When Do Fish Diseases Show Up in the Public’s Eye
Fish Pathogen Backdrop

- Broad range of pathogens – 1000s+
- Water moves pathogens
- Fish pathogens do not affect humans, except parasites
- Vectors – Live infected fish the best
- Each group of species or individual species has their own pathogens
- Intervention sometimes possible - hatcheries
- Effects are economic
Current Fish Pathogens in the News

- Largemouth Bass virus (LMBv)
- Epizootic Epitheliotropic Disease virus (EEDv)
- Viral Hemorrhagic Septicemia virus (VHSv)
- Biggest killer of fish are bacterial infections
  - Flavobacteria – CWD and BGD
  - Aeromonids - Furunculosis
VHSv – RNA Rhabdovirus

- Kills by internal bleeding and immune depression
- Invasive pathogen - Maritime Region of Canada (IVb) – Arrived about 2000 – Bulk shipping?
- Found in the Great Lakes but only in a few inland waters with a broad species range
- Causing nearly annual mortalities in Lake St. Clair
  - Mostly Gizzard Shad
EEDv – DNA Salmonid Herpesvirus 3

- Specific to Lake Trout
- Native virus?
  - Found in Lakes Superior, Michigan and Huron
- Destroys the skin and eye tissue
- Causes large mortalities in hatcheries
  - Stress mediated disease
    - Water temperatures above 50F and turbid
- Epizootic events at MSFH in the 1980s, 2012, and 2017-2019
  - Estimated hatchery losses since 2012 are $370K
LMBv – DNA Ranavirus

- Invasive virus from the Southern US about 2000
  - Live fish transfer is the likely vector
- Usually kills 10-20% of adult Largemouth Bass by causing internal bleeding with population recovery in a few years
- Largemouth Bass
  - No external signs with lethargic fish on surface
- Nearly all bass and panfish species can be carriers
- Disease triggers
  - Hot, dry conditions
  - Stressor events
    - Heavy angler pressure and tournaments
    - Weed treatments
LMBv – Presence 2001-2004
15 of 30 lakes positive
**LMBv 2018**

- In August – Sept 2018, adult Smallmouth Bass mortalities with large external lesions
  - NE LP – Cedar, Beaver and Avalon Lakes
  - Other work indicates potential recruitment issues
LMBv Infections 2018

LMBv positive

1. Cedar Lake - LMB, Iosco/Alcona counties, MI
2. Beaver Lake - SMB, Alpena county, MI
3. Lake Avalon - SMB, Montmorency county, MI

LMBv negative

1. Lake Huron - SMB, Thunder Bay, MI
Angler and Public Assistance

- Clean your equipment and boats
- Do not move live fish or water between lakes
- Reduce fishing during stressful periods
- Do not hold fish for long periods in live wells if they are going to be released
- Report mortalities of over 25 fish
  – Michigan.gov/Eyesinthefield
Questions or Comments
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