

Crab Leech

I. Causative Agent and Disease

Leeches belong to the phylum Annelida (segmented worms) within the class Hirudinea consisting of over 500 species of freshwater, marine and terrestrial worms. They possess anterior and posterior suckers and a large number of leeches are not ectoparasitic. Common leeches in the North Pacific area include *Johanssonia arctica*, a parasite of several marine fish including cod and a vector for *Trypanosoma murmanensis*, a blood parasite of fish. Another leech, *Notostomum cyclostoma*, is parasitic on several fish species including cod, pollock, flatfishes, dogfish and skates and is a vector for the hemoflagellate fish parasite, *Cryptobia* sp. A smaller fish leech, *Malmiana* sp., is less common. Most notably, these leeches do not parasitize crabs but favor the carapace as a substrate for depositing eggs each in a single cocoon. The crustaceans function as transport hosts to disseminate the leeches and are unharmed.

II. Host Species

Several crab species may serve as transport hosts for the eggs of these leeches which are circumpolar in distribution. *Notostomum cyclostoma* occurs in the Seas of Japan and Okhotsk, the Bering Sea and along the Alaskan coast south to the Stikine River. In northern British Columbia, Canada it has been observed on golden and red king crabs and Tanner crabs in the Portland Inlet system. *Johanssonia arctica* has been reported in the Bering Sea and was likely transported into the Barents Sea with the introduction of red king crabs. In Alaska, adult leeches and cocoons, most likely *Notostomum cyclostoma*, have been observed on the shells of red, blue and golden king crabs, Tanner and snow

crabs and probably occur on the shells of other crab species as well.

III. Clinical Signs

Gross clinical signs include observation of attached adult leeches and/or closely adherent brown to black convex cocoons on the shell surfaces.

IV. Transmission

The leech eggs hatch on the shell surface of the crustacean and the juveniles find a fish host to parasitize and obtain a blood meal. Leeches are hermaphroditic, reproduce sexually and produce eggs. At some point a leech leaves its fish host to seek out a hard substrate, often a crustacean shell, on which to lay eggs. Each egg is encased in a single cocoon.

V. Diagnosis

Diagnosis is by visual observation of typical leech cocoons on the shell surface of various crustaceans, especially king and Tanner crabs. Attached adult leeches may also be present and can be identified by various morphological characteristics. Cocoons of *J. arctica* (1.5 mm X 1.0 mm) as well as adult worms (21.5 mm) are smaller than cocoons (7 mm X 5.5 mm) and adults (70 mm to 110 mm) of *N. cyclostoma*.

VI. Prognosis for Host

There is no harm to the crustacean transport host caused by adult leeches or leech cocoons attached to the shell surfaces.

VII. Human Health Significance

There are no zoonotic human health concerns with the presence of leeches or their external cocoons on the shell surfaces of crustaceans.



Crab leech



Crab leech attached to the carapace of a red king crab



Leech cocoons (arrow) deposited on the undersurface of the carapace of a golden crab

Crab Leech Life Cycle

