(Haliotis kamtschatkana)

by Christianne Wilhelmson

Populations in decline are not limited to charismatic megafauna like killer whales. Even lowly invertebrates can be pushed to the brink by over-harvesting and other pressures. The northern abalone (pronounced ab'-a-lone-ee) is such a species. The northern abalone (also known as Japanese or Pinto abalone) is one of more than 70 species of abalone worldwide, but the only one in BC waters. A marine mollusc, it makes its home in both the lower intertidal zone and in depths of up to 15 to 20 metres. Northern abalone live attached to rocky surfaces, where they feed on algae.

You can recognize Northern abalone by its ovalshaped, wavy and flattish shell, which is thicker on one edge than the other and has from three to six open holes along one side (the holes allow the animal to expel wastes from its digestive system). The inside of the shell is iridescent white.

Abalone reproduce by releasing eggs or sperm. Fertilized eggs develop into planktonic larvae which are carried off by the current. The young feed on diatoms and microalgae, and as they become juveniles, they remain grazing herbivores, focusing on one of their favourite foods, kelp. This continues into adulthood, when abalone can be found in colonies in kelp beds.

The abalone's natural predators include octopus, sunflower stars, wolf eels, and sea otters, and in the intertidal zone, humans, oyster catchers, otters and mink. Of all these predators, however, the greatest pressure comes from humans.

Northern abalone was a traditional food of aboriginal people, who gathered it from intertidal areas. With that level of harvest, the population of abalone was sustainable. But with the advent of SCUBA diving, commercial and recreational abalone harvesting became much more intense.

During the 1970s and 80s, BC had a commercial dive fishery for abalone. The harvest reached its peak in 1977, when 1,047,000 pounds were taken. By 1990, this had declined to only 110,000 pounds (a drop of 89%). Due to declines in the abalone population, the entire BC abalone fishery (commercial, recreational and Wanted Alive aboriginal) was closed to harvest, coast-wide, in 1990, and remains closed today. It is the only species on the BC coast with no harvesting allowed whatsoever.

The northern abalone can live up to 15 years and reach a maximum shell length of approximately 15 cm (6 inches). But like rockfish (see June 2002 Strait Talk), abalone is sensitive to harvesting pressures primarily because it takes so long to reach maturity. This is the reason that, when harvesting was allowed, a minimum size limit of 10 cm was in place. It can take the abalone from 6 to 10 years to reach 10 cm and it doesn't become sexually mature until it reaches at least half this size.

The northern abalone population declined by more than 75% between 1977 and 1984, and continued to decrease after 1990 despite the closure. On BC's central coast, abalone density declined by 92% from 1979 to 1990; in Haida Gwaii (Queen Charlottes) it went down by 82% from '77 to '98.

In 1999, the Committee on the Status of Endangered Wildlife in Canada declared the Northern abalone a threatened species, a status that was reconfirmed in 2000. Because of this, a National Recovery Strategy for Northern Abalone in BC has been developed, with the goal of getting the population back to a level where it can sustain itself. But the biggest threat remains continued illegal poaching.

Several factors make this species popular to poachers: market demand, its location near shore and its sedentary nature. Because poachers remove abalone of any size, they often remove individuals before they've had a chance to reproduce, which helps explain why even with a total fishery ban, the population is not recovering.

More than 70 charges have been laid in BC for illegal harvest of this species since 1997. Yet poaching continues, primarily because the closure is difficult to enforce. For this reason, part of the Recovery Strategy is a public awareness campaign to increase

understanding in local communities of the biology and management of northern abalone.

BC is not the only region that has struggled to maintain its abalone population. Alaska, California and other US states have had to close their abalone fisheries, while South Africa and Australia have seen declines. Several aquaculture projects are underway in BC in an attempt to rebuild stocks, but while some progress is being made in stock restoration worldwide, poaching continues to threaten rebuilding efforts in many jurisdictions.

It's too early to predict if, when or how well this population will recover in BC, even with a concerted focus on rehabilitation. Scientists don't know how many new individuals are being added to the population annually or how environmental changes are influencing abalone. More research on the species will be needed, and more publicity and improved monitoring and enforcement to eliminate the illegal harvest. Until these efforts result in a significant change, it's a safe bet the fishery will remain closed.

WHAT CAN YOU DO?

- **Spread the word!** If you know someone who dives for abalone, share this story with them. Educate them on the threatened state of this species and urge them to stop taking any abalone.
- **Urge the federal government** to increase resources for monitoring and enforcement by Fisheries and Oceans staff, and to ensure that penalties are serious enough to deter illegal harvesting.
- **If you see abalone on a restaurant menu**, ask where it's from. Unless you're sure that it is from a legal source, don't order it, and let the manager know you consider the sale or consumption of a threatened species to be unacceptable.