Common Freshwater Fish Parasites Pictorial Guide: Dinoflagellates, Coccidia, Microsporidians, & Myxozoans

Deborah B. Poudre, Eric W. Curtis, and Roy P.E. Yanong

Introduction

This publication is one in a series of pictorial guides that is designed to assist in the identification of common freshwater fish parasites. The publications included in this series are:

- Common Freshwater Fish Parasites Pictorial Guide: Sessile Ciliates
- Common Freshwater Fish Parasites Pictorial Guide: Motile Ciliates
- Common Freshwater Fish Parasites Pictorial Guide: Dinoflagellates, Coccidia, Microsporidians, & Myxozoans
- Common Freshwater Fish Parasites Pictorial Guide: Monogeneans
- Common Freshwater Fish Parasites Pictorial Guide: Digenean Trematodes
- Common Freshwater Fish Parasites Pictorial Guide: Nematodes
- Common Freshwater Fish Parasites Pictorial Guide: Acanthocephalans, Cestodes, Leeches, & Pentastomes
- Common Freshwater Fish Parasites Pictorial Guide: Crustaceans

The information provided in this guide is not intended to be a complete, detailed description of each parasite or parasite group and its characteristics but rather is intended to assist in the visual identification of some of the most common species or groups of parasites seen in freshwater fish. For further information on each parasite, refer to publications in the “Recommended Reading” and “Reference” sections below.

Guide Information

- Target Tissue: provides the location on/in the fish where the parasite is most commonly found.
- Characteristic: provides a brief description about the appearance of the parasite.
- Size: provides the size or size range of the parasite. (1 µm = 0.001 mm = 0.0001 cm) (µm = micron or micrometer; mm = millimeter; cm = centimeter)
- Movement: provides the type of movement, if any, of the parasite.
- Note: provides a brief comment of interest about the parasite.
Acknowledgements
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Recommended Reading


UF/IFAS Circular 91 Nematode (Roundworm) Infections in Fish. http://edis.ifas.ufl.edu/FA091


UF/IFAS Circular 121 Fish Health Management Considerations in Recirculating Aquaculture Systems - Part 2: Pathogens. http://edis.ifas.ufl.edu/FA100


UF/IFAS Circular 716 Introduction to Freshwater Fish Parasites. http://edis.ifas.ufl.edu/FA041

UF/IFAS Circular 919 Stress--It's Role in Fish Disease. http://edis.ifas.ufl.edu/FA005

UF/IFAS Circular 920 *Ichthyophthirius multifiliis* (White Spot) Infections in Fish. http://edis.ifas.ufl.edu/FA006

UF/IFAS Circular 921 Introduction to Fish Health Management. http://edis.ifas.ufl.edu/FA004

UF/IFAS Fact Sheet FA-13 Use of Copper in Freshwater Aquaculture and Farm Ponds. http://edis.ifas.ufl.edu/FA008

UF/IFAS Fact Sheet FA-23 The Use of Potassium Permanganate in Fish Ponds. http://edis.ifas.ufl.edu/FA032

UF/IFAS Fact Sheet FA-28 Monogenean Parasites of Fish. http://edis.ifas.ufl.edu/FA033

UF/IFAS Fact Sheet FA-37 Use of Potassium Permanganate to Control External Infections of Ornamental Fish. http://edis.ifas.ufl.edu/FA027

UF/IFAS Fact Sheet FA-55 Submission of Fish for Diagnostic Evaluation. http://edis.ifas.ufl.edu/FA055

UF/IFAS Fact Sheet FA-90 Pentastomid Infections in Fish. http://edis.ifas.ufl.edu/FA090


UF/IFAS Fact Sheet FA-111 Common Freshwater Fish Parasites Pictorial Guide: Monogeneans. http://edis.ifas.ufl.edu/FA111

UF/IFAS Fact Sheet FA-112 Common Freshwater Fish Parasites Pictorial Guide: Digenean Trematodes. http://edis.ifas.ufl.edu/FA112

UF/IFAS Fact Sheet FA-113 Common Freshwater Fish Parasites Pictorial Guide: Nematodes. http://edis.ifas.ufl.edu/FA113


UF/IFAS Fact Sheet FA-115 Common Freshwater Fish Parasites Pictorial Guide: Crustaceans. http://edis.ifas.ufl.edu/FA115


UF/IFAS Fact Sheet VM-77 Use of Formalin to Control Fish Parasites. http://edis.ifas.ufl.edu/VM061
UF/IFAS Fact Sheet VM-78 Bath Treatment for Sick Fish.  
http://edis.ifas.ufl.edu/VM037

UF/IFAS Fact Sheet VM-85 “Red Sore Disease” in Game Fish.  
http://edis.ifas.ufl.edu/VM059

UF/IFAS Fact Sheet VM-86 Use of Salt in Aquaculture.  
http://edis.ifas.ufl.edu/VM007

UF/IFAS Fact Sheet VM-87 Sanitation Practices for Aquaculture Facilities.  
http://edis.ifas.ufl.edu/AE081

UF/IFAS Fact Sheet VM-104 Cryptobia iubilans in Cichlids.  
http://edis.ifas.ufl.edu/VM077

References


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Dinoflagellate: *Piscinoodinium*

**Target Tissues:** Skin, fin, gills
**Appearance:** Oval shape with amber color, “granular” interior; may see clear area near middle and one end of oval
**Size:** Trophont approx. 12 µm x 96 µm
**Movement:** Not free-moving
**Note:** Most pathogenic to young fish; complex life cycle with stages on and off fish

Coccidia

**Target Tissues:** Intestinal tract (most common); may be present in other organs
**Appearance:** Egg-shaped, clear oocyst; typically contains four sporocysts
**Size:** Approx. 25 µm in diameter
**Movement:** Not free-moving
**Note:** May or may not cause significant disease

Microsporidians

**Target Tissues:** Any; common in muscle for some fish
**Appearance:** Often see grainy-looking cysts first (parasites inside cyst); individual parasite shaped like egg or Dutch “wooden shoe”
**Size:** Spores approx. 3–10 µm; largest stage up to 50 µm
**Movement:** Not free-moving
**Note:** Burst cyst to “free” individual spores for identification; direct fish to fish transmission in species studied

Myxozoans

**Target Tissues:** Any
**Appearance:** Spores of different species vary greatly in shape and size; often see cysts first (parasites inside cyst); all spores have one to six polar capsules
**Size:** Spores approx. 8–20 µm
**Movement:** Not free-moving
**Note:** Burst cyst to “free” individual spores for identification; in species studied, indirect life cycle involving oligochaete worm