



Science Rocks
Career Expo 2020
ONLINE
STUDY GUIDE



fisheries science and sustainability
marine ecology
science communication

Great Southern Science Council Pro Files series – connecting science professionals and our community

Rachael Goetze

job title
organisation
where and contacts

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Pro File video interview
Related resource in this series

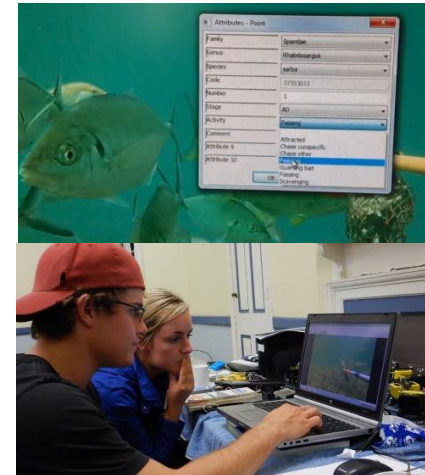
Not yet available...watch this space for a Pro File video in future
See also: Science Rocks Career Expo Online – Pro File Study Guide.marine environment.Paul Mackey



UWA Field Techniques students collaborate with Southern Ports Albany staff to prepare the Stereo Baited Remote Underwater Video Systems (BRUV) for deployment at Albany Port.



UWA Field Techniques students lowering a Stereo BRUV at Albany Port *Berth 6*, looking through Attaturk Channel into King George Sound.
Can you also see a cargo vessel and Michelmas Island?



Students analyse BRUV video imagery using the software SeaGIS EventMeasure™ to record fish species and measure size.

EXTENSION MATERIAL – science professionals answered these questions to extend your interest and study in their topic area

WE ASKED THESE QUESTIONS ABOUT THE PATHWAY AND THE WORK...	How did you get into the work you do now as an environmental officer?	I'm generally interested in the natural environment; my brother is a marine biologist and both of us enjoyed getting out and about in nature with our grandparents. Bush walks up at Mt Clarence and around Lake Seppings were a regular activity.
	Describe a typical work day, and in your project <i>The Port as a Fish Refuge – A Joint Initiative between UWA and Southern Ports Albany</i>	It depends on what day, in what week of what year you ask me! Typically most of my work is computer based, with a small part in the field. Emails and correspondence with port users, the community and stakeholders is a large part. Recently I've undertaken some air monitoring for removal of asbestos from some old Port buildings and managing a few small sustainability projects, including the installation of LED lighting.
	Favourite part of your work?	Working on projects with my Port colleagues in a range of other fields including marine, engineering and maintenance. It's great to be involved as a project team member from start to finish.
	Best way to deal with less exciting parts of your job?	Work politics and trying to communicate activities that occur regionally at the Port to colleagues based in Perth can be challenging across teams and distance. We encourage Perth colleagues and collaborators to travel to site so we can discuss, demonstrate, brainstorm and develop ideas <i>in situ</i> . We use direct communication, web resources and collaborative work in the community to handle misconceptions such as "all environmental officers are "greenies" and to draw the distinction between organisations and functions of Southern Ports Albany and the grain industry group CBH, which both use some Port facility areas in Albany.

FREQUENTLY ASKED QUESTIONS in this topic/job	FAQ 1 What type of fish species have been sighted at the Port?	A range of fish species have been sighted in the Port , some more notable species include juvenile pink snapper, blue groper, sambo, queen snapper, flat head and black bream.
	FAQ 2 Does the Port act as a refuge for targeted fish species?	In a way yes, fish are attracted to the infrastructure provided by the Port's jetties and wharves. They are also not threatened by recreational fishers due to limited access and restrictions on fishing from vessels in Port.
	FAQ 3 How are fish assemblages monitored within the Port?	Each year a group of UWA students visit the Port as part of a science study unit called Field Techniques. The students use Stereo Baited Remote Underwater Video Systems (Stereo BRUVS) to record total abundance, species richness and abundance of targeted and non-targeted species in the Port and open areas. They then compare the data to research undertaken in previous years, right back to 2015.
YOUR TURN	What question could you ask them?	See also https://www.southernports.com.au/albany/environmental-fags
LEARN MORE	Rachael recommends this <i>newsletter</i> about current fisheries research and management:	Facebook page: Marine Ecology Group – Fisheries Research @marineecologygroupUWA Give it a LIKE! https://uwamegfisheries.github.io/
	Rachael says this website features excellent resources about this topic:	www.aims.gov.au
DO MORE	A citizen science or interactive project that community can be involved in to learn more about this topic	PestWatch A simple and rewarding way to get involved in sustaining our marine environments is to download the free PestWatch application from the Department of Fisheries website. You can take a photo of anything that looks weird, or doesn't seem right and upload direct. A fisheries researcher will respond to your query and get in contact if it is of concern – you could be a 'marine hero'! http://www.fish.wa.gov.au/Sustainability-and-Environment/Aquatic-Biosecurity/Identifying-Pests-And-Diseases/Pages/WA-PestWatch.aspx

<p>INNOVATE One, Two, Three...solved!</p>	<p>One Big Problem we are trying to understand in this topic area Two innovative ways we are already trying to solve the problem THREE ideas for the problem solving wishlist that anyone could help develop</p>	<p>1 Understanding the benefits of no-take marine reserve habitats, and documenting the fish assemblages and use by larger predators such as sharks. 2 working with Dept of Fisheries data about fish assemblages conducting local BRUV surveys around Albany Port facilities 3 Develop better ways to access and monitor fish in areas of the ocean that aren't necessarily easy to get to without using SCUBA divers and potentially influencing the behaviour of fish assemblages. Contribute to efforts to research how fish and larger predators use marine reserve habitats. Join the conversation about marine reserves in Western Australia.</p>
<p>YOUR TURN</p>	<p>Using your new insights for this topic and its issues, please add another idea for the Problem Solving Wishlist. Then think of a research question to test possible solutions. <i>eg Idea: where are the declared marine reserves in Western Australia, and where are the proposed marine reserves? What are the values and benefits to declaring marine reserves in these proposed areas? What are the issues?</i></p>	

<p># CURRICULUM LINKS #</p>	<p># Examining factors that affect population sizes such as seasonal changes, destruction of habitats, introduced species #</p> <p>Research how we study fish assemblages in Australia, and the use of Australian system (Euan Harvey) Stereo Baited Remote Underwater Video System (Stereo BRUVS) and Stereo Diver Operated Underwater Video Systems (DOVS) to record total abundance, species richness and abundance of targeted and non-targeted species in the Port and open areas.</p> <p>Brainstorm with sketches (to be able to share your ideas) ways to improve these systems using remote operated technology to deploy and retrieve systems, and communication systems to transmit data from site back to base.</p>
<p>FAMOUS MARINE ENVIRONMENTALISTS</p>	<p>Do some research to find two famous marine environmental influencers ?</p> <p>1 famous for marine environment work</p> <p>2 famous marine advocacy</p> <p>What are they famous for? How has their work changed how we view the marine environment?</p>
<p>KNOWLEDGE + IMAGINATION What would it be like?</p>	<p>If a port like Albany’s sets targets for increased energy efficiency and reduced carbon footprint for their facility and processes, what will you as an environmental officer do to help achieve this, and what other industry professionals might you work with along the way?</p>
<p>OUR PATCH MARINE ECOLOGY IN THE GREAT SOUTHERN</p>	<p>Rachael’s work as an environmental officer at Southern Ports Albany ranges across topic in environmental management, including marine and coastal life, coastal processes like tides, wind and waves, air and water quality and sustainable facilities and practices. What skills and resources will Rachael use to help manage these hypothetical situations around the Albany Port?</p> <p>1 A pair of osprey are building their huge nest on a the light poles along the loading berths. Rachael and interested community members know these birds are loyal to a nest site, and might build new layers each year, so they want to encourage the habitat use, but in a safer way for the birds.</p> <p>2 Rachael’s air quality testing and community comments suggest there are increased dust particles in the air around the port during a particular season. What other information will Rachael need to help manage this and reduce the dust?</p>