

The leeuwin current



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The Leeuwin Current is a warm ocean current that flows towards the south around the Western Australian coast and turns towards the east passing through Cape Leeuwin. It continues towards the Great Australian Bight influencing as far as Tasmania.

It was discovered a hundred years ago when an investigation of the marine life of the Abrolhos Islands was conducted by William Saville-Kent. It was alleged that there was a warm current flowing towards the south off Western Australia instead of the anticipated cool current that was going towards the north in the bounds of southern Africa and South America.

This supposition was based on his observations of warm waters and tropical marine flora and fauna around the Abrolhos Islands. It was only during the dawn of the satellite technology in 1970s that the existence of the southwards-flowing current was finally confirmed. It was then named the Leeuwin Current by George Cresswell and Terry Golding, with its name coming from a merchant ship called Leeuwin, which meant Lioness.

The Leeuwin current's strength varied all through out the year. Its current was strongest during autumn and winter, on the months of April to October, because the opposing winds are weakest. The weakest Leeuwin current's strength, on the other hand, is weakest during November to March. It is during this season when there are strong winds blowing towards the north opposing the southwards flow of the current.

The most productive fisheries are due to the Leeuwin current's rush of cool waters rich with nutrients. Here are the contributions that the Leeuwin current brought to the marine life and the aquatic environment that it flows

through. The existence of true corals at the Abrolhos Islands and the transport of tropical marine species at the west coast and onto the Great Australian Bight are due to this current.

This is because the Leeuwin Current causes the continental shelf waters of Western Australia to be warmer in winter than the regions equivalent of that in southern Africa and Chile during summer. The Houtman Abrolhos Islands which is near the edge of the continental shelf off of Geraldton, is the southernmost true building corals in the Indian Ocean partly due to the effect of the nutrient-rich tropical waters of the Leeuwin current. The Leeuwin current is seldom to flow around the east of Rottnest but it oftentimes pass by its western and southwestern areas thereby also influencing the flora and fauna there.

The coastal waters are relatively nutrient-poor and the fisheries are correspondingly different due to the tropical Leeuwin Current, thus we can infer that the current has a very important impact on both the climate and the marine ecosystem of Western Australia. It is also accountable for the availability of tropical marine organisms at the west and south coasts, as much far south than it could be expected. As a sample, the Leeuwin current was a major contributor to the southern bluefin tuna, the western rock lobster and a number of Australia's coastal commercial fisheries.

As it was seen by collective investigative reports done by CSIRO and the Fisheries Western Australia that pned for the past 30 years, it was confirmed that there was a link between ocean circulation and lobster recruitment.

During late winter and early spring, the puerulus, or the small rock lobsters, are carried by ocean currents back to the continental shelf and inshore coastal regions. Studies had shown that the settlement of these small rock lobsters were closely related with the changes in the flow strength of the Leeuwin Current, which is also linked with the occurrences of El Nino - Southern Oscillation (ENSO) events and westerly winds.

It was discovered that puerulus settlement was poor during the El Nino years, when the Leeuwin Current tends to be weak. Also, during the La Nina years, the Current tends to flow more strongly and the rock lobsters settlement was much greater as was measured by satellite sensors. The results simply showed that larger counter-clockwise eddies help larvae settle off the south western Australia, instead of being swept away towards the south.

Other species that the WA Fisheries marine biologists were able to link to the strength of the Leeuwin current was that of the pilchards (sardines) on the south coast region near Albany. Also, according to data on fishery, it was seen that there is a negative relationship between the great quantities of the two-year fish with the strength of the Leeuwin Current, measured two years before the fishes' spawning period.

Another was also the whitebait. According to studies, it was concluded that the stronger the Leeuwin Current was, the greater the relative catch of whitebait will be in the next year. The presence of Australian salmon in South Australia was also related to the Leeuwin Current. It was expected that when the Leeuwin Current was flowing strongly and that warmer waters penetrate

onto the continental shelf, it was also expected that the fish may simply migrate offshore into deeper cooler waters.

References:

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