FISH HEALTH!

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There have been few resources in the U.S. for research on diseases.

330 B.C

1450 B.C.
Fish health import regulations

Hatcheries: state, tribal, private

Natural waters: Lakes and streams

Universities for research

Bait

State line
Discussion of health has been secondary to feed training, rearing, nutrition and marketing.
Producers often appreciate the importance of disease late in the process of fish farming.
Diseases have limited production and contributed to financial failure of several major farms in the Upper Midwest.
Devastating yellow perch disease outbreak 1999

- Unknown etiology
- *Myxobolus neurophilus*
Now that testing for fish pathogens has increased particularly since 2006 we are finding new pathogens, especially viral pathogens.

**Nidovirus** has been isolated from fathead minnows,

**largemouth bass virus** from smallmouth bass and largemouth bass,

**picornovirus** in hybrid bluegill,

**golden shiner virus** in golden shiners, and

**golden shiner reovirus virus** in muskie.
Other diseases of interest include nodaviruses, Asian tapeworm, Piscirickettsia, *Tetrahymena*, Trout strawberry disease, White-tail syndrome, and the commonly recognized abbreviated viral diseases like SVC, IPN, IHN, WSIV, KHV, and of course VHS. Fish farmers have the challenge of managing the health of their fish and protecting them from many varied diseases, and the first challenge is to learn as much as possible about the many diseases that can make their fish sick.
Bacterial and parasitic soup

- Trichodina
- Aeromonas
- Columnaris
- Costia
- Gyrodactylus
- Ich
Bacteria

- *Aeromonas salmonicida*: Furunculosis
- *Yersinia ruckerii*: Enteric Redmouth
- *Renibacterium salmoninarum*: Bacterial Kidney Disease
Bacterial Gill Disease
Nodular Gill Disease
VHA Results
Neascus “Black Spot” by Water Source

- Lakes 17%
- Well 30%
Whirling Disease
Illinois
2008
Michigan
Other Myxosporidian Parasites
Ceratomyxa shasta
Plistophora ovariae
Ulcerative Dermal Necrosis
Tetrahymena
White Tail Syndrome

- Yellow Perch
Nidovirus
Wisconsin 2008

- Fathead minnows
O.I.E.

- Spring viremia of carp
- Koi herpesvirus
- Viral hemorrhagic septicemia
- Infectious haematopoietic necrosis
- Epizootic haematopoietic necrosis
- Epizootic ulcerative syndrome
- Infectious salmon anemia
- Gyrodactylus salaris
- Red sea bream iridoviral disease
Spring Viremia of Carp
Wisconsin, Illinois, N. Carolina

- No longer Exotic as of 2002
Infectious Hematopoietic Necrosis
Western States
Epizootic Hematopoietic Necrosis
Australia

- Exotic
Epizootic Ulcerative Syndrome
Asia and Australia

- Exotic
Viral Hemorrhagic Septicemia

Great Lakes 2005, East Coast, West Coast
Streptococcus iniae

Mycobacteria
Asian Tapeworm
China
and U.S. Baitfish 1974
Infectious Pancreatic Necrosis