

Baby fish will be lost at sea in acidified oceans

December 15 2015



The ability of baby fish to find a home, or other safe haven, to grow into adulthood will be severely impacted under predicted ocean acidification, University of Adelaide research has found.

Published today in the journal *Proceedings of the Royal Society B*, the researchers report the interpretation of normal ocean sound cues which help [baby fish](#) find an appropriate home is completely confused under the levels of CO₂ predicted to be found in oceans by the end of the century.

"Locating appropriate homes is a crucial step in the life cycle of fish," says Tullio Rossi, PhD candidate with the University's Environment Institute. "After hatching in the open ocean, baby fish travel to reefs or mangroves as safe havens to feed and grow into adults.

"Baby fish can find those places through ocean noise: snapping shrimps and other creatures produce sounds that the baby fish follow.

"But when [ocean](#) acidity increases due to increased CO₂, the neurological pathways in their brain are affected and, instead of heading towards those sounds, they turn tail and swim away."

Mr Rossi conducted experiments with barramundi hatchlings, an important fisheries species. The study was in collaboration with other researchers including Professor Sean Connell (University of Adelaide), Dr Stephen Simpson (University of Exeter) and Professor Philip Munday (James Cook University).

He and his collaborators also found that high CO₂ makes baby fish move slower and show more hiding behaviour compared to normal fish. This could make it more difficult for them to find food or habitat and to avoid predators.

Research leader Associate Professor Ivan Nagelkerken says marine researchers know that [ocean acidification](#) can change fish behaviours. But it hasn't been known how high CO₂ would affect such crucial hearing behaviour as finding somewhere to settle.

"Such misinterpretation of sound cues and changes in other behaviours could severely impact fish populations, with the number of young fish finding safe habitats dramatically reduced through their increased vulnerability to predators and reduced ability to find food," Associate Professor Nagelkerken says.

There is still time to turn around this scenario, Mr Rossi says. "We have the capacity to steer away from that worst-case scenario by reducing CO₂ emissions," he says. "Business as usual, however, will mean a profound impact on [fish populations](#) and the industries they support."

More information: Ocean acidification boosts larval fish development but reduces the window of opportunity for successful settlement, *Proceedings of the Royal Society B: Biological Sciences*, [rspb.royalsocietypublishing.org1098/rspb.2015.1954](https://royalsocietypublishing.org/doi/10.1098/rspb.2015.1954)

Provided by University of Adelaide

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