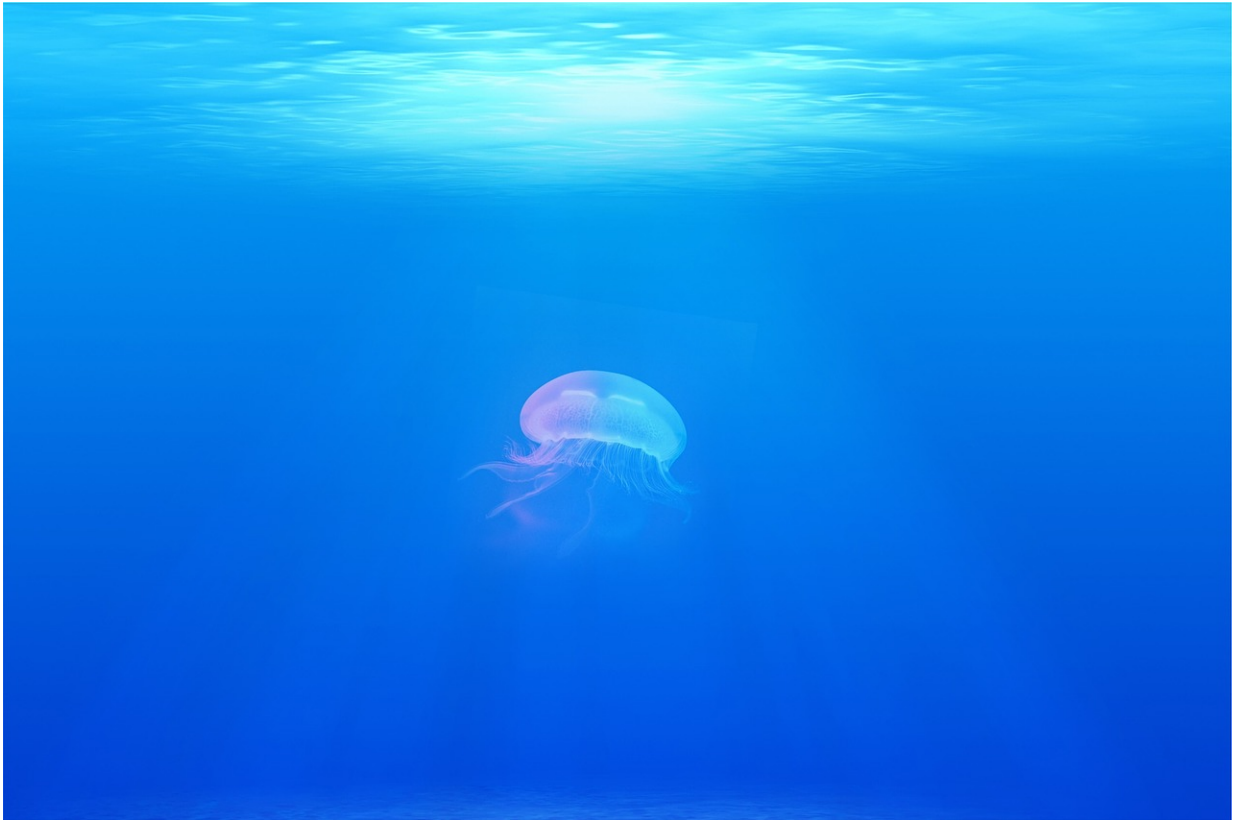


Baby fish led astray by high CO₂ in oceans

April 11 2018, by Robyn Mills



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Baby fish will find it harder to reach secure shelters in future acidified oceans – putting fish populations at risk, new research from the University of Adelaide has concluded.

Published today in the Nature journal *Scientific Reports*, the researchers

described how barramundi larvae in high CO₂ conditions, predicted for the turn of the century, turn away from the ocean noises they would normally be attracted to. They are instead attracted to other sounds – noises produced by the wrong sort of habitats and or 'white noise'.

"The oceans are far from silent environments; they harbor many noisy animals, for example snapping shrimps and whales and dolphins," says project leader Professor Ivan Nagelkerken, from the University of Adelaide's Environment Institute.

"Oceanic larvae (hatchlings or [baby fish](#)) from quite a few species of fishes and invertebrates listen to sounds of [coastal ecosystems](#). They use these sounds to guide them from the open ocean, where they hatch, to a sheltered home in shallow waters, where they can spend their juvenile and adult lives.

"Unfortunately the CO₂ that humans are pumping into the atmosphere by burning fossil fuels gets absorbed by the ocean and causes acidification, and this causes changes to the behaviour of many marine animals."

The research, carried out by then Ph.D. candidate Tullio Rossi, compared the activity of barramundi larvae in marine tanks with levels of CO₂ that are predicted for the turn of the century against the responses of barramundi larvae in current day CO₂ levels.

"In our study we found that while larvae of barramundi are attracted to the sounds of tropical estuaries, larvae raised under future ocean conditions with elevated CO₂ were deterred by these natural sounds," says Professor Nagelkerken. "Moreover, under elevated CO₂, larval barramundi were attracted to the wrong sounds." The other sounds were noises found on cold water reefs (which are not the correct habitat for barramundi) and artificial sounds or 'white noise'.

Professor Sean Connell, from the University's Southern Seas Ecology Laboratories, says that if [ocean](#) acidification causes larvae to be deterred to the sounds of their habitats, and attracts them to irrelevant sounds, they could end up in the wrong habitat or in places where they cannot survive.

"Fewer [larvae](#) are arriving in coastal ecosystems, estuaries and rivers could result in smaller population sizes and, in the case of commercial species like barramundi, this could have a significant impact on fisheries, whether it be commercial or recreational," Professor Connell says.

"The research also raises questions about future [fish populations](#) in areas with unnatural sounds. Will some species be more attracted, for example, to areas where there are a lot of human structures and sounds in and under the water, such as harbours and oil platforms, in the future?"

More information: [10.1038/s41598-018-24026-6](https://doi.org/10.1038/s41598-018-24026-6)

Provided by University of Adelaide

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