

Oil leases a threat to fishery ecosystem

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(PhysOrg.com) -- The issuing of oil drilling licences off the coast of South Australia poses a serious potential threat to the ecosystem that underpins the nation's most valuable fishing industry, a Flinders University oceanographer has said.

Associate Professor Kaempf said that the seasonal upwelling of nutrient-enriched water across the continental shelf break near Kangaroo Island is the principle agent that fuels high abundances of phytoplankton, zooplankton and fish, including the pilchards which attract juvenile Southern Bluefin Tuna to the region.

The haunting images of the massively destructive oil spill in the Gulf of Mexico have an immediate relevance, he said.

“Apart from potential overfishing of juvenile tuna, future oil disasters pose the biggest threat to the unique ecological environment produced by upwelling in the region. Even a small oil spill could cause damage in the Great Australian Bight similar to that caused by the BP spill in the Gulf of Mexico,” Associate Professor Kaempf said.

Associate Professor Kaempf recently completed a study that revealed a chain of processes that begins with localised upwelling in submarine canyons cutting through the shelf break south of Kangaroo Island.

The upwelling produces nutrient-rich water, which collects southwest of Kangaroo Island in a subsurface pool approximately 100 kilometres square, and equivalent in volume to 40 million Olympic swimming

pools. In summer, the pool moves further onshore into the surface ocean layers off the southern tip of Eyre Peninsula where the nutrients and light catalyse high levels of primary production, the trigger of a highly productive [marine food chain](#).

“The canyon upwelling is unique because of its depth - it is one of the deepest in the world, guaranteeing particularly high nutrient fluxes,” Associate Professor Kaempf said.

Some of the new drill leases approved by the Federal Government are, ironically, in the same area flagged by Environment Minister Peter Garrett for potential marine sanctuaries.

Associate Professor Kaempf said industrial exploitation and marine pollution of any kind must be limited to zero in the area.

“Environmentally and economically, we cannot risk this resource: without the nutrient enriched water, the eastern Great Australian Bight would be a marine desert,” he said.

The study’s findings will soon be published in the prestigious *Journal of Geophysical Research - Oceans*.

Provided by Flinders University

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