Upstream
Teacher resource pack
Information and extension activities for use in conjunction with the children’s book *Upstream*, by Barmera Primary School students and assisted by Elizabeth Frankel.
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Upstream: foreword from the book

The Katarapko Eckert Creek Demonstration Reach for Native Fish (Katfish Reach) is a community initiated project which aims to address issues that have resulted in a dramatic decline in native fish numbers in the Murray-Darling river system. The fish require a variety of habitats in order to successfully breed.

The Katfish Reach area contained a number of barriers that restricted the movement of the fish between the river and the adjacent creeks and within the creeks themselves.

At this point in time most of the barriers have been removed with the final barrier due for removal soon. The removal of the barriers, combined with environmental water to increase the frequency of floodwater entering adjacent wetlands will provide all of the conditions essential for fish breeding to occur.

Riverland artist and children’s book author, Liz Frankel, has taken a group of Barmera Primary School students on a journey of discovery and provided them with the opportunity to tell the story of Katfish Reach in their own words.

Liz took the students on a tour of the project areas, encouraged them to take photographs of the places they liked the best, invited an ecologist to interact with the students and stimulated their imagination about ways to write a book to put what they had learnt into a story.

Using the student’s photographs, their creative story ideas and their artistic drawings of the characters they wanted portrayed, Liz has cleverly engaged the students in bringing all of these ideas together in Upstream.

This little book, written by the students for students, is destined to capture the imagination of children, stimulate their interest in their natural environment and inspire them to become involved with the preservation of our unique assets.

Kevin Smith - Chairman Katfish Reach Steering Group.

Barmera Primary School students involved with writing the book. Seen here and below during their site visits to Katarapko.

Barmera Primary School students developing artwork and ideas for the book.

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Katfish Reach

A demonstration reach for native fish

Katfish Reach is a community environmental rehabilitation project working for a healthier and more productive aquatic and floodplain ecosystem that everyone can enjoy.

The Katfish Reach Project began as a demonstration reach for native fish under the Native Fish Strategy of the Murray-Darling Basin Authority. It is the only demonstration reach along the River Murray in South Australia. Demonstration reaches are large sections or lengths of a stream or river. This demonstration reach was established for the purpose of demonstrating to the community the cumulative benefits of applying a number of interventions (such as provision for fish passage, re-snagging, and introduced species management) for rehabilitation of native fish habitat and populations.

The name Katfish Reach was coined through the abbreviation of “Katarapko and Eckert Creek Demonstration Reach for Native Fish”.

For more information about the project and management actions please visit the Katfish Reach website and see the video introducing the project on Youtube:
http://katfish.org.au/the-katfish-reach-project/
https://www.youtube.com/watch?v=ykylrW2YbZw

Where is Katfish Reach?

Katfish Reach is in the Riverland region of South Australia, located south-west of the prominent fruit and wine growing town of Berri, and north and opposite of the town of Loxton.

The total area of the Katfish Reach is nearly 9,000 hectares and while the majority of the site lies within the Murray River National Park (Katarapko section) or on Crown land, it also includes land held by Gerard Aboriginal Reserve and a number of small private holdings.

Visit the Katfish Reach website for a habitat tour:

Become involved

It is easy to get involved with Katfish Reach and we would be thrilled for you to join us in rehabilitating this amazing part of the Murray River system.

There are several different ways to become involved, including: volunteering, donating water to the environment, or financial support. To find out more, please visit the community involvement page on the website:
http://katfish.org.au/community-involvement/
Pearl the callop

Pearl, the main character in the book is a callop or golden perch. Pearl is trying to make her way from the creek to the river but finds herself a little lost and encounters barriers along the way.

Explore native and introduced fish species with your students. Take the opportunity to talk about local creeks and waterways, are there any barriers to fish passage that you can identify?

Visit the activities pages to see what you can do to extend your students’ learning about native fish and fish passage.

Interesting callop facts

• Scientific name: *Macquaria ambiguа* (Richardson 1845).
• Other common names include yellowbelly and Murray perch.
• Size: golden perch can reach a maximum weight of around 23 kg and length of 760 mm but are usually found less than 400 mm and around 4 kg.
• Adult and immature fish are migratory, so clear fish passage is essential for breeding. For more information: [http://www.nativefish.asn.au/](http://www.nativefish.asn.au/)
Reg the regent parrot

In the book Reg says “For many years this creek was dry, but there is water flowing down here now...”

Talk to your students about how the river has been regulated with locks and weirs and that prior to this, many of our wetlands used to wet and dry naturally. Regulation of creeks and the river led to some creeks drying out completely and others remaining inundated all of the time. Rehabilitation projects like Katfish Reach aim to reinstate natural wetting and drying regimes for our creeks and wetlands - and restore flow and fish passage.

Visit the activities pages to see what you can do to extend your students’ learning about regent parrots, and water flow.

Interesting regent parrot facts

- The regent parrot is a slim parrot with a long, dusky tapering tail and back-swept wings. It is mostly yellow, with blue-black wings and tail. There is a prominent yellow shoulder patch and red patches in the wings, which show up against the dark wings in flight. The bill is deep red or pink.
- In South Australia, the population of the regent parrot is now fragmented due to clearance of large areas of both the breeding and foraging habitats favoured by the species.
- If you have seen regent parrots near your school or home you can report your sightings and help with research and mapping where the birds are located. For more information: http://regentparrot.org/
- Refer to the regent parrot fact sheet on pages 20-21 for more information about regent parrots.
Bell the southern bell frog

In the book Bell says “There used to be a log dam here, blocking the creek, but now there is a nice new set of fish stairs for you to swim through.”

This is another great opportunity to talk about the rehabilitation of our waterways and how projects like Katfish Reach are working towards creating free flowing fish passage for native fish species.

Visit the activities pages to see what you can do to extend your students’ learning about local frog species, fish passage and flows.

Interesting southern bell frog facts

- Scientific name: Litoria raniformis and other common names include growling grass frog.
- Can be found larger than 90 mm (one of the biggest local frog species).
- Known to be carnivorous - eating other frogs for dinner including other southern bell frogs!
- Find out more about frogs here: https://frogs.org.au/frogs/species/Litoria/raniformis/
Pearl comes across Hover the dragonfly. Hover tells Pearl she is in luck. “Big nasty carp used to live here. They made the water muddy and would not let fish travel any further”.

Carp are generally top of the list when you ask children about what sort of environmental issues we have in our river system. This is a good opportunity to talk to them about introduced species and what they can do to change or affect the habitat of our native species.

Dragonflies are extremely interesting creatures. They are insects indeed - but actually the spend the majority of their life, as a juvenile, in the water! Students always find learning about dragonflies interesting and amazing so take this opportunity to get them interested in these wonderful creatures.

**Interesting dragonfly facts**

- There are hundreds of species of dragonfly throughout the world.
- Dragonflies lay their eggs in water. When the eggs hatch a dragonfly nymph emerges and can live in the water for two years or more as it feeds and grows and will eventually climb out of the water, shed its casing/exoskeleton and emerge as an adult dragonfly. Once an adult, a dragonfly has quite a short life span - some only living for a matter of days.
- Dragonfly nymphs have internal gills in the end of their tail, so they effectively breathe water through their bottoms. They can suck the water in and shoot it out quickly to make a fast getaway from their predators.
Claude the yabby

When Pearl meets Claude he tells her she is in luck! "The creek used to be blocked with rubbish, but it has now all been cleaned up".

Rubbish and pollution is always a hot topic and this conversation between Pearl and Claude is a great lead for you to talk to your students about reducing, reusing and recycling at home and at school.

You could also introduce the importance of leaving only footprints and the seven leave no trace principles when visiting the river, national parks or bushland:
1. Plan ahead and prepare.
2. Travel and camp on durable surfaces.
3. Dispose of waste properly.
4. Leave what you find.
5. Minimise campfire impacts.
6. Respect wildlife.
7. Be considerate of your hosts and other visitors.

For more information about the seven ‘leave no trace’ principles: http://www.lnt.org.au/index.html

Interesting yabby facts
• Scientific name: Cherax destructor.
• Can reach up to 30 cm in length.
• They shed their exoskeleton to grow - leaving behind a perfectly and fully formed empty shell - which they then sometimes eat!
• Yabbies can range in colour from brown right through to black and of course sometimes bright blue!
• Yabbies are NOT vegetarians as some people believe. They are in fact detritivores, feeding primarily on algae and plant remains but they will also feed on any fish or animal remains they encounter.
• Check out this ABC Creature feature: http://www.abc.net.au/creaturefeatures/facts/yabby.htm

Image credit: http://ashdown4628.clients.cmdwebsites.com
Bill the pelican

Pearl comes to the end of her journey and is unable to swim any further. Bill helps her by scooping her up into his bill and flying her over the bank and drops her into the river!

Pearl can’t make it to the river because the creek is all but closed off and the only way to the other side is through a big pipe but the water is gushing through so fast from the river she’ll never make it. This is another example of how creeks have been managed in the past and a good opportunity to talk about the Katfish Reach project and how we are now working towards improving water flow and fish passage in our waterways.

Interesting pelican facts

- Scientific name of the Australian pelican: *Pelecanus conspicillatus*.
- The bill is 40 cm - 50 cm long and is larger in males than females.
- Pelicans have large wings and a wingspan of 2.3 m to 2.5 m.
- A flock of pelicans works together, driving fish into a concentrated mass using their bills and sometimes by beating their wings. The fish are herded into shallow water or surrounded in ever decreasing circles. This is an amazing sight as the pelicans are synchronised and graceful.
Classroom activities

Here are some ideas for indoor/classroom activities you can do with your students to extend on their learning about the *Upstream* story, native fish passage and water flows.

Use the *Upstream* character set provided to your school for students to re-enact the story or to help create their own short stories about what happens for Pearl once she makes it out into the main river.

Download golden perch and other fish and animal colouring sheet(s) from the NRM Education website: http://www.naturalresources.sa.gov.au/samurraydarlingbasin/education/teaching-resources/colouring-sheets

Research the migratory habits of golden perch - see how far they have been found to travel and why.

Borrow the NRM Education fish kit which includes life-size fabric fish including callop, carp, Murray cod, catfish and more along with information and activities all about native fish. For more information contact your local NRM Education Officer (contact details at the back of this resource).

Download the fish fact sheets and fishing game resources from the NRM Education website and students can enjoy fishing for random objects, introduced and native fish whilst learning about each species. http://www.naturalresources.sa.gov.au/samurraydarlingbasin/education/teaching-resources/plants-and-animals

Learn about how the regent parrot Recovery Team are working towards the preservation of this vulnerable species. Current projects include nest surveys, radio and satellite tracking and nest site fidelity and banding project. Visit this website and follow the Regent parrot facebook page to learn more about Regent parrots, their habitat and what you can do to assist. http://www.regentparrot.org http://www.facebook.com/RegentParrot

Refer to the Regent parrot fact sheet (pages 20-21) to learn more about these amazing birds and their vulnerability.

Borrow the NRM Education bird kit which includes hand painted wooden cut-out birds (including a regent parrot) which you can hang in your classroom to assist in learning about different local species. For more information contact the Upper Murray NRM Education officer (contact details at the back of this resource).
Read the book *What do you think? A story about the plight of the River Murray* by Elizabeth Frankel. The story follows two regent parrots as they emerge from their nest and head out to explore. The parrots meet and interact with different animals that depend on the River Murray and learn about the changes occurring that affect their habitats. Your school library may already have a copy or visit the website below to purchase this book and other inspiring books with environmental themes: [http://frankelglassandbooks.com.au/](http://frankelglassandbooks.com.au/)

The NRM Education team have developed teacher resources for both *River Boy* and *Hairy Nose Itchy Butt* and these packs can be downloaded here: [http://www.naturalresources.sa.gov.au/samurraydarlingbasin/education/teaching-resources/plants-and-animals](http://www.naturalresources.sa.gov.au/samurraydarlingbasin/education/teaching-resources/plants-and-animals)

Borrow the NRM Education frog kit. It contains a large handmade southern bell frog so students can get a close look at the features, along with lots of froggy information and activities. Contact your local NRM Education Officer for more information (contact details at the back of this resource).


The Murray-Darling Basin Association website has some excellent resources including:

- colouring sheets
- water sharing game
- murray-darling basin sticker mapping activity.

There are also several excellent lesson plans including comprehensive teacher notes which can help you teach your students about:

- the Murray-Darling Basin
- the water cycle
- drought and flood
- locks, weirs and dams.


Borrow the NRM Education aquatic macroinvertebrate kit which includes oversized models of some of the most amazing water bugs (including a dragonfly nymph) which your students can handle and study. The kit contains fact sheets and other activities to help your students learn about aquatic macroinvertebrates and their habitats. For more information contact your local NRM Education Officer (contact details at the back of this resource).
Explore introduced fish species (in particular carp) and find out why they are so bad for our river. Why are we not allowed to return carp to the river when we catch them? Why are they a threat to our native fish species? Can we eat them? For general information about carp:

Download fact sheets about introduced fish species:

Students could make dragonflies from recycled materials and label the body parts.

Download the macroinvertebrate identification sheets and the critters galore teacher resource to learn about all the different invertebrate creatures found in our waterways:

Students could construct their own yabbies from recycled materials and label all of the body parts.

Explore the food chain and food webs - where do yabbies fit in? What do yabbies eat and what eats yabbies?

Keep a pet yabby in your classroom aquarium and observe its habits and how it grows by shedding its exoskeleton - a great observation and monitoring activity for students.

Research a pelican’s fishing methods - see if you can find some images or video of them working together to herd fish for easy eating.

Research where pelicans go to breed. Why is it that we never see baby pelicans? What is a baby pelican called? Is it a chick or is there a special name? Students could come up with a special new name for pelican chicks as they research. For information about pelicans visit:
https://birdssa.asn.au/birddirectory/australian-pelican/

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https://birdssa.asn.au/birddirectory/australian-pelican/
Research barriers to fish passage. Native fish require clear access along waterways in order to survive and reproduce. When a creek or river is blocked by a restrictive structure like the pipe culvert example in the book, native fish cannot pass through and move upstream. Of the 83 species of freshwater fish in south eastern Australia, more than half of them migrate at least once as part of their life cycle. Explore the different barriers to fish passage and what it can mean when they are fixed or corrected. The Katfish Reach project is working towards improving fish passage in several ways:

For more information about fish passage:

Learn more about locks, dams, weirs and fish passage. These websites include maps, diagrams and locations of your local locks and weirs:

Refer to pages 22-23 to see before and after images of Bank J. This is a great example of how fish passage has been dramatically improved. What once used to be a pipe culvert which fish could not pass through to move upstream is now a large regulator which allows free passage to native fish.
Outdoor activities

Outdoor learning is very important and can be a great way to engage students further about the topic you are learning about. Here are some ideas for outdoor activities and excursions you could do with your students to extend on their learning about the *Upstream* story, native fish passage and water flows.

Callop are one of the best eating fish in the river. Take your class on a fishing expedition and have someone teach them about the size and bag limit requirements for fishing in the river. The PIRSA Fishcare volunteers may be able to assist with this kind of event or topic. For more information: [http://pir.sa.gov.au/fishing/fishcare_volunteers](http://pir.sa.gov.au/fishing/fishcare_volunteers)

The SA Fishing App is a one stop shop for everyone to access information on fishing in South Australia from the convenience of their smartphone or tablet devices.
For more information about fishing in South Australia, or the new app visit: [http://www.pir.sa.gov.au/fishing/recfishingapp](http://www.pir.sa.gov.au/fishing/recfishingapp)

Build a creek bed in the sandpit (or even from play dough) and have the students experiment with blocking the flow with a dam or structure. How does the water flow stop or change. How can it be made better so that fish can still travel through?

Visit a lock or weir close to your school and have someone speak to the students about how the water is managed, or how boats and even fish pass through. For more information: [http://www.murrayriver.com.au/about-the-murray/lock-passage-information/](http://www.murrayriver.com.au/about-the-murray/lock-passage-information/)

Visit your local national park, wetland or bushland area (or even the school yard) and do some bird monitoring - can you spot any regent parrots in your area? Download some bird monitoring sheets here: [http://www.naturalresources.sa.gov.au/samurraydarlingbasin/education/teaching-resources/plants-and-animals](http://www.naturalresources.sa.gov.au/samurraydarlingbasin/education/teaching-resources/plants-and-animals)

If you know of regent parrots in your area you could plant some parrot-friendly plants in the school garden to provide food and habitat for the local birds. Regent parrots feed on all sorts of native seeds, grasses and flower buds. Learn more about their preferred habitat here: [http://regentparrot.org/](http://regentparrot.org/)

Make recycled bird feeders from drink bottles and sticks or old wooden spoons, to encourage native birds into the garden.

You can participate in frog monitoring at your local wetland or waterway. Best done in the evening this activity is perfect for school camps or sleep-overs. You can borrow a recording kit from your local NRM Education Officer to record and ID the calls you hear from our froggy friends (contact details at the back of this resource).

Download the FrogSpotter App which can assist you to collect valuable data on the condition of the environments frogs are dependent on in South Australia! Collect audio, photos and habitat info for each survey you conduct. Learn about frogs within SA, including audio examples of their calls. For more information:

Visit a local creek or wetland in spring or summer and see how many dragonflies and damselflies you can see flying around. Use a fine net to collect a sample of macroinvertebrates (waterbugs) and see if you can catch some dragonfly nymphs.

Download the macroinvertebrate identification sheets and so you can identify what you find:

Host a ‘carpathon’ or participate in one near you and see how many carp you can catch and remove from the river. Visit this website for more information about fishing regulations in South Australia:

Refer to page 24 for a guide to the best way to fillet and cook carp. It is actually quite tasty!

Find out if any of the locks or weirs near you have carp cages to trap carp and make a trip to have a look at how they extract the carp from the river:

Download and run the river murray story activity with your students. This fantastic hands-on activity follows the journey of Danny the Drip as he makes his way down the river and along the way encounters all kinds of pollution.
Conduct a waste audit to see how much rubbish your class is sending to landfill. Can you make any positive changes to reduce what you are sending to landfill? Waste audit worksheets, waste action ideas and other useful activities are available for download here: http://www.naturalresources.sa.gov.au/samurraydarlingbasin/education/teaching-resources/waste-and-recycling

Visit a local wetland or lake and see how many pelicans you can count. Have the students observe their behaviour: are they feeding, are they alone or in groups? You might be lucky enough to see a group of pelicans fishing in a large group. When they do this, it’s almost like synchronised swimming as they herd the fish into smaller areas so they can dive and get a good catch. If you’re not lucky enough to see this, you can find videos of pelicans fishing in groups on Youtube. For more information about pelicans feeding: http://www.birdsinbackyards.net/species/Pelecanus-conspicillatus

Visit a local wetland or lake and have a go at some general bird monitoring. Your local NRM Education Officer (contact details at the back of this resource) has a kit of bird ID books and binoculars you can borrow. How many different kinds of birds can you identify? Can you identify where the different birds live? What kind of habitat do they like/need? What does the shape of a bird’s beak tell you about what it eats?


Visit a real example of where fish passage has been improved to help native fish. Some of our locks and weirs in South Australia now have improved fish passage to allow native fish to travel upstream safely and easily. Contact SA Water for your nearest lock or weir with a fishway and ask about a site visit.

In the book, the example of the pipe culvert that Pearl cannot pass through is part of the Katfish Reach project and is called Bank J. As part of the project to improve fish passage, Bank J is now a new regulating structure which includes a fishway. So, Bill the Pelican would no longer need to lift Pearl up and over the pipe culvert, she would just be able to use the fishway and make her own way upstream or out to the river.

Your class could visit Bank J - the actual place that’s referred to in the book where Pearl could not get through to the river. For more information about the Katfish Reach project and improvements to fish passage: [http://katfish.org.au/the-katfish-reach-project/](http://katfish.org.au/the-katfish-reach-project/)

Refer to pages 22-23 for more images of the new and improved structure for flow and fish passage at Bank J.

Bank J at the entrance to Eckert Creek is part of the Murray River National Park (approx. 10 to 15 minute drive into the park from Berri via Draper Road and past the old rodeo grounds) and is accessible by car or mini bus for class visits.

If you are interested in taking your class to Bank J and would like more information on how to get there please contact your NRM Education Officer (contact details at the back of this resource).
Regent Parrot (Eastern sub-species)
*Polytelis anthopeplus monarchoides*

**Vulnerable**

**Description**

The eastern sub-species of the Regent Parrot is found in an area overlapping the junction of the South Australian, Victorian and New South Wales borders. They can be recognised by their distinctively bright colours. The males are a brilliant golden-yellow with a dark green back, blue-black flight feathers and a red band across the mid-wings. Female birds and juveniles are similarly patterned but are greener around the head and neck.

In Spring they nest in colonies of River Red Gums along the River Murray. Colonies usually have between 10-20 pairs but over the years we have seen larger colony sizes downstream of Lock 3. The female parrots incubate the eggs and sit with the newly hatched chicks while the males flock to search for food. These male feeding flocks can sometimes be seen heading to and from their nests along the river.

**Regent Parrot or Yellow Rosella?**

Yellow Rosellas can be easily confused with Regent Parrots, but they look and behave differently. Yellow Rosellas are not as brightly coloured, they have a red patch on their forehead, their bills are white not orange and they have a blue patch under the beak.

Yellow Rosellas are usually seen in pairs and have an undulating flight pattern compared to a Regent Parrot which has a very flat, and direct flight trajectory.

**Where do they occur?**

In South Australia they nest in River Red Gum woodlands along the River Murray, between Chowilla and Swan Reach. Outside the breeding season they disperse from the river corridor into the surrounding mallee. Sometimes they are recorded as far south as Ngarkat.
What do they need to survive?

During the breeding season Regent Parrots nest in the hollows that occur in mature and dead River Red Gums. From these trees they forage over large areas, up to 12km from their nests. They feed on the seeds, buds, flowers and sometimes on insect larvae. Regent Parrots need flight corridors of native vegetation that link their nest colonies on the river with good feeding areas such as large intact areas of mallee woodlands.

Why are they threatened?

In the past this parrot was destroyed as an agricultural pest and many nesting and foraging areas were cleared. While destruction of this bird is no longer permitted and the clearance of native vegetation is regulated, the Regent Parrot is still in decline.

Today their continued survival may be threatened by other birds forcing them from their nest hollows, clearing of small areas of mallee that link nesting and foraging sites, long periods of drought, illegal destruction and human disturbance around nests. Sometimes they are accidentally killed by cars when flocks feed on grain split along roadides. Currently there are less than 400 pairs remaining in the South Australian River Murray corridor.

What we are doing to help?

A Regional Recovery Plan for the Regent Parrot is already in place, which we are implementing together with a Regional Recovery Team. Recovery actions include doing regular monitoring of nesting numbers, identifying competition from other species, researching habitat requirements, restoring and protecting areas around colonies and locating feeding areas.

What can you do to help?

- Every sighting of these birds is valuable, as every record helps us to improve our understanding of this bird. You can report sightings to the Murraylands Regional Ecologist (08) 8595 2111.
- Slow down and be careful when driving near grain spills.
- Protect breeding sites by reducing activity near Regent Parrot nests in River Red Gums during the breeding season.
Bank J before and after

At the end of the book, Pearl reaches a pipe culvert that prevents her from swimming out into the river. In real life, this pipe culvert was located at Bank J at the entrance of Eckert Creek. This pipe culvert has now been removed as part of the Katfish Reach project, in an effort to improve flows and native fish passage.

The new regulator (including fishway) will be the main water inlet for the Katarapko floodplain and its mosaic of creeks and wetlands. Fish will now be able to freely pass through the fishway. Pearl, and all the other native fish will no longer have any problems getting to where they need to be.

Bank J before: a narrow pipe culvert restricting water flow and fish passage.

Aerial view of Bank J
How to cook carp
Carp recipe

Catch and cook some carp! Follow these steps to fillet and cook European carp caught in the River Murray. This method will give you a clean fillet that does not taste muddy.

After catching the carp put it immediately into an ice slurry to stop histamines spreading through its body.

Make a cut behind the gill plate and run the knife from the shoulder down the backbone of the fish to the tail. Cut the fillet off the ribcage and remove the skin.

The most edible parts are the flesh over the rib cage and a thin strip over the shoulder. Avoid the red blood line and bones in the centre.

Carp recipe
Dust the carp fillets in seasoned flour (plain flour, black pepper, vegetable salt and Hungarian paprika). Pan fry the fillets in butter, turning once.
Just before removing the fillets from the pan, add a splash of lemon juice.
Once removed from the pan, pour the nut brown butter from the pan over the fillets for serving. Enjoy!
UPSTREAM
Curriculum links

The topics explored in *Upstream* and the activities suggested above link best with the subject areas of science and HASS (particularly geography), with aspects of English, Maths, Technologies and Health and PE. The activities are aimed at primary school students.

The topics and activities link perfectly with the cross-curriculum priority of sustainability, and connect with various general capabilities including critical and creative thinking and ethical understanding. They also call for the use and development of skills such as researching, analysing, evaluating and reflecting, and communicating.

Below is a list of some of the strongest links to the Australian Curriculum; however, there are many ways to use the book and its activities in your class.

**Foundation**

Science: Living things have basic needs, including food and water (ACSSU002).

HASS: The reasons why some places are special to people, and how they can be looked after (ACHASSK017).

**Year 1**

Science: Living things have a variety of external features (ACSSU017).

Science: Living things live in different places where their needs are met (ACSSU211).

Science: People use science in their daily lives, including when caring for their environment and living things (ACSHE022).

HASS: The natural, managed and constructed features of places, their location, how they change and how they can be cared for (ACHASSK031).

**Year 2**

Science: Living things grow, change and have offspring similar to themselves (ACSSU030).

**Year 3**

Science: Living things can be grouped on the basis of observable features and can be distinguished from non-living things (ACSSU044).

HASS: Why people participate within communities and how students can actively participate and contribute (ACHASSK072).
Year 4
Science: Living things have life cycles (ACSSU072).
Science: Living things depend on each other and the environment to survive (ACSSU073).
Science: Earth's surface changes over time as a result of natural processes and human activity (ACSSU075).
Science: Science knowledge helps people to understand the effect of their actions (ACSHE062).
HASS: The importance of environments, including natural vegetation, to animals and people (ACHASSK088).
HASS: The use and management of natural resources and waste, and the different views on how to do this sustainably (ACHASSK090).

Year 5
Science: Living things have structural features and adaptations that help them to survive in their environment (ACSSU043).
HASS: The environmental and human influences on the location and characteristics of a place and the management of spaces within them (ACHASSK113).
HASS: The influence of people, including Aboriginal and Torres Strait Islander Peoples, on the environmental characteristics of Australian places (ACHASSK112).
HASS: The impact of bushfires or floods on environments and communities, and how people can respond (ACHASSK114).

Year 6
Science: The growth and survival of living things are affected by physical conditions of their environment (ACSSU094).

Year 7
Science: Classification helps organise the diverse group of organisms (ACSSU111).
Science: Interactions between organisms, including the effects of human activities can be represented by food chains and food webs (ACSSU112).
Science: Some of Earth’s resources are renewable, including water that cycles through the environment, but others are non-renewable (ACSSU116).
HASS: Classification of environmental resources and the forms that water takes as a resource (ACHASSK182).
HASS: The way that flows of water connect places as they move through the environment and the way these affect places (ACHASSK183).
HASS: The quantity and variability of Australia’s water resources compared with other continents (ACHASSK184).
HASS: The nature of water scarcity and ways of overcoming it, including studies drawn from Australia and West Asia and/or North Africa (ACHASSK185).
HASS: Causes, impacts and responses to an atmospheric or hydrological hazard (ACHASSK187).
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