

Foraging and Feeding Behavior of Transient Killer Whales

by Robin William Baird
and Pam Joyce Stacey

We watched closely as the killer whales carried the harbor seal pup away from the relative safety of the haul-out site at the Oak Bay Islands Ecological Reserve, a group of twenty-five small islands and tidal reefs just east of Victoria, on southern Vancouver Island. The two whales were familiar to us, Y2 and Y3, a mother and daughter pair, originally photographed and catalogued by Michael Bigg and his colleagues from the Pacific Biological Station in Nanaimo, British Columbia. Y2's adult son, Y1, was foraging alone half a mile away. The two females began playing with the seal pup, porpoising on top of it, surfacing beneath it and hitting it up in the air with their heads. Twenty minutes passed before the pup was killed; it was eaten slowly as the whales began to travel, small pieces floating to the surface behind them.

These were transient killer whales, very different from the well-studied resident killer whales of British Columbia and Washington State (see *Whalewatcher*, Spring 1983). Due to their unpredictable occurrence and the difficulty involved in following them for long periods of time, relatively little is known about the transient race of killer whales. Opportunistic behavioral observations of transient killer whales have been made by researchers studying resident killer whales, and Alexandra Morton is also studying transient killer whales, but in the waters off northern British Columbia.

Contrary to what their name may imply, the transients are present in these waters throughout the year. However, in ten years of killer whale research undertaken by researchers from The Whale Museum, Friday Harbor, just over 40 hours of data have been collected on transient whales, compared to over 1000 hours on residents. In just over one season in the nearby waters off southern Vancouver Island, however, we have been able to more than double that data base of observations on transients. We have recorded 22 encounters with 14 different transient pods, totaling 28 individually identified whales (see Table 1). The area around Victoria, an area which transients frequent, has many year-round harbor seal colonies and a seasonal sea lion haulout at the Race Rocks Ecological Reserve. Our research vessel, a 23' MK VI rigid-hulled zodiac, owned and operated by Sea Coast Expeditions and Research, has allowed us to venture out safely in almost any sea conditions. Its speed, up to forty knots, allows for a fast response to any sightings reported by other researchers and the public.

Our study involves photo-identifying all the whales in each encounter and following them for as long as possible, collecting a variety of data. Tidal and current orientation, sub-group associations, vocalizations, interactions with other marine mammals, and microhabitat utilization data are all collected.

We have observed that transient killer whales feed on marine mammals, in contrast to the almost entirely piscivorous diet of resident killer whales, confirming what has been reported by researchers at The Whale Museum, Friday Harbor and by Michael Bigg and colleagues. Consequently, their foraging and feeding behaviors are very different from residents. We have observed two types of foraging, which we have termed off-shore and near-shore foraging.

Table 1. Summary of Transients Observed During the Study

DATE	WHALES PRESENT	LOCATION	HARBOR SEAL PREDATION
14Jul84	04, 05	S. Pender Is.	
12Sep85	F1	Race Rocks	
12Sep85	Q9, Q13, Y1, Y2, Y3	Race Rocks	
29Aug86	Y1, Y2, Q3, Q7, Q12	Chain Islets	One
22Feb87	Y1, Y2, Y3	Race Rocks to Oak Bay	
02Aug87	Y1, Y2, Y3	Race Rocks	Two
23Aug87	Y1, Y2, Y3	Chain Islets to Royal Rds.	One
25Aug87	Q4, Q8, Y1, Y2, Y3	Clover Point	
31Aug87	Y1, Y2, Y3	Discovery Is.	
01Sep87	Y1, Y2, Y3, E10, E11, Q4, Q8, Q3, Q7, Q12, plus 4 unidentified whales	Harling Pt. to Albert Hd.	One
08Sep87	Y1, Y2, Y3, E10, E11, T3, Q4, Q8, Q3, Q7, Q12	Albert Hd. to Discovery Is.	
11Sep87	Y1, Y2, Y3, E10, E11, T3	False Bay to Discovery Is.	
18Sep87	Q4, Q5, Q1, Q2, Q10, P1, Q9, Q11, Q13	Juan de Fuca St. to Race Rocks	
25Sep87	Y1, Y2, Y3, Q4, Q8	Halibut Is. to Sidney Is.	
28Sep87	Q3, Q7, Q12, E11, T3	Race Rocks to Mowat Rf.	
29Sep87	Q3, Q7, Q12, E11, T3	Clover Pt. to Parry Bay	
01Oct87	O20, O22	Clover Pt. to Saxe Pt.	
04Oct87	Y1, Y2, Y3, Q1, Q2, Q10	San Juan Channel to Cattle Pt.	Two
04Oct87	M1, M2, M4	East Pt. to Saturna Is.	
12Oct87	X10	Race Rocks to Becher Bay	
11Nov87	M3	Sheringham Point	
23Jan88	2 males, 3 females	Dyer Rk., Saanich Inl.	One

During near-shore foraging the whales closely follow the contours of the coastline, sometimes travelling in very shallow water, as low as 5 to 6 feet deep. They venture through narrow passages between reefs and islands, and will often change direction, circling the reefs many times. In our area they are foraging primarily for harbor seals. We have recorded eight harbor seal kills in this area in the last two years. These kills were all observed at relatively high tidal heights (mean height = 7.7 feet, SD = 2.2 feet; with a tidal range of 11.5 feet). It has been suggested that seals are more likely to be found in the



Transient Y1 off the Victoria waterfront.



Transient X10 off Race Rocks Ecological Reserve.



Transient taillobbing on harbor seal in the Oak Bay Islets Ecological Reserve.



Transient Q7 porpoising.

Transients Q3 and Q7 carrying seal, followed by scavenging gulls in the Oak Bay Islets Ecological Reserve.





Transient Y1 with harbor seals at the Oak Bay Islets Ecological Reserve.

water during high tides and at night. If this is the case, the correlation between seal kills and environmental factors such as tidal heights and diurnal patterns needs further study.

Transients have also been known to prey on the California and Steller (Northern) sea lions in the area, but on the three occasions we observed interactions between them, the whales did not make any kills. A 2000 pound adult male Steller sea lion could be formidable prey. Researcher Graeme Ellis has reported a Stellar sea lion kill by transients that took over 1½ hours.

What we call offshore foraging is hard to define but is characterized by frequent directional changes and the absence of vocalizations and splashing. We believe offshore foraging is primarily used for encountering cetacean prey in this area, but while we have often observed this type of foraging, we have seen only one cetacean—a porpoise—killed as a result of it. Dall's and harbor porpoise are common in the study area, and occasional gray whales and minke whales are also seen.

While transients are generally silent during foraging—presumably to limit detection by their mammalian prey—once the prey is captured we have observed much splashing behavior, as the whales repeatedly taillob, breach, and porpoise onto the prey. With larger prey such as sea lions this might serve to




Research vessel, Porpoise II, a 23' MK V1 Rigid-hull Zodiac, with sea lions at the Race Rocks Ecological Reserve.

stun them, as these pinnipeds could potentially inflict serious wounds upon a killer whale. For juvenile whales the "play" behavior might be a way of learning how to kill the prey, but we have also frequently observed adult killer whales playing with young harbor seal prey. We have seen transients, after feeding, breach frequently and vocalize while travelling away from the feeding area.

Once we observed repeated breaching within several feet of hauled out harbor seals, which may have been an attempt to scare or wash the seals off their haulouts. This was only after the whales had already killed one seal, and those remaining were obviously aware of their presence and actively trying to avoid the whales by hauling out. Not so amazingly, seals appear to lose all their fear of vessels when they are aware of hunting transients. We have had seals haul out on reefs within ten feet of the moving vessel when they have seen whales, and they will even haul out on islands such as Great Race Rocks, in the Race Rocks Ecological Reserve, where they have typically been discouraged to do so by resident dogs.

We observed a very interesting interaction between sea lions and a lone, atypical-appearing killer whale, identified as X10. This individual has a dorsal fin bent over to the left side at the base, giving him an unusual profile. No response by the sea lions to his presence was observed. Was the sea lion's lack of response due to the fact that X10 was alone, and thus less of a threat? Does the sea lion group size affect their reactions to killer whales—i.e. the larger the group, the less they have to fear? Transients generally travel in much smaller groups than

residents, usually between one and six animals. Are their foraging habits a result of their smaller group size or due to their social structure? How do their foraging strategies change with different pod or group size? On one occasion we encountered a gathering of five different pods of transients, 14 individuals, the largest group of transients reported from British Columbia. Does the customary smaller group size reflect the distribution and availability of their prey? Do transients obtain enough food value to sustain themselves by capturing marine mammals and, if not, do they feed regularly on fish? These are some of the questions we hope to answer with our continuing research.

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Robin W. Baird and Pam J. Stacey are Research Associates of The Whale Museum, Friday Harbor, Washington and biologists with Sea Coast Expeditions and Research in Victoria, British Columbia. All photos are by the authors.

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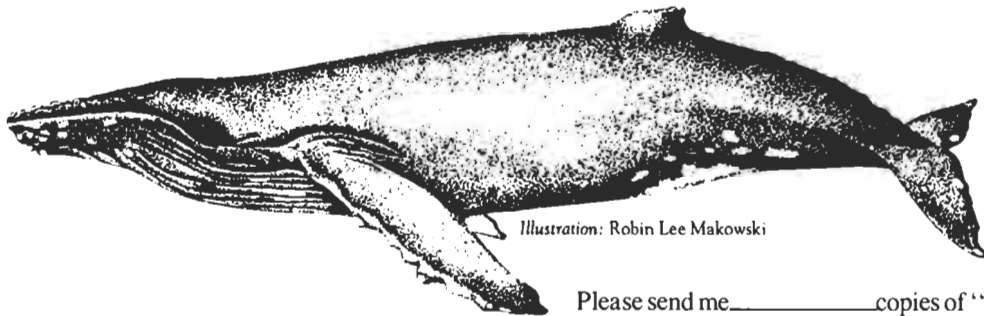


Illustration: Robin Lee Makowski

A rare and exciting account of humpback whales sleeping, feeding, rolling, breaching and being harrassed by a pod of killer whales.

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