Fishing Future – Facts for Students*. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/facts/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/facts/)

[For Teachers For Students \(n.d.\) *Protecting Our Fishing Future – Lessons and Activity Sheets*. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/lesson-ideas/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/lesson-ideas/)

[For Teachers For Students \(n.d.\) *Protecting Our Fishing Future – Extra Resources*. Retrieved from https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/extra-resources/](https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/extra-resources/)

Resource 2: Marine Madness

What it is:

A worksheet and answer page/ interactive whiteboard tool to discuss fisheries management in the classroom

Learning intentions:

- I can explain why fish are a public resource.

- I understand and can explain why fisheries management is important.

Link to resource:

For Teachers For Students (n.d.) *Protecting Our Fishing Future – Marine Madness* Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-madness.pdf>

For Teachers For Students (n.d.) *Protecting Our Fishing Future – Lessons and Activity Sheets*. Retrieved from <https://www.forteachersforstudents.com.au/site/themed-curriculum/protecting-fishing-future/lesson-ideas/>

Resource 3: Learning Fisheries Management Terms and Vocabulary

What it is:

A word search worksheet/ Interactive Whiteboard Tool for teaching about the terms and vocabulary used in fisheries management

Learning intention:

- I can identify key vocabulary associated with fisheries management.

Link to resource:

For Teachers For Students (n.d.) *Protecting Our Fishing Future – Fisheries Find-A-Word*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-find-a-word.pdf>

Resource 4: Researching How a Fishing Sector is Managed

What it is:

A template for students to write a report on their chosen fishing industry to learn how it is managed by the Australian government.

Learning intentions:

- I can define my chosen fisheries operation and present accurate data to others.
- I can apply research skills to my chosen area of study.

Link to resource:

For Teachers For Students (n.d.) *Protecting Our Fishing Future – Fisheries Report*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-report.pdf>

Resource 5: Australian Fishing Zones

What it is:

A map of Australia students can use to map Australian fishing zones

Learning Intention:

- I can map the areas of Australia that the Australian Fisheries Management Authority is responsible for overseeing.
- I can use a scale to highlight regions.

Link to resource:

For Teachers For Students (n.d.) *Protecting Our Fishing Future – AFZ*. Retrieved from <https://www.forteachersforstudents.com.au/site/wp-content/uploads/AFMA/Fish/pdfs/afma-afz.pdf>

Resource 6: How Fishing Vessels are Inspected

What it is:

A video from the Australian Fisheries Management Authority that describes how a Fisheries Officer inspects a fishing vessel

Learning intention:

- I understand the process of a routine inspection of a domestic fishing boat.

Link to resource:

Australian Fisheries Management Authority. (August 2017). *AFMA Fisheries Officer Vessel Inspection*. Retrieved from <https://www.youtube.com/watch?v=8plMYKubyFg>

Resource 7: Don't be a Jack! Look After Our Fisheries

What it is:



A cartoon-based video that raises awareness of the consequences of illegal fishing by the Australian Fisheries Management

Learning intention:

- I understand the consequence of illegal fishing.

Link to resource:

Australian Fisheries Management Authority. (August 2017). *Don't Be a Jack – Look After Our Fisheries*. Retrieved from <https://www.youtube.com/watch?v=eI5Iz0cMhQQ>

Resource 8: Sustainably Managing Our Fisheries

What it is:

A video that explains how Queensland manages its fisheries sustainably and the role biomass plays in this.

Learning intentions:

- I can define what is meant by fish population
- I understand processes for measuring fish stocks

Link to resource:

Fisheries Queensland (January 2018). *Sustainably Managing Our Fisheries*. Retrieved from https://www.youtube.com/watch?v=8_X-INB6xps

Resource 9: One Fish, Two Fish, Good Fish, Great Fish. (60 min lesson)

What it is:

In this lesson students learn about sustainable fishing by exploring the reasons we should wait for fish to grow to certain sizes before we catch them. They learn about how science is involved in helping people to fish responsibly. Students take part in an activity that allows them to experience sorting and sizing fish, to work out if it is a good catch or a great catch. They then decide whether to keep the catch or return it to the sea. Finally the students discuss how they can help the fish of the oceans when they go next go fishing.

The resource contains both teacher and student worksheets that are available for download by signing up and logging in.

Links to relevant curriculum include:

- Foundation Mathematics - Use direct and indirect comparisons to decide which is longer, heavier or holds more, and explain reasoning in everyday language (ACMMG006)
- Year 1 Mathematics - Measure and compare the lengths and capacities of pairs of objects using uniform informal units (ACMMG019)
- Year 2 Mathematics - Compare and order several shapes and objects based on length, area, volume and capacity using appropriate uniform informal units (ACMMG037)
- Syllabus outcomes: MAe-1WM, MAe-3WM, MAe-9MG, MAe-11MG, MAe-12MG, MA1-1WM, MA1-3WM, MA1-2WM, MA1-9MG, MA1-10MG, MA1-11MG.
- General capabilities: Critical and Creative Thinking.
- Cross-curriculum priority: Sustainability OI.7.
- Relevant parts of Foundation Mathematics achievement standards: Students compare objects using mass, length and capacity.
- Relevant parts of Year 1 Mathematics achievement standards: Students order objects based on lengths and capacities using informal units.
- Relevant parts of Year 2 Mathematics achievement standards: Students order shapes and objects using informal units.

Learning intention:

- Students learn about why and how we should fish in a way that doesn't harm marine ecosystems.

Link to resource:

[Coolaustralia.org \(n.d.\) Activity: Blue: One Fish, Two Fish, Good Fish, Great Fish – F to 2.](https://www.coolaustralia.org/activity/blue-one-fish-two-fish-good-fish-great-fish-f-to-2/) Retrieved from <https://www.coolaustralia.org/activity/blue-one-fish-two-fish-good-fish-great-fish-f-to-2/>

Resource 10: Sustainable Fishing Lesson Plan

What it is:

A 60-minute lesson in which students will investigate sustainable fishing practices. A subscription to the portal is required to access all resources

Learning intentions:

- To understand the use and management of natural resources sustainably.
- To propose actions to an issue or challenge and consider possible effects.

Link to resource:

[Teacherstarter. \(2019\). Lesson 9: Sustainable Fishing.](https://www.teachstarter.com/au/lesson-plan/sustainable-fishing/) Retrieved from <https://www.teachstarter.com/au/lesson-plan/sustainable-fishing/>

Resource 11: The Great Fisheries Challenge Online Game

What it is:

A free educational resource for classroom teachers of middle to upper primary school students that meets the Australian curriculum standards.

Students can learn how AFMA manages Australian fisheries and protects species that may be impacted by fishing activities. There are also fun facts about Australian fisheries and how AFMA makes sure they are kept sustainable.

The great Australian fisheries challenge provides students with a challenging and engaging environment in which to learn about fisheries management in three different fisheries. Through direct interaction with each fishery, students learn how to find a balance between the ecosystem, fish stocks and the economics of a fishery.

The game is suitable for students in Years 3 to 6.

Learning intentions:

- I understand how AFMA manage Australian fisheries and protects species that may be impacted by fishing activities
- I know a series of facts and have knowledge about Australian fisheries and how AFMA makes sure they are kept sustainable.

Link to resource:

[Australian Fisheries Management Authority \(n.d.\) Educational](https://www.afma.gov.au/resources/educational). Retrieved from <https://www.afma.gov.au/resources/educational>

Fisheries Management and Sustainability

SECONDARY SCHOOL RESOURCES

Resource 1: Fishing for the Future

What it is:

A lesson plan suitable for Years 11-12 and Years 7-10 where students will explore the management of recreational fisheries in Western Australia and interpret local rules and regulations using Fisheries' resources.

Includes posters and articles to accompany classroom teaching.

Covers topics such as fisheries management, human impacts, marine science, recreational fishing and sustainability.

Links to relevant curriculum include:

- ACHGK024
- ACHGK070
- ACSHE062
- ACSHE120
- ACSHE136
- ACSSU112

Learning intentions:

- I can identify and recognise local recreationally important fish species
- I can describe the need for a "Fish for The Future" philosophy.

Link to resource:

Marine Waters (2019). *Fishing For the Future*. Retrieved from <http://marinewaters.fish.wa.gov.au/resources/fishing-for-the-future-2/#.XQOWhBYzaUk>

Resource 2: Commercial Rock Lobsters

What it is:

In this teacher's kit, students will learn how research on the Western rock lobster contributes to the management of the fishery. Kit includes reports, discussion papers, articles and YouTube videos.

Topics include:

- Biology
- Commercial Fishing
- Fisheries Management
- Indian Ocean Territories
- Lifecycles
- Puerulus
- Research

Links to relevant curriculum include:

- ACSHE136
- ACSHE157
- ACSHE160
- ACSHE194
- ACSIS145
- ACSIS169
- ACSIS199
- ACSIS203
- ACSIS234
- ACSSU176

Learning intentions:

- I understand the life cycle of the western rock lobster.
- I have knowledge of the recreational and commercial western rock lobster fisheries.
- I understand the management controls of the commercial western rock lobster fishery.
- I understand the sampling technique used by Department of Fisheries research staff to sample puerulus.
- I can recognise the correlation between puerulus counts and the rock lobster catch.

Link to resource:

[Marine Waters \(2019\). Commercial Rock Lobster. Retrieved from http://marinewaters.fish.wa.gov.au/resources/commercial-rock-lobster/#.XQOZWhYzaUk](http://marinewaters.fish.wa.gov.au/resources/commercial-rock-lobster/#.XQOZWhYzaUk)

Resource 3: South Australia's VET in SACE studies (also includes the NT)

What it is:

The SACE is designed to give Year 11 and 12 students increased flexibility, including greater opportunities to have diverse forms of learning and achievement recognised. The SACE enables students

to include a significant amount of VET in their SACE studies. These recognition arrangements help students to build coherent pathways in the SACE through VET.

The VET Recognition Register outlines which courses can be taken that have a fishing theme. These include:

- Adjust and position fishing gear
- Apply deckhand skills aboard a fishing vessel
- Apply fly fishing skills
- Communication in a fishing workplace
- Construct and repair fishing rods
- Construct and work simple fishing lures
- Develop information and advice on fishing charter trips
- Demonstrate beach fishing skills
- Demonstrate estuary fishing skills
- Demonstrate freshwater fishing skills
- Demonstrate marine inshore fishing skills
- Demonstrate marine offshore fishing skills
- Develop information and advice on fishing charter trips
- Fishing biology and ecology
- Fishing gear construction
- Fishing gear technology
- Fishing occupational health and safety
- Fishing practice
- Fishing technology 1
- Fishing technology 2
- Fishing technology 3
- Fishing vessel administration
- Guide fishing trips
- Introduction to the NT fishing industry
- Instruct fishing skills
- Locate fishing grounds and stocks of fish
- Manage and control fishing operations
- Monitor and record fishing
- Overview - the Australian fishing industry
- Plan and manage extended fishing charter trips
- Safety in fishing operations
- Seafood/fishing industry
- Select, use and maintain fishing tackle outfits
- Skill enhancement (fishing operations)
- Tie simple fishing flies
- Work orientation (fishing industry)

Link to resource:

South Australian Certificate of Education (n.d.) *Recognised Learning*. Retrieved from <http://www.sace.sa.edu.au/subjects/recognised-learning/recognition-register>

Resource 4: OceanWatch Master Fishermen

What it is:

A collection of videos that allows students to “meet” local OceanWatch Master Fishermen in NSW who explain where and how they bring fresh, local seafood to the market. They also discuss their commitment to sustainable and responsible practice.

Learning intentions:

- I understand the different types of seafood caught in NSW, the people that bring the catch to the marketplace and how they fish sustainably
- I can relate fishing methods to sustainability

Link to resource:

Oceanwatch Australia (n.d.). *Responsibly Harvested Local Seafood*. Retrieved from <http://masterfishermen.oceanwatch.org.au/>

Resource 5: Australian Fish Stock Status

What is it:

A website that brings together available biological, catch and effort information that determines the status of Australia’s key wild catch fish stocks. This resource can be used in the class room setting for discussing species management and conservation.

Learning intentions:

- I have a greater understanding of policy making and its purpose
- I can describe the sustainability status of wild catch fish stocks
- I understand what the United Nations Sustainability Goals are and why they’re important

Link to resource:

FRDC (n.d.) *Status of Australian Fish Stock Reports*. Retrieved from <http://fish.gov.au>

END