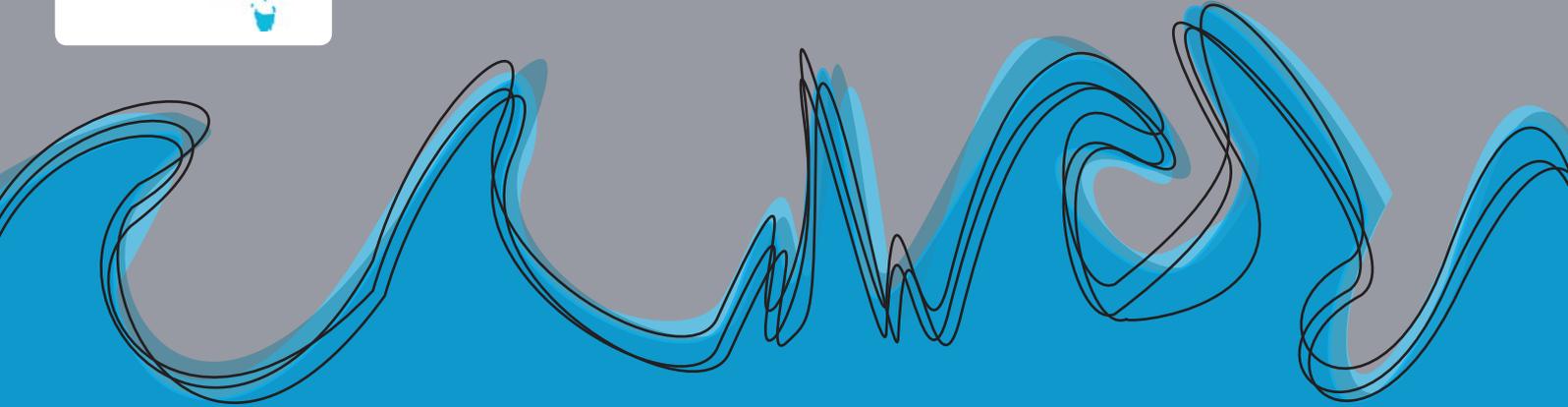


# The vulnerability of an iconic Australian finfish to an altered climate: Barramundi (*Lates calcarifer*)



## Project Background

Barramundi-associated industries are important to tropical communities. This species supports a strong commercial and aquaculture fishery and is an important recreationally targeted fish in tropical waters. Because of this, there is a need to understand future climate patterns and how it will impact on Barramundi. In particular, the climate impact on their distribution, changes to the carrying capacities of the environment and local abundances within the

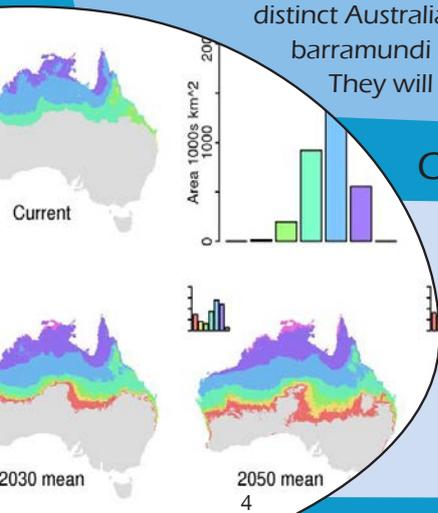
commercial and recreational fisheries, as well as the threats and opportunities for aquaculture. This project will determine how resilient Australian populations are to change and provide adaptation strategies on how barramundi will respond to a changing climate. The project will also determine what genetic strains will perform best for aquaculture production.



## Project Outline

Researchers at James Cook University are investigating the genetic and physiological tolerances to thermal and parasitic stresses of five genetically distinct Australian barramundi strains. They will investigate

different methods to identify how strains respond when placed under varying stresses. Modelling against future climate change scenarios will then be incorporated to predict what strains may be at threat, or advantaged, under future conditions.

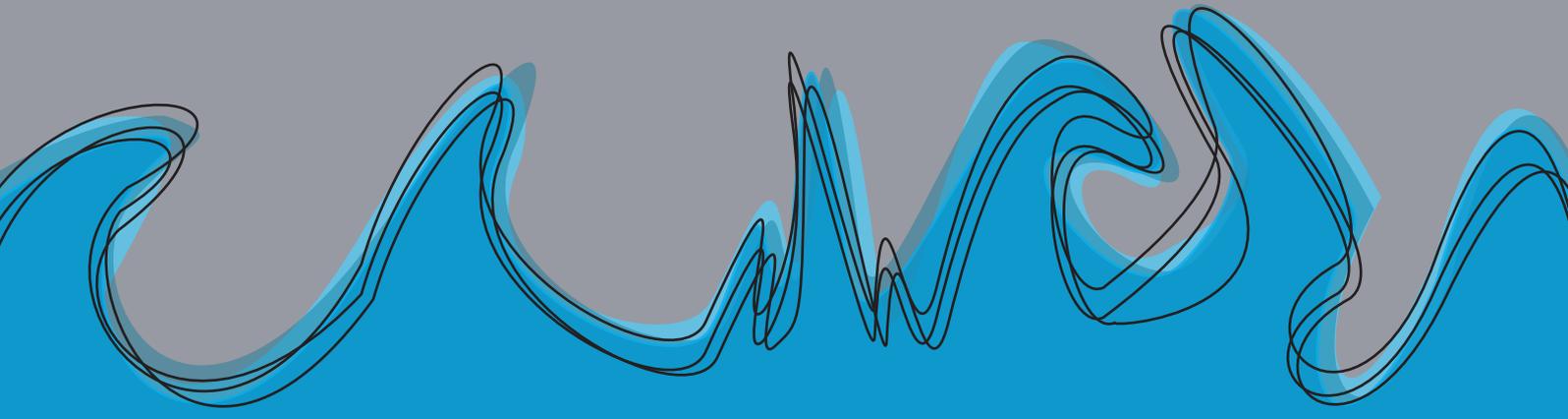


## Outcomes

The project will illustrate:

- possible changes in wild fishery numbers;
- aquaculture threats and opportunities;
- adaptation strategies based on commercial and recreational fishing exploitation of natural population variability; and
- increased understanding of biophysical factors.





## Benefit to the Community



Beneficiaries of knowledge from this project will include fisheries and conservation managers, aquaculturists, policy planners, and commercial and recreational fishers. The project will for the first time measure the effects an altered climate will have on the barramundi fishery and allow the identification of any fisheries sectors

under threat, or that may become available for exploitation. This information will aid long-term resource planning, future fishery management and aquaculture zoning plans. Identification of barramundi that can survive in warmer waters and be resilient to disease will also permit the aquaculture industry to farm more tolerant and efficient strains.

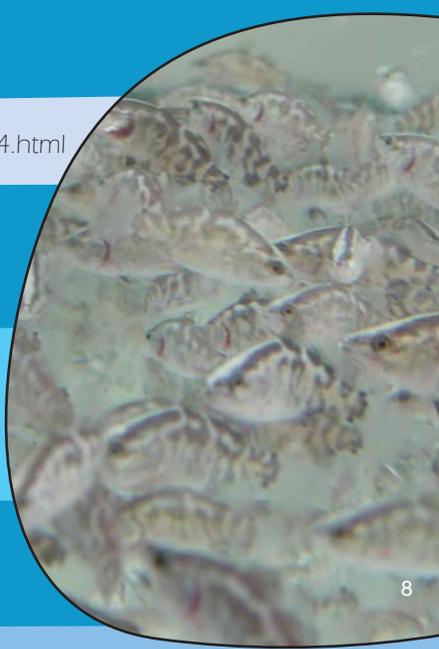


## More Info

[http://www.jcu.edu.edu/mtb/research/projects/JCU\\_083894.html](http://www.jcu.edu.au/mtb/research/projects/JCU_083894.html)

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## Images

1. Seacage barramundi facility; 2 Large barramundi caught; 3. Tropical estuary habitat of barramundi; 4. Current and predicted future suitability (estimated as gains per day) for barramundi aquaculture under changing climate conditions; 5. Inspecting sedated barramundi for parasites; 6. Copepod (*Lernanthropus laticus*) infection on gills; 7. Experimental hatching of parasites under different temperature and salinities; 8. Barramundi juveniles. Photo credits: Kate Hudson & Dean Jerry.

The National Climate Change Adaptation Research Plan (NARP) for Marine Biodiversity & Resources identifies research priorities in five sectoral areas: marine aquaculture, commercial & recreational fishing, conservation management, tourism & recreational uses, and cross-cutting issues.

