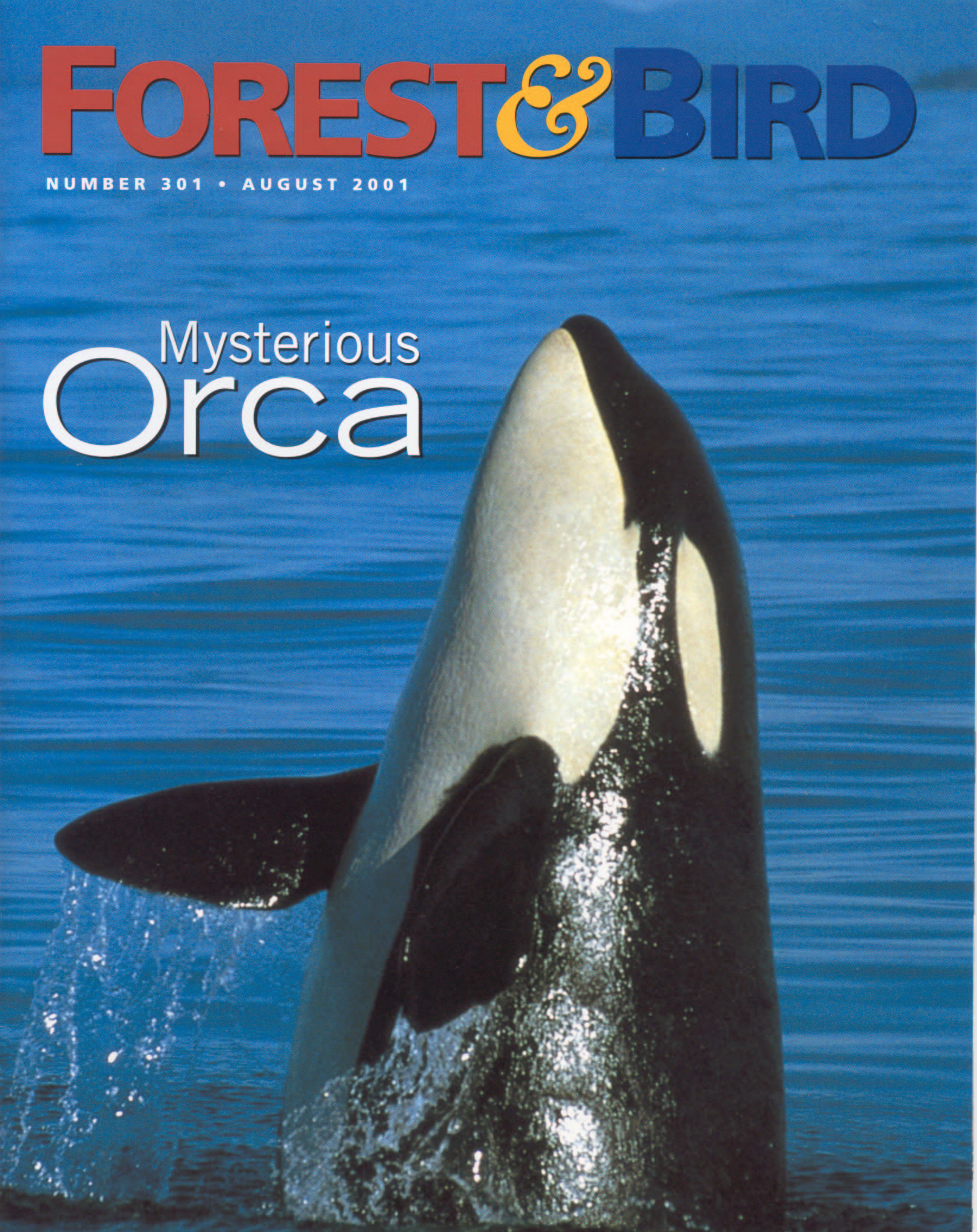
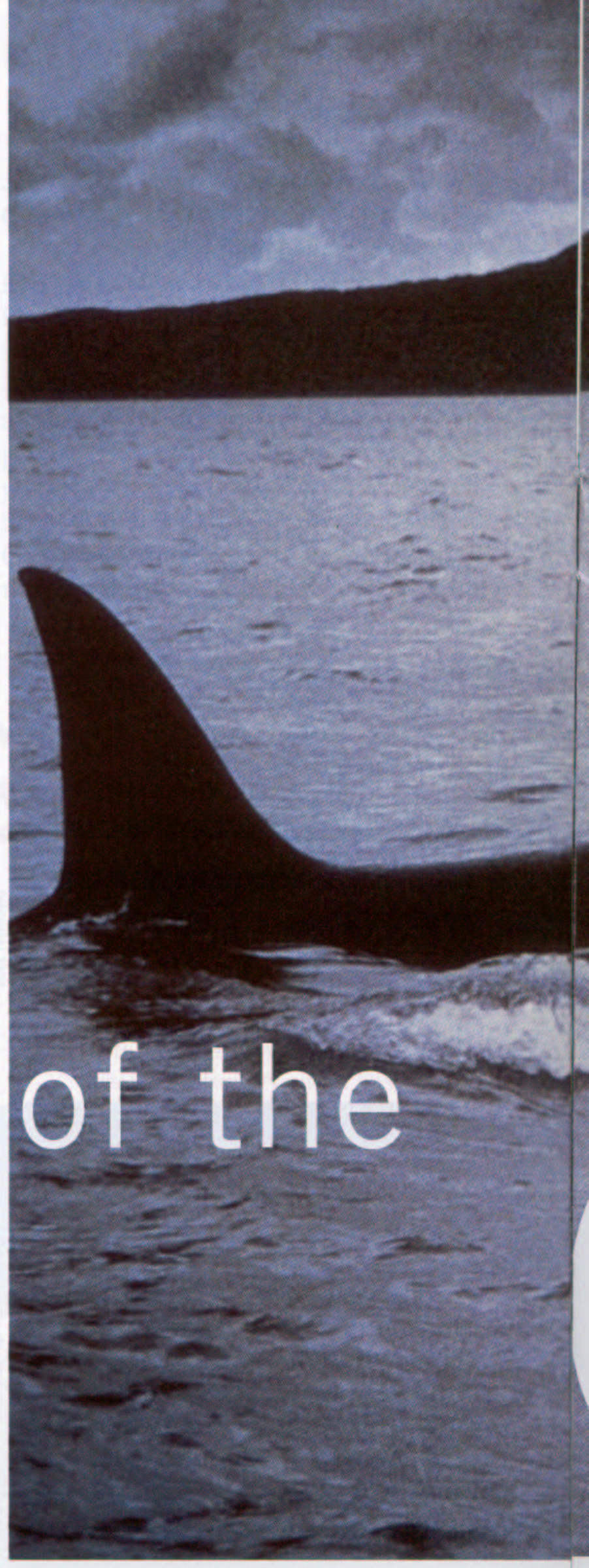
FOREST & BIRD

NUMBER 301 • AUGUST 2001

Mysterious Orca



West Coast Forests • Largest Harbour •
Mountain Park • Trouble with Thar • Farthest East



DR INGRID N. VISSER has made a pioneer effort to get to know the New Zealand orca.

PHOTOGRAPHS BY THE AUTHOR

Mysteries of the

I have now been studying the New Zealand orca for nearly nine years, yet much of their lives remains a mystery to me.

As 'killer whales' they are superficially known to millions of people who watch television natural history programmes, and their plight has also been dramatised in the *Free Willy* movies. Yet nowhere in the world has their life and habits been well documented by scientists.

Orca are known by many different names, including killer whale, fat chopper, black fish and demon dolphin. However the orca that I have come to know over the last nine years are incredible animals, known to me more for their curiosity, than for their fearsome reputations.

Before I started my research, no one had ever studied orca in New Zealand, and I was told that it wouldn't be feasible. There were all sorts of obstacles:... the New Zealand coastline was too long, too exposed, too rugged, and sightings of orca would be too unreliable... I would have extreme trouble finding the animals. With the tenacity that seems to thrive on a challenge, I set off (in 1992) to learn about orca, and to prove all the sceptics wrong!

The focus of the study was quite basic — to establish for the first time the 'baseline data' about the whales. I wanted to know how many there were, where they were going, what they were feeding on, and by default any other interesting things that might come along.

To start, I had to find them; it only made sense to go where whale watching was booming in New Zealand. If there were people out on the water looking for other whales and dolphins, then perhaps they were seeing orca as well. So, I headed down south to Kaikoura and started making enquiries. I checked out all the old newspapers, the visitors books and talked to the skippers. Although I got some valuable information, I ended up waiting two months before I even saw an orca!

But it was an encounter that was worth seeing... orca travelling along at high speed with the spectacular snowy mountains in the background. Contrary to what most people might think, the elusiveness of these animals and the two-month wait had only made me more determined.

Early on in the study I decided the only way to find the animals was with help from the public, so I started putting up 'wanted' posters explaining I was endeavouring to research these animals. I asked that if folks saw them, could they please call me. I contacted local newspapers and radio stations and gave interviews asking for help with reports. The response was overwhelming; not only did the public see orca and report these to me, but many people had photographs of orca.

As all orca look different, photographs allow researchers to record individuals in

different locations, as well as over time. So these pictures formed the start of my photo-identification catalogue.

For orca, the photo-identification system works by looking primarily at the dorsal fin — its overall shape and size, and any cuts, nicks or other marks it might have. In addition I look at the different pigmentation patterns on each whale. These can be the black and white eye patch, and the underneath of the tail or the grey saddle patch. The 'teeth-rake' marks and other scars carried by individuals can also help with identification as they last a lifetime if they are black on white or white on black.

I have now spent more time with these particular orca that any other person. I know some of them better than I know some of my friends; in fact, come to think of it, they are my friends. It is a real treat when orca I know well come over and ride the waves around my little red boat (New Zealand appears to be the only place in the world where orca bow-ride on a regular basis). I have seen new-born babies, and seen youngsters mature into teenagers, but given that orca can live for 80 years it will take a while longer before I see a full life cycle of any individual!

Using the information that I have gathered it is possible to estimate that there are less than 200 orca living around New Zealand. These few animals are most likely divided up into three or more separate populations which may not interbreed. Preliminary DNA and population analysis suggests there is a North Island population, a South Island population, and a third that visits both areas.

Whether these three proposed orca populations are reproductively isolated, and hence require separate management, has yet to be finally determined. There is also the possibility that there could be a further sub-division within the proposed North and South-Island sub-populations, a question which requires further study, including genetic analysis.

Orca are more frequently seen off the North Island in the winter months, and off the South Island in the summer months, but that is not a hard and fast

Orca have a life expectancy of round 80 years. They do not reach sexual maturity until 16 years old, when females mate. Males appear not to mate until 34 years or so.

rule. There really isn't anywhere that you can be sure to go and see them, unlike in Canada or Washington state — they guarantee a sighting there! I can go six months without seeing orca in New Zealand. They are difficult study animals, for sure! I really only find them when someone calls me, and so rely strongly on the public phoning information on 0800 SEE ORCA.

Once out on the water I call the local boats on the radio for any updates on sightings, I use the hydrophone – an underwater microphone — to listen for them, then try to go in the direction where the sound is the loudest. (Depending on conditions I can hear them from two to six nautical miles away). Orca usually rise to the surface of the sea briefly and can usually only be seen from about a mile away, so the hydrophone is a big advantage.

Many things about the New Zealand orca make them unique. For starters they have calls that are only made by New Zealand orca, and these have a good old 'Kiwi twang'. There is a whole range of calls — some a human can hear and others that are beyond hearing range. When orca are really vocal, I can actually hear them through the floor of the boat, and again certainly when I am in the water with them. I record these calls using a hydrophone linked to a tape recorder.

Around the world, orca eat lots of different things. New Zealand held some surprises, and what the orca here eat, and how they eat it, has become the talk of

The orca or killer whale is a large member of the dolphin family. Mature specimens may grow to nine metres in length.

The population of orca in New Zealand waters is estimated by researcher Ingrid N. Visser as 'perhaps 200'. They are often seen in family groups like this.

The Orca Pod

Studies have yet to determine whether New Zealand orca live in permanent groups as they do in some areas of the United States and Canada. There is a strong possibility, however, that very small, strongly bonded groups of perhaps two to four orca have formed here, and these mix frequently with some groups and less so with others. No one knows, not even for the well-studied populations overseas, about breeding seasons Some tentative data suggests that male and female orca become sexually mature at about 12-16 years. The males may not mate until around 30-35 years old, however. Females on the other hand may have their first calf at around 16 years old. There is a very high mortality rate for first borns (about 45 percent) but the reason is unknown.

The period between each calf is usually around four years. Calves may suckle for up to six years, however, and depending on the population may stay with their mothers their whole lives.

The social behaviour of orca varies between different groups in different parts of the world, and even for different populations in the same area. A typical version quoted, however, is a pod consisting of a matriarchal female, with all her offspring, who don't ever leave her (all sons and daughters stay in the group). Fathers belong to different groups, mating only when the two separate groups (matrilines) meet.

In other areas it appear some young disperse, but this again depends on the location and the group. The situation in New Zealand is unknown. **INGRID N.VISSER**

orca researchers working elsewhere. Rays are the most common food of orca in New Zealand waters, both in number caught and the number of orca which eat them. The next most popular food is sharks, then fin-fish, then other whales and dolphins. Other foods taken in lesser amounts are octopus, salps, and penguins. New Zealand orca have been recorded eating 24 different species of prey, 10 of which are New Zealand-only records, or at least the first records of orca eating these species.

Nowhere else have orca been recorded eating so many types of rays and sharks (eight species, so far) and the fact that they also feed in shallow waters has raised a few eyebrows.

Only here do orca spend the whole day in water so shallow that they can't completely submerge (as I have seen the New Zealand orca do in the Kaipara and Whangarei Harbours). When in these shallow waters they are on the look out for rays which are their primary food source. I have even seen them eating torpedo rays (also known as electric rays).

Associated with all of this hunting for food in shallow waters is the risk of stranding. New Zealand has one of the highest orca-stranding rates in the world, currently averaging one orca stranding every year. Since records began there have been more than 70 orca strand. This may not sound like many, but the Australian total is only 12.

New Zealand also has a very high success rate of rescuing and refloating stranded orca. One example was a young male orca I named Ben, which stranded near Mangawhai, Northland. Ben ended up spending the whole night on the beach and the next day was put back in the water by a dedicated team of volunteers. He met up again with his family (which had been in Whangarei Harbour all night, feeding on rays). Since the stranding Ben has been resighted a number of times.

Another orca I call Miracle, (which stranded in 1993) is alive and doing well after her ordeal. She is very 'interactive' since her stranding and will approach my boat and let me touch her. There is another orca which is also very interactive in this way, called Digit. She is named after a wild gorilla which would reach out and touch the researcher, Dian Fossey (of *Gorillas in the Mist* fame). Digit the orca is very trusting, and will let me put my hand inside her mouth and touch her tongue. I don't feed her; she just does this without any rewards.

Unfortunately, New Zealand orca do face threats to their survival. The two main ones appear to be pollution, and boats. Pollution comes about in many forms, and includes things like fishing line (it can cut off the top of fins – like the orca 'A1' which has the whole top of her fin missing) and plastic bags (many dolphins that die are found with plastic bags in their airways, or in their stomachs — and, although this hasn't yet been confirmed for orca, chances are it is happening).

There is also the more hidden, but no less threatening pollution of toxic chemicals and heavy metals that are a direct result of the industrialised world. These chemicals enter the water via the air, run off from cities and farms and direct pumping into the oceans from factories and effluent plants. A Canadian study found orca there have built up such stores of these toxic contaminants (mostly through their food) that when they die their carcasses should be disposed of as if they were dangerous waste!

At this stage it is not clear how heavily 'loaded' the New Zealand orca are, and looking at this will be part of the ongoing research.

One threat to orca which is highly visible is boat-strike, where the animals get hurt by boat propellers. The orca Ben, which stranded and was rescued,

Marks from a boat propeller on the orca Ben's back.

was hit by a boat 16 months after his stranding. He was so badly hurt that I didn't expect him to survive. Thank goodness he proved me wrong! The photos clearly show the marks from the propeller as it struck him at least three times. Many comments have been made about these photos, and the most common one (apart from the horror that it had happened at all) is that 'it must have been a big boat', but that isn't the case. Ben was most likely hit by a 'fizz-boat', a small trailer powerboat with a standard outboard motor. If he had been hit by a bigger boat, he would have died. I have records of at least three other orca being hit by boats, and during one of those events the orca died.

If you are out watching orca don't harass them, as it is clear what can happen! Generally the best option, should you encounter orca at sea, is to maintain a steady course at a steady speed. That way, the orca know where you are, and where you are going and come over to see you if they are interested. One other option is to stop your boat altogether and just let them go past. You don't have to keep your engine running… they will know where you are, even without this noise to pinpoint you. Remember, as they can find a single fish in a whole ocean, finding your boat is easy for them!

For me, one of the interesting aspects of studying these animals has been the opportunity for educating the public. Before I started this research project no one had any idea of how many orca there were around the country, where they were going, or what they were feeding on. While these creatures are among the top predators in the marine environment, little is known about them. That is why this sort of research is so important.

DR INGRID N. VISSER has established the Adopt an Orca Trust, PO Box 1233, Whangarei, to further her research. If you see orca, please report sightings as soon as possible to: 0800 SEE ORCA.