Gyrodactylus and *Dactylogyrus*

I. Causative Agent and Disease

The genus *Gyrodactylus* contains many species but *G. salmonis* is a common parasite of salmonids in North America. This small (0.2 mm) monogenean fluke attaches to gills, fins and skin epithelium using an attachment organ or opisthaptor armed with a pair of large hooks and 16 marginal hooklets. The head of the worm is bi-lobed, lacks eye spots and the worm produces live young. Heavy infestations by the parasite can result in destruction of the gills or skin epithelium due to mechanical damage caused by the attachment organ. The genus *Dactylogyrus* is found on the gills of mostly cyprinid fishes and is also very small (0.3 mm). *Dactylogyrus* is recognized by a four-lobed head with four eye spots and produces eggs. The opisthaptor consists of one conspicuous pair of large hooks and up to 12 smaller hooklets. When the worm is present in large numbers, gill hyperplasia and necrosis may result.

II. Host Species

The genus *Gyrodactylus* has many species in Eurasia and North America that parasitize both marine and freshwater fish. In Alaska, the worm is commonly observed as an external parasite of wild and hatchery salmonids. The genus *Dactylogyrus* is found worldwide parasitizing mostly cyprinids in freshwater.

III. Clinical Signs

The skin of fish infested with *Gyrodactylus* may become mottled, necrotic and dark with excess mucus production. Infestation of the gills often results in lamellar hyperplasia, also accompanied by excessive mucus production and rapid respiratory movements. Heavy body infestations cause fin erosion with flashing behavior and lethargy. Gill infestations of *Dactylogyrus* produce clinical signs very similar to *Gyrodactylus.*

IV. Transmission

Horizontal transmission occurs between fish by physical contact in crowded environments or when the flukes are present in the water seeking a fish host. Both genera are hermaphroditic. *Gyrodactylus* produces live young that attach to the same or different host. *Dactylogyrus* releases fertilized eggs that hatch in the water column producing juveniles that likely attach to a different host.

V. Diagnosis

Diagnosis is made by observing the parasites in wet mounts of skin scrapes or gill tissues. *Gyrodactylus* has no eyespots and is viviparous having embryos with well-developed hooks visible inside the body of the adults. Dactylogyrid flukes have 4 eye spots and contain visible eggs.

VI. Prognosis for Host

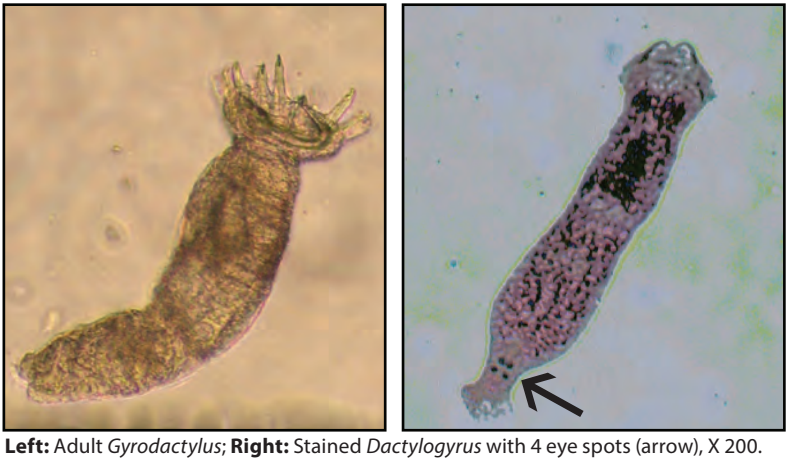
Prognosis for the host is good if infestations are not excessive. If extensive mechanical damage occurs to the fins, skin and/or gills the fish become very susceptible to secondary infections with opportunistic pathogens. Formalin treatments are used in the hatchery environment to eliminate these external flukes from fish.

VII. Human Health Significance

There are no human health concerns associated with either *Gyrodactylus* or *Dactylogyrus.*

Gyrodactylus attached to gill lamellae by hooks, X 100.

Gyrodactylus having visible internal embryos with hooks (arrow), X 200.



Left: Adult *Gyrodactylus*; **Right:** Stained *Dactylogyrus* with 4 eye spots (arrow), X 200.