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Underwater drones are changing the way fishing is monitored and predicted.

Seagoing drones spy on 'current regime'

By **BOBBY JORDAN**

● South African researchers are using waterproof underwater drones to help figure out what every fisherman wants to know: what's happening to the fish and where are they?

An international scientific team involving experts from SA, Kenya, Tanzania and the UK is using drones to resolve a series of fish "anomalies", which in SA includes disappearing squid and scarce sardines.

Scientists suspect climate change may be causing behavioural change in marine species, but don't know how the changes occur or whether they relate to shifting currents or water temperature, or a combination of factors.

"What we are trying to understand is how climate change might be affecting the Agulhas [current] system," said Warwick Sauer from Rhodes University. Of particular concern is the fluctuation in catch volumes, and in particular the disappearance of KwaZulu-Natal's annual sardine run.

"Certainly climate change seems to be having an effect," Sauer said. "We are finding that although we are still getting some [sardines] going up the coast, the biomass has been greatly reduced."

The underwater drone "gliders" enable scientists to gather valuable information, such as water temperature and underwater topography.

"We've never been able to properly understand the current regime," said Johann Augustyn, secretary of the South African Deep Sea Trawling Industry Association.

"Now, with drone surveys, with robot gliders, we have an idea of current structure, better information on food availability and how productivity [of fish stocks] might be enhanced or reduced."

A drone demonstration project off Kenya yielded positive results, Augustyn said.

By combining drone and satellite data, scientists can produce accurate models of ocean dynamics. "These are important to predict from a fisheries agency point of view, so that one can know when to allow boats to go and fish there," said Augustyn.

Augustyn said: "It was tried in Port Elizabeth, testing in the Agulhas current. When it finishes it beams up the information to a satellite and you get data in real time.

"You can put a Go-Pro [camera] on it and get it to zigzag over a reef to count fish, an operation that would normally require several divers."

The international collaboration is being led by the UK's National Oceanography Centre, which has committed substantial funding to ocean research.