Killer Whales

This article was written from an interview with marine scientist, Dr. Michael Bigg, head of the marine mammal research program at the Pacific Biological Station in Nanaimo, B.C. for the Department of Fisheries and Oceans. The interview took place in August 1990. Michael Bigg died in October 1990 after a prolonged struggle with cancer.

Mike Bigg's great respect and affection for the killer whale has brought this beautiful intelligent animal closer to all of us.

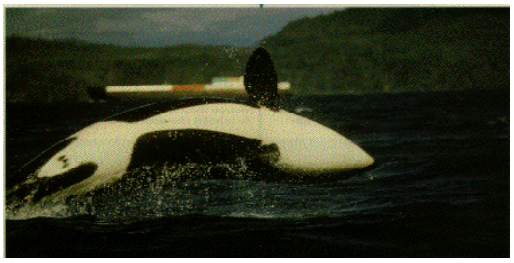
Known internationally for his research, Bigg pioneered the photo identification system for killer whales; a technique which is now used around the world in Iceland, Norway, Argentina, Mexico, and the U.S.A.

Bigg was head of a 1970 study program on the whales that began as a result of concern over the capture of whales in British Columbia and Washington State for zoos and aquaria. At the time, no one knew how many whales there were, or if capture endangered their population.

"We discovered in 1973 that every animal is individually recognizable," said Bigg. "Now, every year for a summer and fall census we go out and attempt to count each individual."

"By 1976, we found that roughly 300 whales lived in the coastal waters. That was far fewer than people had imagined and as a result no more whales were caught here. Very severe restrictions were put on the capture of killer whales in B.C."

After the release of the study in 1976, Mike Bigg continued his research on the killer whale. He told us, "It had become clear that this was a most unusual animal—an animal that doesn't behave like any other. Its biology is so different, we had to look in more detail at its life."



Just playing: a young female killer whale breaches in Johnstone Strait.
Photo: Graeme Ellis

Over the years, Bigg put in thousands of after work hours on his killer whale research. This was in addition to his research for DFO on other marine mammals. His energy and commitment were contagious, encouraging cooperation among other researchers to keep the data rolling in. Many of the others involved were also working on their own time. In many instances it was Bigg's own money which was used to publish his findings and analyses.

His work has provided the answers we now have on the population size, social organization, movement, births and deaths, breeding and feeding habits of the whales.

Graeme Ellis, biological technician for marine mammal research at DFO's Pacific Biological Station, has been involved with Bigg in his research right from the beginning. They observed amazing characteristics never known before.

One of the first things noticed was a difference between groups of whales; a difference that has since been confirmed as the existence of two distinct races of killer whales in B.C. coastal waters.

"We knew they were different races because they looked different," said Bigg. "If you study the photographs you'd recognize a difference in the dorsal fin shape of each race."

"We called one race the Residents—they feed on fish. The other we called the Transients which have a completely different diet. They feed on other marine mammals. Very rarely have we seen one race feed on the other's food. The two never mix and don't interbreed."

This could be one reason they are both able to inhabit the same area. They use different resources and don't compete with one another.

Two friends: Johnstone Strait.
Photo: Graeme Ellis

Dr. Michael Bigg

"I have a personal commitment to raise the level of public awareness as to just how much people, when stripped of their technology, have in common with other life forms on earth. Such recognition is needed to develop enough empathy for their plight and so ensure coexistence and respect for them."

This commitment was reflected in all of Michael Bigg's work—work which focused on population assessments and life history studies of marine mammals such as harbour seals, northern fur seals, sea lions, sea otters and killer whales.

In 1990 he helped set up and was appointed co-chairman of the Federal/Provincial Johnstone Strait Killer Whale Committee to examine the impact of logging, commercial fishing and tourism on killer whales. Recommendations of the committee's work will be announced in the spring of 1991.

Bigg was a co-author of Killer Whales; a study of their identification, genealogy and natural history in B.C., and Washington State. In addition to writing and publishing over a hundred papers, Bigg provided expertise to numerous research organizations and gave many seminars and public talks on marine mammal biology. He recently participated in the filming of two television specials which feature killer whales. One, produced by ABC, is called Beautiful Killers, and the other, to be shown on PBS Nova is Island of Whales.

With his death, the scientific community and the general public suffer a great loss.

Another contrast was found in their vocalizations. John Ford, a research scientist at the Vancouver Public Aquarium, specializes in research on vocalizations of whales. He found that Residents are very vocal and Transients rarely vocalize. This is important. Transients are mammal hunters and rely on stealth to catch their prey.

Ellis explains that each Resident pod has its own dialect. Dialects in animals are usually formed because of geographical separation, but in the case of the killer whale they form their dialects even though they are moving with other pods having different dialects.

"These dialects are long-lasting and can remain unchanged for 30 years," says Ellis.

Residents tend to travel in big groups, with pods containing from ten to twenty individuals, whereas Transients live in smaller pods of only three to four animals. Different pods of the same race will mingle and may stay together for two or three days or just a few hours and then separate.

The diving patterns differ, too. Transients dive for longer periods of time, often for more than five minutes.

There was still another startling fact about this magnificent animal.

"Residents stay in their family group all of their lives," said Bigg. "We don't know of any other animal that does this. The offspring of most mammals and birds leave their natal group at maturity."

This was something the scientists could hardly believe. It was precedent-setting.

This is a matriarchal society; offspring stay with their mothers, periodically joining other pods but always returning to their natal group. They don't pair off and stay with a mate.

"We know of four generations travelling together," said Bigg. "Their life-history is rather like humans in many ways."

Female killer whales give birth for the first time around 15 years of age. By the time they are 40 they have given birth to five calves, and although they stop reproducing after 40, they can live to 80 or 90 years.

The males reach sexual maturity at about 15 years and reach their full size in their early twenties, living to be 50 or 60 years old.

"We have taken advantage of the unique aspects of the animal's biology to be able to look into its life in ways that are not possible in most other animals," said Bigg.

"The fact that every individual is identifiable and Residents stay in their pods all of their lives means we can know what the entire population is doing. In other studies with other animals we never know if we're dealing with everybody or not."

"There is no reason to suspect that these animals don't have as sophisticated a mind as our own. This is an animal worth knowing and worth saving. So is its environment and all that which lives in it. I think it really is important that we look at changing our value system towards the animals that live in the oceans."

This article originally appeared in "Pacific Tidings", a periodic publication of the Canadian Department of Fisheries and Ocean.