Great leaps forward

Of the wealth of marine life in the waters around Sydney, it is the largest of creatures that inspires this researcher, writes **Keeli Cambourne**.

MEGAN KESSLER has a job many people would envy. For the past three years, she has spent her days in boats watching whales as they migrate past Sydney.

It may sound like a great way to spend your days but Kessler, a PhD student at Macquarie University, hopes it will help governments around the world better manage the marine environment and protect the giant mammals from any adverse effects of the whale-watching industry.

She has been recording how whales react to the presence of boats and other water craft to determine if existing rules about the distances vessels must maintain from whales are adequate.

She notes any change in behaviour, including the speed at which the animals swim and if there is any increase in activities such as breaching and tail flapping.

Kessler hopes to determine whether it is the closeness of craft or their position in relation to the whale that is most important.

"The tricky thing working with wild animals is that you need all the stars to align to be able to get all the data to the point where we can do some analysis," she says.

Kessler's work has had the support of tourist boat operators, such as Bass and Flinders Cruises, and the Sydney Institute of Marine Science (SIMS).

The institute is a collaborative research and training institute of scientists from five NSW universities and state and federal agencies. One of its focuses is biodiversity – examining the wealth of sea life in the waters off Sydney, from the whales studied by Kessler to the microscopic or microbial.

"The great thing about SIMS is that it gives us [scientists] the opportunity to also get together to discuss things – it is a central place for us to talk and use the resources it has at hand," Kessler says.

"The aim of this research is to try and improve the management of the whale-watching industry and hopefully make a contribution to that industry.

"There has been a massive increase in whale watching over the past few years – not just from tourist operators but also from recreational boaters. There are a lot more people going out in their own boats, which has made the research that much more relevant and important.

"We have found that whales do act differently when they are on migration than when they are somewhere like Hervey Bay, feeding their calves."

Kessler's results can be added to those of another former Macquarie University student, Maryrose Gulesserian, who completed her thesis on a similar subject but from a land-based perspective.

From 2006 to 2008, Gulesserian recorded the behaviour of humpback whales on their northern migration, from Cape Solander in Botany Bay National Park.

Armed with a theodolite and tracking software, Gulesserian was able to see if the presence of boats had an effect on the humpbacks' behaviour and diving characteristics.

"I looked at the surface behaviour of whales swimming past. Every time they surfaced, I would take an observation of the whales and the boats in the area," she says.

"I was then able to see if they avoided boats or changed their behaviour in any way."

The animals' northern migration provided the best chance for Gulesserian to track their behaviour. "On their northern migration, the whales travel closer to shore, so it is easier to observe them from land. I found evidence that suggests animals behave differently on their migration than in breeding areas."

She noted distinct changes in behaviour depending on the movement of vessels near the whales. "I found that whales were more responsive when boats were around. They changed their dive characteristic during the initial approach of the boat.

"Often, when boats saw a whale, they would zoom in to get a closer look. Although they observed the regulations once they were 100 metres from the whales, I found that it was that initial approach of fast manoeuvring that appeared to cause the whales to change their dive characteristics, including the time they spent on the surface, the time spent underwater and their blow rates."

Gulesserian says the information could prove valuable. "It will help determine whether the current regulations are adequate and contribute to the better understanding of whales' responses to boats," she says.

Within breach ... PhD student Megan Kessler notes that whales behave differently during migration. Photo: Jacky Ghossein

A Sun-Herald Special Report. ■ **Edited by** Matt Collins, mcollins@fairfaxmedia.com.au ■ **Photo editor** Mags King
■ **Advertising** Tania Harb, 9282 3987 ■ **Readerlink** 9282 1569, readerlink@mail.fairfax.com.au

UNIVERSITY OF TECHNOLOGY SYDNEY

WHY SCIENCE AT UTS?

Because it is research-driven, relevant, innovative and practical.

UTS Open Day 28 August 2010, 9am to 4pm

Join us for an exciting day of lab tours, info sessions, talk to lecturers and students, and discover why students choose to study and conduct research at UTS!

www.science.uts.edu.au

The University of Technology, Sydney (UTS) is a key partner of the Sydney Institute of Marine Science (SIMS).

UTS CRICOS PROVIDER CODE 00099F UTS46/SCI

1HERSA1 V001