

The West Michigan

Angler's News

A periodical publication serving Michigan Sea Grant's Southwest District

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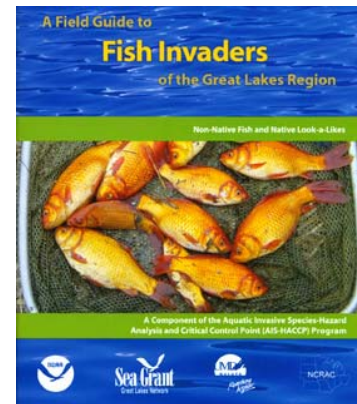
Lake Michigan Salmon Updates from the Ludington Regional Fishery Workshop

On January 5, charter boat captains and other interested anglers attended the 2008 Ludington Regional Fishery Workshop. Speakers covered a wide variety of topics pertaining to the Lake Michigan fishery. Randy Claramunt of the MDNR started off the morning by presenting an update on the status of Chinook salmon and their prey. In 2007, Chinook salmon exhibited good condition and virtually no sign of disease. Declines in alewife were most apparent in northern Lake Michigan and other peripheral habitats, and alewife density was highest near Saugatuck and Grand Haven. Based on the high quality of the salmon fishery and declines in alewife, the 2006 stocking cuts were judged to be the right move at the right time.

Wild-spawned Chinook salmon now account for approximately half of all kings in Lake Michigan. Ed Rutherford, of the University of Michigan, noted that flow rates in rivers determine the extent of natural reproduction in any given year and found that 30-90% of wild-spawned Chinooks are eaten annually by walleye and trout stocked in streams. Tom Rozich of the MDNR reported strong coho salmon weir returns in 2007 and predicted another strong run in 2008. He also discussed plans to begin stocking Sturgeon River strain brown trout in the Great Lakes in 2009.

Other speakers highlighted increased netting effort by Little River Band of Ottawa Indians members, causes and effects of Type E botulism outbreaks in northern Lake Michigan, the spread of invasive bloody red shrimp, and efforts to prevent silver and bighead carp from invading Lake Michigan. Members of the United States Coast Guard discussed new Transportation Worker Identification Card requirements and other regulations relevant to the charter boat industry. A similar presentation will be made at the Grand Haven Regional Fishery Workshop on March 1.

New Guide to Exotic Fish Species Now Available



A pocket-sized waterproof guide to identification of invasive fish and native look-a-likes is now available. Anglers can learn to identify snakehead, Asian carp species, ruffe, and others. Single copies are available at no charge; e-mail okeefed@msu.edu.

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Lake Michigan Science Shorts

Round Goby Life Cycle Reveals Ballast Connection

How does a fish that spends nearly all of its life on the bottom wind up traveling across the Atlantic Ocean in ballast water? The round goby did exactly that, and rapidly spread throughout the Great Lakes, becoming one of the most troublesome of invasive species. Researchers at the University of Michigan recently found the answer to the riddle of the goby's rapid spread. Like adult gobies, larval gobies spend their days on the bottom. Unlike adults, the larvae migrate to the surface each night. Invasive species that have an open-water larval stage are better able to disperse to new areas on lake currents, in the ballast water of freighters, and in the bait buckets, livewells, and bilges of unsuspecting anglers and boaters.

Hensler, S. R. and D. J. Jude. 2007. Diel vertical migration of round goby larvae in the Great Lakes. Journal of Great Lakes Research 32:295-302.



Round gobies have many effects on Great Lakes ecosystems. They feed on zebra mussels, eliminate native sculpin, provide food for bass and walleye, and are implicated in avian botulism outbreaks.

Modeling Explores Potential for Increasing Steelhead Below Tippy Dam

Steelhead spawn in large numbers below Tippy Dam on the Manistee River, but survival to the smolt stage is low. High flows decrease survival at the fry stage, but increase survival at the parr stage. High temperatures decrease survival at both life stages. Model results showed that decreasing temperatures below Tippy dam by 9°F would only cause a slight increase in survival of young steelhead. An 18°F decrease would produce a large increase in survival. Unfortunately, changing the location of water intake above Tippy Dam would not cause such a large change in temperature, and would therefore have little impact on natural production of steelhead.

Tyler, J. A. and E. S. Rutherford. 2007. River restoration effects on steelhead populations in the Manistee River, Michigan: analysis using an individual-based model. Transactions of the American Fisheries Society 136:1654-1673.

Net Pens Increase Survival of Lake Huron Salmon

Anglers in several ports around the Great Lakes have donated their time and money to net pen projects, hoping to increase the survival of salmon stocked by management agencies. The pens are generally stationed in harbors and allow the young salmon to acclimate to their new environment. Growth of net pen salmon is enhanced with artificial feed. Pen-acclimated salmon are less vulnerable to predators due to this head start in growth, and their tendency to move into deep water more quickly than wild or conventionally stocked salmon. A recent study compared recreational angler return rates of tags (CWTs) from salmon stocked traditionally to those held in net pens. Net pens in the AuSable River resulted in a 2.5-fold increase in salmon returns, while net pens at Harbor Beach resulted in a much smaller increase due to high temperatures. Pens on the AuSable also appeared to help salmon to imprint. Salmon reared in AuSable River net pens were 6.4 times more likely to return to that river than conventionally stocked fish.

Johnson, J. E., S. P. DeWitt, and J. E. Clevenger, Jr. 2007. Causes of variable survival of stocked Chinook salmon in Lake Huron. Michigan Department of Natural Resources, Fisheries Research Report 2086. 54pp.

What Makes a Great Walleye Pond?

Walleye are commonly reared in ponds prior to stocking in Michigan's public waters. The Michigan DNR and clubs that participate in walleye rearing have noticed that not all ponds are equally productive, and numbers and size of walleye produced in a pond can vary from year to year. A study of 13 Lower Peninsula walleye ponds recently revealed factors that are important to walleye survival and growth. Survival increased at higher stocking densities; the recommended stocking rate for ponds was 10,000 to 14,000 fry per acre. Phosphorus, zooplankton density, and turbid water were correlated with high survival in 2005 and high growth rate in 2006. Fertilizer can increase all of these factors, and should be applied on a weekly basis. Organic fertilizers (e.g., soy meal) were used in some studied ponds while others were not fertilized. Inorganic fertilizers were not used in this study, but nutrients from inorganic fertilizers are more rapidly available to plankton and may produce better results.

*Knoll, M. 2007. Growth and survival of walleye (*Sander vitreus Mitchell*) in Michigan hatchery ponds. Master's Thesis. Central Michigan University, Mt. Pleasant, Michigan.. 63 pp.*

The Economic Value of Great Lakes Recreation

It has been said before, but I'll say it again: fishing and boating are big business. This is especially true in the Great Lakes states, which account for one third of all registered boats in the United States. As another big lake fishing season approaches and Lake Michigan water levels threaten to drop to all-time lows, it is especially important to highlight the economic impact of recreational fishing and boating. Shallow-draft harbors such as Onekama, South Haven, and Saugatuck/Douglas do not support commercial shipping and currently rely on congressional earmarks to fund dredging of connecting channels that provide access to Lake Michigan. As budgets tighten and earmarks are becoming increasingly unpopular, the fate of our recreational ports hangs by a string. Michigan Sea Grant and others are working toward a more sustainable funding source, armed with the latest data on the economic benefits of angling and boating.

A recent study conducted by the Great Lakes Commission, United States Army Corps of Engineers, and Michigan State University's Recreational Marine Research Center provided the most comprehensive analysis of economic impacts to date in order to address the costs and benefits of harbor dredging (see summary at: <http://www.glc.org/recboat/pdf/rec-boating-final-small.pdf>). The Corps estimated that \$5 million would be required annually to dredge all recreational harbors and channels, while \$1.2 billion was spent annually on craft- and trip-related items by owners of boats docked in coastal Great Lakes counties as of 2004. Great Lakes boat owners averaged 23 days per season on the water, and spent \$95.65 per boating day on average (this figure was much higher for large boats). These expenditures represent only a portion of the total economic impact of boating in Great Lakes states, which includes consideration of jobs created, personal income, value added, and secondary effects on related industries. An input-output model that included these factors estimated an economic impact of over \$34 billion from registered boaters in Great Lakes states and 246,117 jobs in 2004.

In 2003, local spending by charter boat customers was \$449 per party staying overnight in the port city and \$197 per party for day trips. The total direct spending in coastal communities by charter fishing customers in U.S. waters of the Great Lakes was estimated at over \$20 billion in 2003. These figures include food, beverages, entertainment, lodging, and shopping, but not charter boat fees or travel to and from the port city.

The economic impacts of angling, boating, and other water-based activities are substantial, but they do not fully describe the benefits of the Great Lakes to port cities. Coastal communities are defined by their proximity to the water, and this link to the lakes that once fueled the growth

of the manufacturing industry is now central to a different kind of growth. The old economic paradigm that suggested natural resources are only economically valuable when used as raw material for manufacturing is now complemented by a new model of amenity-driven growth. The new model recognizes the importance of 'natural resource amenities' in making a location desirable to live in, and suggests that access to recreational opportunities in natural areas such as the Great Lakes is a major factor in attracting young and well-educated people to a community. As the Great Lakes region's economy transforms and telecommuting and high-tech industries make proximity to historic urban centers less critical, coastal areas with abundant opportunities for outdoor recreation are an attractive option for the innovators of tomorrow's industries.

Upcoming Events

Grand Haven Regional Fishery Workshop

March 1 2008 (Saturday)
Mackinaw Room
Grand Haven Community Center
421 Columbus Street
Grand Haven, MI 49417

See program details and flyer on pages 5–6.

Aquatic Nuisance Species in the Great Lakes

February 28, 2008 (Thursday) 7:00—8:00 p.m.
The Heritage Museum and Cultural Center
601 Main Street, St. Joseph, MI

*Dan O'Keefe will present an update on the effects of
invasive species on fisheries and the lake environment.
No registration required.*

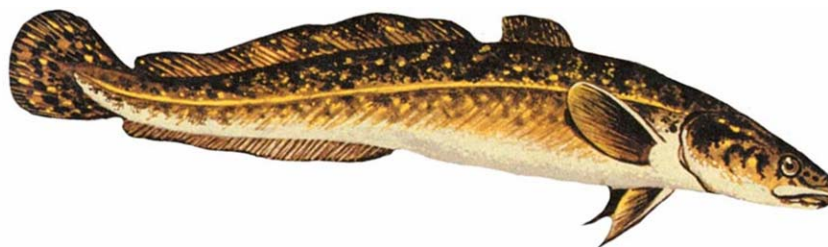
Workshop: Partnership for Lake Sturgeon Restoration

March 29, 2008 (Saturday)
Location To Be Announced

*Program and registration details will be included in a
future mailing, and will be made available at
<http://www.miseagrant.umich.edu/fisheries/index.html>*

Species Profile

Burbot *Lota lota*



Although considered an ugly fish by many anglers, the burbot is a large, abundant, and delicious fish. Burbot inhabit a wide range of depths, moving shallow to spawn in winter and using deeper areas in summer. In Lake Superior, burbot have been found at depths exceeding 1,100 feet (NOAA GLERL image).

Etymology:

Lota is an ancient name for this fish, which has many common names. These include lawyer, eelpout, cusk, and freshwater cod. The last name is appropriate, because the burbot is a member of the cod family. Although sometimes referred to as dogfish, Michiganders more commonly use that name for the unrelated bowfin.

Life History:

The burbot is a winter spawner, moving into shallows at night and often spawning under the ice. Burbot can spawn in lakes or streams. Small burbot (up to a foot long) are often common in cold and cool streams, although they are rarely encountered by anglers. Burbot are typically nocturnal, and feed during the dead of night. Divers in Lake Michigan often find adult burbot resting in rocky crevices during the daytime. Large adults are common catches while ice fishing in some lakes.

Diet:

The diet of small burbot in streams such as the White River includes a variety of invertebrates (e.g., scuds, mayflies, caddisflies). Larger burbot are typically found in the Great Lakes. In Green Bay, fish made up 94% of burbot diet by volume. Alewife, bloater, smelt, and sculpin accounted for nearly 90% of fish consumed.

Size & Master Angler Entries:

Burbot are similar in size to walleye, typically ranging from 1 to 4 pounds. The Michigan state record burbot weighed 18.25 pounds and measured 40 inches long. Entries in the Michigan DNR's Master Angler program reveal that Lake Michigan and Lake Huron are tops for big burbot. Crystal Lake in Benzie County produced more Master Angler burbot than any other inland lake during 1994-2007. Over this time period, more Master Angler burbot were caught during March than any other month.

Management Issues:

The burbot is one of two predatory fish species native to deep waters of Lake Michigan. The other is the lake trout. Both species were decimated by sea lamprey, but the burbot has recovered on its own while lake trout are the focus of ongoing restoration efforts.

Although currently abundant, the role of the burbot in the Lake Michigan food web is not well understood. Although diets of burbot and lake trout overlap, this does not necessarily imply that burbot are hindering lake trout recovery efforts. Historically, the two species coexisted, and federal government data from the 1930s show that lake trout were naturally more abundant than burbot before lamprey arrived.

Lake Michigan fish community objectives set forth by the Great Lakes Fishery Commission include a recommendation to devote more research to understanding the role of burbot in the ecosystem, including possible impacts to alewife, lake trout, and salmon.

Importance to Fishery:

The burbot is not likely to win any beauty contests. Looking like a cross between a cod and an eel, this fish also has the odd habit of wrapping its slimy tail around the hand or arm of unsuspecting anglers when caught. Perhaps because of its appearance, the burbot has never been a popular sport or commercial species in Michigan.

The flesh of burbot is white, firm, mild in flavor, and as boneless as walleye or bass. This freshwater cod is most often prepared as 'Poor Man's Lobster' by steaming chunks of meat and dipping in drawn butter. They are also excellent when fried.

Leech Lake, Minnesota, is the site of an annual burbot ice fishing contest known as the International Eelpout Festival. This unusual, and tasty, fish has become a focal point for winter festivities in the nearby town of Walker. Ice fishing with minnows at night is the top method.

A Burbot Management Plan prepared by Maine's Department of Inland Fisheries and Wildlife reported that anglers targeting burbot through the ice at night recorded burbot catch rates 20 times higher than anglers targeting other species during daylight hours. Catches up to 20 fish per night were reported, and burbot averaged 18 inches long. Similar untapped fisheries probably exist in waters close to home.



Regional Fishery Workshop

March 1, 2008

Grand Haven Community Center—Mackinaw Room
421 Columbus Street, Grand Haven, MI 49417

8:30	Coffee, Rolls, and Registration	1:15	Update on International Joint Commissions' Upper Great Lakes Study: Status and Future of Great Lakes Water Levels Al Steinman <i>Annis Water Research Institute, Grand Valley State University</i>
9:00	Welcome and Introductory Remarks Dan O'Keefe <i>MSUE, Michigan Sea Grant</i>	1:45	Lake Michigan Forage Base Chuck Madenjian <i>United States Geological Survey</i>
9:20	Fisheries Management Update Rich O'Neal <i>Michigan Department of Natural Resources</i>	2:15	Lower Food Web Changes and Implications for the Lake Michigan Fishery Steve Pothoven <i>NOAA, Great Lakes Environmental Research Laboratory</i>
9:50	Status of Lake Michigan Salmonines and Their Prey Dave Clapp <i>Michigan Department of Natural Resources</i>	2:45	Break
10:30	Break	3:00	USCG Boardings, TWIC Documentation, and Drug Program LCDR Steve Lowe, MSTC Tom Hemminger <i>United States Coast Guard</i>
10:45	Funding and Legislative Update Denny Grinold <i>Michigan Charter Boat Association</i>	3:30	Michigan Charter Boat Association Drug Assistance Program Training Video (optional)
11:00	Charter Boat Effort & Fish Harvest from the Michigan Waters of the Great Lakes Donna Wesander <i>Michigan Department of Natural Resources</i>	4:15	Adjourn
11:40	Lake Michigan Currents Guy Meadows <i>University of Michigan</i>		
12:10	Lunch		



Registration Form
Regional Fishery Workshop— Grand Haven MI—March 1, 2008
(Registration Due by February 26, 2008)

Name(s): _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ E-mail: _____

Number of persons attending: _____ Amount Enclosed \$ _____

Advance Registration Fee: \$20.00 (Includes Lunch)
Registration at the door: \$25.00
Make Checks payable to:
Ottawa County MSU Extension

Mail to: **Ottawa County MSU Extension**
ATTN: Regional Fishery Conference
333 Clinton St.
Grand Haven, MI 49417



Michigan Sea Grant invites you to attend the Grand Haven Regional Fishery Workshop to be held on Saturday, March 1, 2008. Topics presented will cover current research on issues that affect Lake Michigan fisheries. A hot lunch buffet will be included in the conference registration fee of \$20 in advance or \$25.00 at the door. Advanced registration is requested to assure an accurate count for food service. Please use the cut-off registration form at the bottom of this sheet and mail it with your check made out to Ottawa County MSU Extension. The mailing address is listed on the registration form. If you should have questions, please call (616) 846-8250.

To Muskegon ↑

Directions:

The conference will be held in the Mackinaw Room at the Grand Haven Community Center located at 421 Columbus, Grand Haven, MI 49417.

From Holland or south:

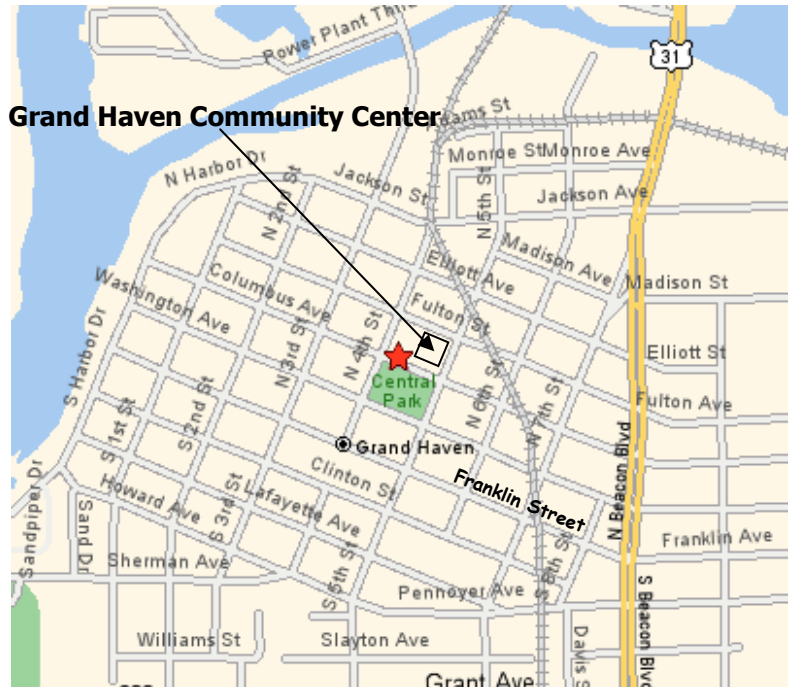
From U.S.-31 take Franklin west (left). Go four blocks to Fifth Street. Turn right on Fifth, Go one block. Cross Columbus, then enter parking lot on the right.

From Muskegon or north:

From U.S.-31 take Jackson west (right). Go two blocks. Turn left on Fifth. Go three blocks. Cross Fulton Street. Enter parking lot on right in back of community center or larger lot on left.

From Grand Rapids or east:

From I-96 take M-104 (Grand Haven/Spring Lake Exit #9). Continue west on M-104 to U.S.-31. Enter U.S.-31 South. Continue on U.S. 31 to Jackson Street. Follow remaining directions from Muskegon above.



To Holland ↓

Please Note:

The Grand Haven Community Center is handicapped accessible however if special accommodations for persons with disabilities are needed they may be requested by contacting Daniel O’Keefe at (616) 846-8250 by February 25, 2008 to make arrangements. Requests received after this date will be fulfilled when possible.

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The Sea Grant Grand Haven Regional Fishery Workshop is held in cooperation with:

- MDNR Fisheries Division —**
- Michigan Charterboat Association —**
- Michigan Salmon & Steelheaders Association —**
- Ottawa County MSU Extension**

Michigan Sea Grant Happenings

Michigan Sea Grant Spearheads Coastal Community Development Projects

Three coastal areas will be the focus of research, education, and outreach initiatives aimed at encouraging sustainable coastal economies, communities, and ecosystems. Using seed money from the National Oceanic and Atmospheric Administration (NOAA), Sea Grant agents in the northeast, northwest, and southwest Lower Peninsula districts are launching one-year projects designed to address issues of local importance. The limited-term projects are intended to leverage support from other sources and assist or serve as nuclei for long-lasting, stakeholder-driven efforts. All of the projects are aligned with Michigan Coastal Management Program objectives and have program support.

Entrepreneurs interested in starting kayaking, diving, or fishing charters, or similar tourist-oriented ventures may look forward to a web-based "toolbox" for coastal tourism businesses in the northeastern Lower Peninsula. Michigan Sea Grant facilitated a two-year, community involvement process to explore economic development opportunities in the region, with an emphasis on sustainable, coastal tourism based on natural and cultural resources. The website concept grew out of the process, and will serve as an information clearinghouse for organizations, agencies, and other partners providing products or services related to coastal tourism. Contact Brandon Schroeder, District Extension Educator, for additional information: (989) 984-1056, schroe45@msu.edu.

Building broad support for lake sturgeon restoration is the goal of another project targeting coastal communities and key stakeholders in the southwestern Lower Peninsula. One objective is to raise public awareness of the potential for restoring lake sturgeon in the region, in ways that are compatible with sustainable economic development. Another objective is to establish a southwest Michigan sturgeon restoration advisory board that would develop recommendations and priorities for the St. Joseph, Kalamazoo, Grand, and Muskegon Rivers. Contact Dr. Dan O'Keefe, District Extension Educator, for additional information: (616) 846-8250, okeefed@mail.msu.edu.

Finally, Michigan Sea Grant will develop outreach and education materials for use in efforts to restore, preserve, and interpret Fishtown, an historic working waterfront along Lake Michigan in Leland, Michigan. The project, which dovetails with a recent NOAA Preserve America Initiative award, focuses on historic aspects and living history of the fishery and local fishing culture, spanning the period from 1870-2006. The non-profit Fishtown Preservation Society successfully raised funds to acquire the site, which is on the National Register of Historic Places, and is now seeking funding for sustainability and interpretation. The materials produced will support the Society's work. Contact Mark Breederland, District Extension Educator, for additional information (231) 922-4628, breederl@msu.edu.

Author: Matthew Smar,
Reprinted from *Michigan Coastal News*

Ottawa County Water Quality Forum

The second water quality forum was held on November 19th with emphasis on the lower Grand River and beach water quality to avoid beach closings. Ongoing research by MSU, GVSU and NOAA to quantify the amount of harmful bacteria in the river and on the beaches and then develop predictive models to avoid unnecessary beach closures was presented. The Ottawa County Health Department and Michigan DEQ reported that 97% of the samples fell below the full body contact limit of 300 CFU of *E. Coli* per 100 ml. New DNA testing tools that can identify the species (e.g., gulls, humans) contributing the pathogens were also discussed. Updates were presented for local initiatives including a bibliography of Grand River water quality studies, integrated assessment of stormwater management in Spring Lake, and pharmaceutical waste collection.



Over 70 people representing county government, environmental groups, and tourism and agricultural interests gathered for updates on Grand River and Lake Michigan water quality in Ottawa County last November.

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Michigan Sea Grant Southwest District
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Grand Haven, MI 49417

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*Bringing
Knowledge
to Life*

The West Michigan
Angler's News

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