Fish Sticks
From Science to Implementation

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WI County Land Conservation Meeting
Fish Sticks – How we got here

• Historic Efforts
• More Recent Efforts
• Fish Sticks General Permit, Best Management Practices and Website
• Funding
• Wood Additions to Date
• Important lessons and FAQ’s
Fish Sticks Mauthe Lake 1965
Available fish habitat general permit types in WI
Nagawicka Lake ~ 80 miles south southwest of here
LET'S Stock!

Let's change the regulations!

ATTENTION ANGLERS!
IMPORTANT FISHING REGULATIONS

WATERS: DIAMOND LAKE

WALLEYE
DAILY BAG LIMIT: 2, BUT ONLY ONE MAY BE 28 INCHES OR LARGER
MINIMUM LENGTH: 15 INCHES, BUT NONE MAY BE KEPT BETWEEN 20 AND 28 INCHES

LARGEMOUTH AND SMALLMOUTH BASS
DAILY BAG LIMIT (1st Saturday in May - 3rd Friday in June): 0
DAILY BAG LIMIT (3rd Saturday in June - 1st Sunday in March): 5
MINIMUM LENGTH: 14 INCHES

NORTHERN PIKE
DAILY BAG LIMIT: 1
MINIMUM LENGTH: 32 INCHES

CHECK THE REGULATION PAMPHLET
FOR SPECIES NOT LISTED ABOVE
2022.08.01, ADMINISTRATIVE CODE
Bony Lake
Early Finding – Loggers would rather not have their picture taken
Shoreline Development and the Effect on Submerged Wood

• Study of northern WI/ Upper Peninsula MI, found undeveloped lakes averaged **894 logs/mi** of Shoreline (Christensen et al. 1996)

• Study of 16 northern WI lakes
  – Undeveloped shoreline on developed lakes averaged **610 logs/mi** of shoreline
  – Developed shoreline on same set of lakes averaged **92 logs/mi** of shoreline (Jennings et al. 1999)


Bigwigs Get Involved - 2012
- Permitting Issues
- Funding Issues
Fish Sticks General Permit

- Lean Team Develops Fish Sticks General Permit – 2013/2014
- Applicant follows design guidelines gets permit with less paperwork
- Initial permit for lake costs $303. If applicant checks box allowing others to “piggy back” on their permit all other permits for that lake are free
Fishing Wisconsin

Fish sticks: Improving lake habitat

Trees have been dropping naturally into Wisconsin lakes since the glaciers receded. Fallen trees provide shelter and feeding areas for a diversity of fish species and may also provide nesting and sunning areas for birds, turtles and other animals above the water. Nearly all fish species use woody habitat for at least a portion of their life cycle.

What are fish sticks?
"Fish Sticks" projects are intended to restore woody habitat in lakes by adding trees to the near-shore area. They are large woody habitat structures that use either single trees or trees grouped together. Fish sticks structures are anchored to the shore and are partially or fully submerged near the shoreline of a lake. Fish sticks projects are completed to provide additional fish habitat, as well as to expend fishing opportunities by anglers and provide protection to shorelines. Additional information on fish sticks and the fish sticks implementation process can be found in the Fish Sticks Best Practices Manual.

Fish sticks projects generally include a variety of cooperators: lakefront property owners, lake associations or districts, DNR permitting and fisheries staff, county land and water conservation departments and possibly federal agencies.

How can I get involved in a fish sticks project?
- Fish sticks projects are permitted through a general permit process.
- Contact your local fisheries biologist for recommendations.

Fish sticks literature
- A second life for trees in lakes; as useful in water as they were on land
- Impacts of lakeshore residential development on coarse woody debris in north temperate lakes
- Lakeshore woody habitat in review
- Less work, more beauty, better protection - Wisconsin Natural Resources magazine, April 2000
- Natural and anthropogenic variation in coarse wood among and within lakes
- Fish community and food web responses to a whole-lake removal of coarse woody habitat
- In littoral habitat, affected by residential development, and land use in watersheds of Wisconsin
- A small musky cruises among the wood.

Making fishing better
- Ceded territory
- Lake Michigan
- Lake Superior
- Mississippi River
Funding

• Bony Lake – WDNR lake protection grant
• Glacial Lakes partnership grant
• County Conservation Departments
• WDNR warm water fish habitat funding
• Private funding, lake association, interest groups, etc.

• Healthy Lakes, HOORAY!!!!!!
From 2008 to 2017 approximately 3,200 trees placed in Douglas and Bayfield Counties.
What about largemouth bass/walleye and fish sticks?

Coarse Woody Habitat and Fishes

**KNOWN:**
- Many fishes are attracted to CWH (Newberry et al. 2005, Bass et al. 2012)
- CWH loss can severely deplete forage fishes and depress largemouth bass growth rates (Bass et al. 2004, Geets et al. 2011, 2014)
- Fish behavioral responses are evident with CWH loss or addition (Ahrenstorff et al. 2009, Bass et al. 2012)
- Lakeshore residential development is negatively correlated with CWH (Christensen et al. 1996, Sugden-Newbery 2004, Francis and Schindler 2006)
- A substantial proportion of fish production can derive from terrestrial sources of carbon (Pace et al. 2004)

**UNKNOWN:**
- Does CWH addition simply attract fishes?
- Does CWH addition increase fish production?
- How do fishes respond to CWH addition?

- in a more complex fish community
- in larger lakes
- over extended periods of time (20-25 years)
How much is too much?
Good places to put wood

• Whole lake for lakes less than ~250 acres
• Lakes larger than ~250 acres, in bays and transition areas out of bays
• Areas protected by points or islands
• Bullrush beds
• Areas with submerged aquatic plants
• Anecdotal evidence that tree complexes provide shoreline protection
• Areas that aren’t in riparian use corridor
Bad places to put wood

• Navigation areas
• Swimming areas
• Very shallow water depths (1 foot deep, 75 feet from shore)
• High energy shorelines (indicated by ice heave), testing different types of placement which mimics what is observed on high energy shorelines
• Seepage lakes?
Techniques

High Energy Fish

Fish Sticks Low Energy Design
Social Impacts?
Thank you!