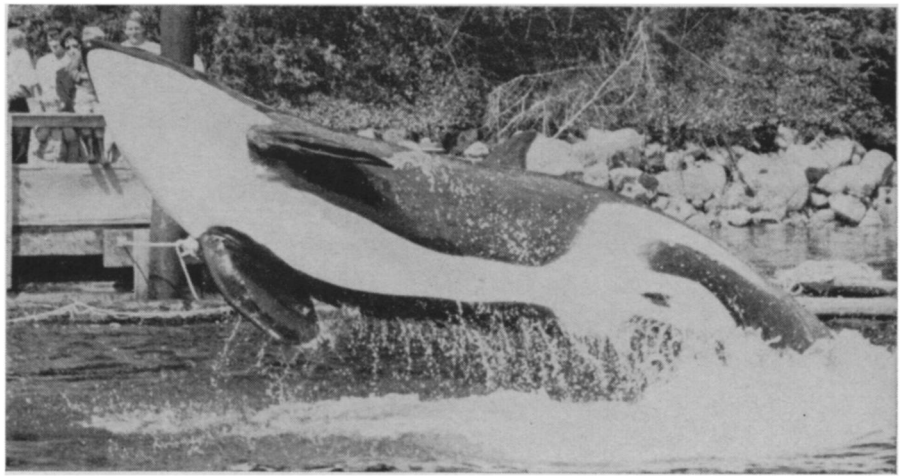


# Speaking to masters of the sea

**Killer whales, once more feared than sharks, may join man in the sea**

by Jim Hazelwood



Photos: by Keith Dennison

*Killer whales seem to enjoy playing, leaping and flopping in their enclosures.*

Last spring a lone male killer whale swam in close to the rocks near the tiny British Columbian coast town of Garden Bay and began making noises which sounded like distress calls.

It was the opportunity several commercial fishermen in the village had been waiting to seize. Within the past few years, about a half dozen of these animals have been caught in nets and sold to aquariums for prices in the \$5,000 bracket.

Fishermen Cecil Reid, Bert Gooldrup and Jim Cameron immediately put out in a small boat and strung a net around the rocks where the 4,000-pound beast was floundering.

All through the night the helpless animal kept calling, and the people of Garden Bay could hear answering calls from deeper water. In the morning they could make out the huge triangular dorsal flippers of an entire pod. The captured whale had been joined by six more animals, most likely other members of his own pack.

"About half the community put out to sea," an onlooker recalls, "and we just rounded them up."

The killers made no attempt to escape. In fact the leader, an 8,000-pound bull later to be called Skookum Cecil, rounded up the cows who tended to become skittish, and kept them within the confines of the net.

"It was almost as if they intended to be captured," one of the fishermen says.

Telephone negotiations were opened with the Vancouver Public Aquarium, which already possessed a killer whale and had some experience in handling them. The aquarium bought all seven of the animals.

The astonishing capture has made possible the first scientific study of killer whales in their more or less natural environment. Having no facilities for keeping such a herd of leviathans at the aquarium, officials sold off three of

the animals, took one to the aquarium, and kept three in a jury-rigged series of pens at Garden Bay.

It was a splendid opportunity for Dr. Paul Spong, a psychologist with training in neurophysiology, to observe an animal which has hitherto defied almost all attempts to gain any real knowledge of its behavior and family secrets. Dr. Spong had done brain research at the University of California at Los Angeles and is permanently attached to the aquarium.

The study is only beginning, so Dr. Spong doesn't have any answers to many baffling aspects of killer whale behavior, but he believes he is on the road to understanding some of the enigmas.

The legendary gentleness of killer whales had already been demonstrated by specimens captured earlier and exhibited at Seattle, San Diego and Vancouver. It was thought that this was partly because the isolated animals had become accustomed to their captors and had established a certain easy rapport with them.

But the Garden Bay whales proved to be friendly from the start. They permitted a team of young aquarium employees to rub their heads, stick their arms into their cavernous mouths, and pull them around by the blowholes.

This kind of behavior seems inexplicable from an animal which feeds by attacking large fish and sea mammals like seals and even the largest whales. But Dr. Spong feels that the docile killers are perhaps intelligent enough to recognize that man is in a class by himself among the animals.

"They are probably not sure as to what powers we have," he says. "They are not afraid of us, but then they probably don't know fear as we do. They have no natural enemies at all—nothing to be afraid of."

Another conundrum is the failure of the whales to try to escape. The

flimsy log and net barrier at Garden Bay would hardly hold them if they wanted to get away.

"They could leap over the logs or tear right through the nets," says Chris Brown, business manager for the whale station. "We can only guess that they have no particular desire to escape as long as we feed and pamper them."

Skookum Cecil did, in fact, escape several months after his capture. But it was only because the net fell apart, without apparent help from him. He headed slowly out to sea and the two imprisoned whales remaining made no fuss about his parting.

"There are obviously great differences in many of the general reactions to different situations between sea and land animals," says Dr. Spong.

"Land animals, for example, almost invariably attempt to escape when caught. The lack of desire to escape on the part of the killer whales is just one of the things which indicates that we don't know anything about these animals at all."

Only one of the whales is currently being trained for aquarium work. This is the 16½-foot young bull called Hyak which first led the pod into captivity.

"He can learn a whole routine in about a week," says Brown. "The first time he understands what you want him to do, he will continue to do it on command."

Dr. Spong is interested in learning more about the whales' sonar and communication systems. There is little doubt that the animals have a sophisticated language with which they can communicate with each other, but practically nothing is known about the complexity of their speech.

"We think they probably have a high order of communication," says Dr. Spong. "On our electrical listening equipment we hear definite sounds and responses."

The sonar ability is equally intriguing.



*Docile killers can be shoved around.*

The high-pitched sonar sounds seem to emanate from the blowhole and a canal in the nose. The receiving mechanism is not so certain, but Dr. Spong believes the whole skull may be sound-sensitive.

"I think they can obtain a three-dimensional view of their environment just by listening," he says.

Dr. Spong believes that killer whales have somehow solved their population problem. How, of course, is unknown. He notes that a cow whale can give birth to a calf once a year and that the adults, with no natural enemies, may have a reproductive life span of 20 years or more.

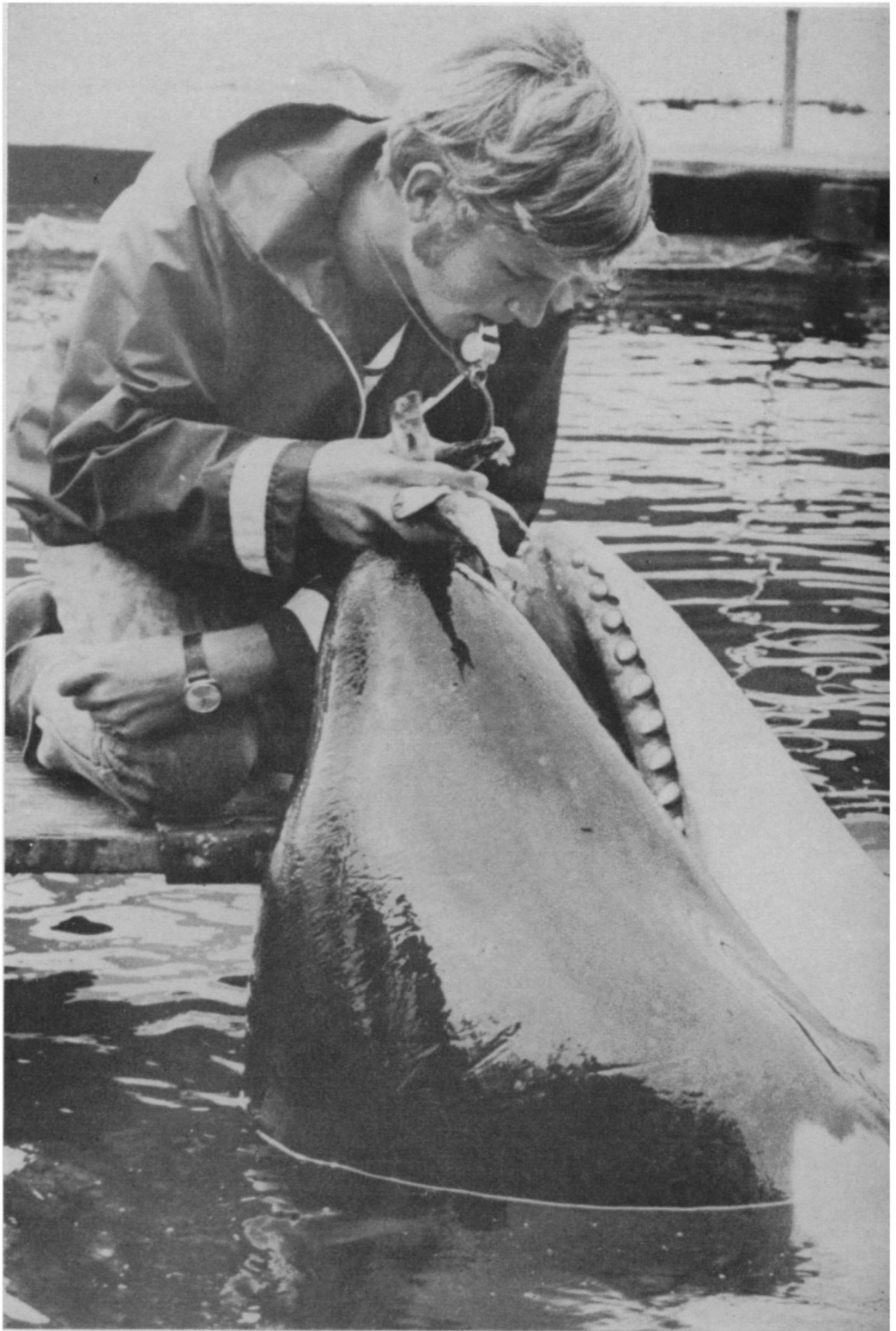
"This means that each pair of killer whales could produce 20 offspring in the course of its lifetime," he says. "Other animals have their numbers limited by being preyed upon. One would think that the ocean would soon be full of killer whales unless they have found some way of keeping their numbers in check."

**The great intelligence** of the killers, their ability to dive more than 1,000 feet deep and hold their breath for 20 minutes, and their apparent good-natured tolerance to man, all lead to the fascinating possibility that whales and man may someday be able to cooperate with each other. There are all kinds of underwater tasks that killer whales could do infinitely better than man even with his most sophisticated underwater equipment—if only the giants could be persuaded to do so.

Dr. Spong now hopes to conduct a massive experiment to see whether man can establish a close working relationship with killer whales.

"We'd like to capture a whole pod of whales and keep them for the summer," he says. "Then we'd release them for their normal migration to Mexico and see if they'd come back to us the next year."

If the whales did come back, he says,



*These jaws can kill anything in the ocean, yet nuzzle worker's hand for fish.*

it might demonstrate that some kind of symbiotic relationship is possible between killer whales and man living and working in the sea.

**Dr. Spong** says the main barrier to the study of killer whale behavior is the almost total lack of common experience between man, the land mammal, and whale, the sea mammal. The whale's environment and its sensory ap-

paratus and input are so totally different that very few communications bridges can be built. The first step, therefore, he says, is the study of this sensory apparatus.

It has been found already that a killer whale's visual acuity is as good as a cat's. Dr. Spong finds this strange since vision under water is so much less useful than the whale's sonar system.

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## . . . Sea's masters

"One suspects that this auditory system provides all the information they need," he says. "What use, therefore, have they for good vision?"

He says it may be that vision is used at short ranges where the echo locating system might possibly lose effectiveness. To test this idea Dr. Spong is determining the limits of the whale sonar's ability to discriminate between two close solid objects. He moves two pieces of wood closer and closer until the whale responds as if to one piece.

Once the limits of the whale's sensory appraisal of its surroundings have been learned, it may be possible to determine how well the creatures have evolved to cope with their environment. Dr. Spong believes killer whales are "probably the supreme species in the ocean," themselves predators on any species they please and preyed upon by none. He says that it appears that they have brains as well developed, at least physically, as man's.

"However," Dr. Spong says, "the basic question about intelligence is how efficiently and effectively can the whale deal with its environment, and how complex is the information that the animal can process."

Intelligence still is almost impossible to assess, Dr. Spong says, because of the communications difficulty. It may be considerable since the whales don't have to spend time worrying about being eaten. He notes that the "fantastically ferocious" killer whale appears to have better control of its aggressiveness than man, since it routinely exhibits great gentleness also. Unlike nearly all other animals it exhibits none of the fight-and-escape reaction when cornered or captured.

"It is remarkable that killer whales form complex and stable family structures for long periods, presumably for life. This probably means a level of social relationships evolved comparable to the highest land animals, maybe even man. For instance, they fight together but I don't think they kill each other."

Dr. Spong says it is unfortunate that the wild pod that was captured had to be broken up. This was done solely for economic reasons, 5,000- to 10,000-pound whales being hard to feed in very large numbers. But an opportunity was lost for observing some of the social interactions in a pod.

Even had this been possible, however, Dr. Spong believes the state of captivity would have altered most or all of the behavior patterns. Therefore he hopes this spring to be able to attach telemetry equipment to members of a wild pod, then track them in the open sea for a couple of weeks. ◇

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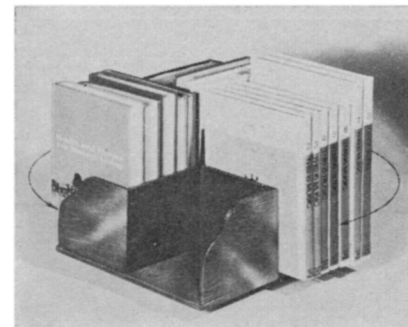
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