COSEWIC
Assessment and Update Status Report
on the
Killer Whale
Orcinus orca
Southern Resident population
Northern Resident population
West Coast Transient population
Offshore population
Northwest Atlantic / Eastern Arctic population

Executive Summary

Species information

Killer Whales, or Orcas *Orcinus* orca, are easily identified by their tall, triangular dorsal fin and their distinctive black and white colouration. Only one species is recognized, but the taxonomy of *Orcinus* is a subject of ongoing debate.

Designatable units

Five designatable units are recognized — one in eastern and northern Canada (1. Northwestern Atlantic and Eastern Arctic population), and four in the coastal and offshore waters of British Columbia (2. Northern Resident population, 3. Southern Resident population, 4. West Coast Transient population, and 5. Offshore population). Resident, Transient and Offshore Killer Whales differ morphologically, genetically and behaviourally (social, acoustic and foraging); and the four populations in British Columbia do not associate with each other. In the absence of detailed information, Killer Whales in the northwestern Atlantic and the eastern Canadian Arctic are considered to constitute a single population.

Distribution

Killer Whales occur in all of the world's oceans. In Canada, several designatable units are recognized. The West Coast Transient population occurs throughout the coastal waters of British Columbia (BC); the Southern Resident population is generally found around southern Vancouver Island in summer and fall, although the animals may range widely at other times of year; and the Northern Resident population occurs from central Vancouver Island north to southeastern Alaska in summer and fall. The ranges of the Southern and Northern Resident populations at other times of the year are not well known. Offshore Killer Whales are seen less frequently but are known to travel widely in coastal waters. The distribution of Killer Whales in the northwestern Atlantic and eastern Arctic is not well documented, but they are widespread and sightings are reported most

commonly in the coastal waters of Newfoundland, likely due in part to the relatively concentrated sighting effort there.

Habitat

Killer Whales can tolerate wide ranges of salinity, temperature and turbidity, and their distribution appears to be determined mainly by the distribution and accessibility of their prey. Receding sea ice appears to be making new habitat (and prey resources) available to Killer Whales in the Arctic.

Biology

Killer Whales are long-lived, upper trophic-level predators. Individuals can be distinguished by scars and variations in pigmentation and dorsal fin shape. Life history parameters for the Resident populations in British Columbia have been estimated based on more than 30 years of photo-identification studies. It is not known how well these apply to other populations. Longevity is 80 years for females and 40-50 years for males respectively. Females give birth to their first calf between 12-17 years of age and produce a single calf every 5 years. The generation time is 26-29 years. Females more than 40 years old have an extended period of reproductive senescence. Resident Killer Whales are exceptional among marine mammals in that there is no dispersal of individuals of either sex from the natal group. This does not appear to be true for Transient Killer Whales.

Although they are known to feed on a large number of prey species, the Resident and Transient populations have remarkably different diets. Resident Killer Whales feed on fish, particularly Chinook and Chum Salmon, whereas Transient Killer Whales feed on marine mammals. The diet of Offshore Killer Whales is not as well understood. Killer Whales in the northwestern Atlantic and eastern Canadian Arctic have been observed feeding on marine mammals and fish.

Population sizes and trends

There were 70 Southern Residents in 1974 and 132 Northern Residents in 1975, and in 2006 there were 85 and 244, respectively. The population of Northern Residents has continued to increase fairly steadily since monitoring began in the mid-1970s, whereas that of Southern Residents, while it also increased fairly steadily through the mid-1990s, has been mostly declining since then. Both populations have shown annual increases or declines of up to ~3% for several years in a row. The West Coast Transient population has been increasing in recent years and consisted of an estimated 243 whales in 2006. The Offshore population is estimated at more than 288 whales, although Offshore Killer Whales have not been encountered frequently enough to provide trend data. The number of Killer Whales in the Northwestern Atlantic / Eastern Arctic is unknown.

Limiting factors and threats

The carcasses of Killer Whales are rarely recovered, and much of what is known about the threats they face is inferred using a weight-of-evidence approach. Pacific coast Killer Whales live in small, discrete populations that are inherently vulnerable to increases in mortality or decreases in reproduction. Exchange and interbreeding among these populations appears to be extremely rare, and this limits or prevents any genetic and/or demographic rescue effect. As a result of their fixed dietary specializations, Residents and Transients are vulnerable to decreases in the quantity or quality of prey. It is not known if the Offshore or Northwestern Atlantic / Eastern Arctic populations specialize in similar ways.

The principal anthropogenic threats to northeastern Pacific populations of Killer Whales are disturbance (physical and acoustic), prey depletion, and contaminants. These threats may act synergistically. Oil spills, collisions with vessels, interactions with commercial fisheries and climate change also may affect Killer Whales. A number of these threats likely apply to Killer Whales in the Northwestern Atlantic and Arctic. Killer Whales, likely from the Northwestern Atlantic / Eastern Arctic population, are hunted in western Greenland.

Special significance of the species

Killer Whales have iconic status with both Aboriginal people and the Canadian public. They are the focus of tourism, particularly on the Pacific coast of Canada, and are displayed in aquaria around the world. Although the total number of Killer Whales off the BC coast exceeds 500 individuals, they are distributed among 4 discrete populations that do not interact, and as a result the species requires complex conservation strategies. Many traits of Killer Whales, such as the lack of dispersal in Residents, an extended period of reproductive senescence, and extremely strong cultural traditions, are unusual in marine mammals.

Existing protection or other status designations

In Canada, Killer Whales are protected under the Marine Mammal Regulations of the *Fisheries Act*. The status of the five Killer Whale populations in Canada was evaluated in 2001, and four were listed under the *Species At Risk Act*. The Southern Resident population was listed as *Endangered*, the Northern Resident population and the West Coast Transient population as *Threatened* and the Offshore population as *Special Concern*. The Northwestern Atlantic / Eastern Arctic population was considered *Data Deficient*.