Acanthocephalans
(Spiny-Headed Worms)

I. Causative Agent and Disease
Acanthocephalans are endoparasitic worms that are characterized by a retractable proboscis armed with rows of hooks. Adults of many genera can be found in the intestines of fish and some larval forms have also been identified in viscera. They use their proboscis to attach to the intestine of fish. Genera commonly found in Alaskan fishes are Neoechinorhynchus, Acanthocephalus and Corynosoma. Gut infestation by numerous acanthocephalans can cause fibrotic nodules on the surface of the intestine. The intestine may become inflamed with the destruction of intestinal villi and resulting necrotic and degenerative changes in mucosal epithelium. Absorptive efficiency of the fish intestine may be compromised leading to decreased growth and emaciation. Acanthocephalans occasionally perforate the intestinal wall which can lead to peritonitis and death of the host.

II. Host Species
Acanthocephalans have been found in both marine and freshwater fishes worldwide.

III. Clinical Signs
Parasitized fish may be emaciated with inflamed intestinal tracts and tissue necrosis in areas where worms are attached to the intestinal wall.

IV. Transmission
Acanthocephalans require a vertebrate animal as a definitive host and arthropods as an intermediate host. Fish usually are the final host for aquatic acanthocephalans and microcrustaceans (amphipod, copepod, isopod or ostracod) are generally the intermediate host. Intermediate hosts are infected by eating eggs eliminated in the feces of parasitized fish. An egg will hatch in the intermediate host releasing an acanthor that penetrates the gut and develops into an acanthella/cystocanth. The life cycle is complete when a fish eats a parasitized microcrustacean and the adult worm develops in the alimentary tract of the fish host. In some cases, fish are the second intermediate host as well as the final host.

V. Diagnosis
Diagnosis is made by the visual detection of adult acanthocephalans in the intestine or invasive larvae in the body cavity of a parasitized fish. The shape of the proboscis, the arrangement and the number of proboscis-hooks are important characteristics used to definitively identify the species of acanthocephalan.

VI. Prognosis for Host
The principal effects on the final host can include mechanical damage to the intestinal wall and emaciation. Significant fish mortality or emaciation due to infestation by acanthocephalans are rare unless the worms are present in large numbers.

VII. Human Health Significance
There are no human health concerns associated with these organisms.
Helminths

*Neoechinorhynchus* acanthocephalan worm

A higher magnification of the proboscis

Highly armed proboscis of *Echinorhynchus*