Protecting and Enhancing Fish Habitat

Department of Natural Resources
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Ecosystem Based Management

- Health of whole ecosystem
- Emphasize interconnections
- Economic, social, environmental
2014 Surveys

- Brush Lake
- Sand Lake
- Cedar Lake
- Manistee Lake
- Crystal Lake
- Boardman River
- Platte River
- PM River
- Manistee River
- Hersey River
- Jordan River
Pertinent Preliminary Analysis

• Is habitat abundance limiting production, recruitment, and/or growth of fish population?
• Fish population structure and angling pressure?
• Why does the lake have limited habitat?
Addressing the Cause of the Issue

• Long-term solution-Primary priority
• Educational events that promote proper riparian management techniques
• Implement proper riparian management
• Respond to DEQ permit applications that threaten the integrity of near-shore zone habitats
Addressing the Effects of the Issue

- Restoration or enhancement projects should be concentrated within the near-shore zone
  - Short-term solution - Secondary priority
  - Shoreline tree drops: cut one and plant two
  - Import whole trees to the near-shore zone
Ecological Significance of the Near-Shore Zone

• Near-shore zones are the most productive areas of all lakes
  – Vegetative productivity
  – Spawning
  – Rearing
  – Feeding
  – Productivity is partially determined by land-water interface (riparian) condition
History of Riparian Zone Management

- Riparian zones have been severely degraded due to extensive shoreline development.
- Historic riparian zones were characterized by wetlands, native grasses, vegetation, and trees.
- Current riparian zones are characterized by sea-walls, rip-rap, and manicured lawns.
Historic Riparian Conditions
Historic Riparian Zone Condition
Current Riparian Zone Condition
Current Riparian Zone Condition
Concentrate Restoration Efforts in the Near-Shore zone
Deep Water Placement of Fish Structures

- Only benefit is increased angling success
  - Tertiary priority
  - Construct of primarily natural materials
  - Whole tree placements
  - Do not recommend concrete, treated lumber, plastics, or Christmas trees
  - Anchor trees with biodegradable material such as rope, burlap bags, and rock
Potential Benefits of Fish Structures and Tree Drops

• Increased angling success
• Enhanced spawning of certain species
  – Caveats: increased predation and limited use
• Increased habitat diversity
  – Caveat: most lakes have suitable habitat including vegetation, irregular bottom contours, rock, etc.
Potential Detriments of Fish Structures

• Increased angling success
• Water pollution (treated lumber, paint, surfactant leachates from concrete, lead, etc.)
• In many cases structures will not enhance production, recruitment, or growth
Recommendations for Fish Structures

- Concentrate on tree drops
- Do not place into lakes that have stunted fish populations or receive heavy fishing pressure (in relation to their size)
- Do not place into lakes that have suitable habitat (vegetation, irregular bottom contours, woody debris, rock, etc.)
- Construct from primarily natural materials
Fish Structure Installation Requires a Permit From DEQ

- Artificial structures are regulated by the State under the Natural Resources and Environmental Protection Act (NREPA), 1994 PA 451, as amended; Part 301, Inland Lakes and Streams. This Part is administered by the Department of Environmental Quality (DEQ), Geological and Land Management Division.
Spawning Reefs
Water Level Manipulations
• “Conservation guidelines for Michigan lakes and associated resources.”
  – http://www.michigan.gov/dnr