2017 Lake Michigan Predator Diet Study Instructions

Scientists working on Lake Michigan and Lake Huron need diet information from trout, salmon, and walleye in 2017. The lakes have changed dramatically in recent years, in large part because of invasive species like the quagga mussel and round goby. In Lake Michigan, anglers, scientists, and fishery managers are trying to figure out what mix of salmon and trout species would be best for our changing lake and the people who fish here. To do that, we need more information on what predatory fish are eating in different parts of the lake throughout the year.

You can help with this by collecting stomachs from your catches in 2017.

Angler caught fish are great sources of information. Many potential biases are accounted for in the analysis. However, there is one bias that can ruin a study. When you fish, we need you to decide before you go out if this will be a day that you will collect stomachs.

Instructions:

To avoid bias, it is important to collect stomachs from **all fish kept from a given trip**. Even empty stomachs are very important because a high percentage of empty stomachs means that fish are having trouble finding food. If you decide not to collect fish stomachs during your trip that is fine, but if you collect one stomach you should collect all of them by doing the following:

- Cut the esophagus and cut the intestine to remove stomach.
- Place stomach and all contents into plastic freezer bag.
- Write all required data on a data tag.
- Place the tag into the bag with the corresponding stomach.
- Seal the bag carefully to prevent spilling.
- Place the bag in one of the freezers located at access sites in Michigan and Wisconsin.

It is very important to keep samples cold to slow digestion until it can be stopped by freezing. Carry plenty of ice. Keep captured fish on ice, and it helps to keep bagged stomachs on ice until you can get to a freezer. Otherwise even freshly consumed prey may be well digested by the time they are put into a freezer. This increases the proportion of unidentifiable prey in the study and reduces our ability to determine how predators are responding to changes in the forage base. Think COLD!

When you clean fish, place the entire stomach in a plastic bag, fill out the tag and place it inside the bag. Use a pencil so the writing will not bleed. Add a little water to prevent freezer burn, and then freeze it.

There may be cases where prey fall out of the stomach, or aren't in the stomach. If fish regurgitate prey, the stomach spills open, or there is a prey fish tail sticking out of the mouth, save it anyway and try to be as complete as you can.

How to fill out the tags:

Port Fished   This will usually be the port your trip originated from. If you ran a long way and fished closer to a different major port then you should list the port you fished near. If you fishing a well-known area that is not a port (like South Manitou Island or Washington Island) you can list this instead, but do not list local nicknames for fishing spots (like the Barrel or the Bubbler) that may not be familiar to researchers.

Species

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Chinook Salmon – CHS	Lake Trout – LT	Atlantic Salmon – ATS
Pink Salmon – PS	Coho Salmon – COHO	Steelhead - STEEL
Walleye – WAE	Brown Trout – BNT	

Length   Measure total length to nearest **quarter inch** with mouth closed and tail pinched.

In large Chinook salmon, the caudal rays are stiff and the tail fin cannot be squeezed tightly together. Bend the upper lobe down to measure total length for large Chinooks.

Adipose Clip   An adipose fin clip indicates a stocked fish. If your fish does have an adipose fin, mark "NO" for the Adipose Fin Clip. If the fish is clipped and **has no adipose fin**, mark "YES" for the Adipose Fin Clip.

Depth of Water   Record bottom depth in feet. If you know how deep the fish was caught, you can also record this. For example, if your lure was running 10 feet below the surface in 45 feet of water you could record this as 10 over 45 (see example below).
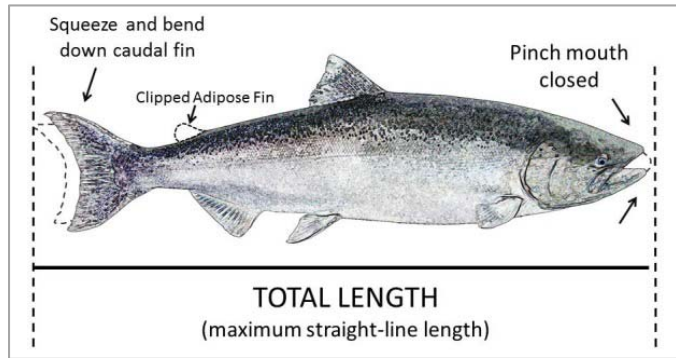
Be sure to write clearly on data tags and measure fish carefully from the tip of the snout to end of the tail.

Frequently Asked Questions (FAQ's)

Why should I do this?

There is consensus among the biologists that predator diet information is important, and needed. It is logistically impossible for us to get the sample sizes we need from Lake Michigan. Even if we had the ability to put all our boats on the water with gill nets, we could, at best, sample only limited locations at specific times. This is the best way to get predator diet data from the entire lake (north to south) and across the fishing season. It is also a way for anglers to make a difference and participate directly in efforts to better understand Lake Michigan.

What species should I save?

Chinook (king) salmon, coho salmon, Atlantic salmon, pink salmon, lake trout, brown trout, rainbow trout (steelhead) and walleye.

Do you need the whole fish?

No! We only want a bag with the stomach and the tag.

I caught a fish whose stomach was too full for a single one quart bag. What do I do?

Open it up and divide the stomach contents among bags. Duplicate the information on the tag, and make a note on the tag that there are multiple bags per fish. A good way to do this is to write 1 of 2, 2 of 2, etc.

I caught a fish that was obviously empty. Do you really want it?

Empties are important! The fish that are not eating can tell us a lot. So save all stomachs whether they look empty or full.

I caught a fish that looked like it ate a bunch of beetles. Do you still want it?

Yes. Fish with unusual diets are just as important as those with traditional diets.

How will I get the fish to you?

We will pick them up, or you can drop them off with volunteers, or at strategically placed freezers (see list of 2017 Lake Michigan Diet Study Drop-off Sites). Michigan and Wisconsin DNR creel clerks are also assisting with sample collections.

I only fish once or twice year. Should I participate?

Absolutely! Every fish we can get adds to the database. The three lake trout and two steelhead you give us may be the only samples we get from that location at that time. As long as you are following the protocol, your data are valid and important.

We decided to take stomachs today, but we caught so many fish that there was not time to collect stomachs from all of them. What should we do?

Divide the catch in half randomly, and flip a coin to randomly select the group that will be processed. Any sort of truly random sampling can be used to sub-sample. Just don't pick all the big ones, all the small ones, or the ones that look like they have eaten.

We had a power failure and the stomachs thawed for a couple of hours. Are they ruined?

Probably not. The contents will be harder to work with, and the prey may be more difficult to identify, but they are likely to be useful.

Are agencies collecting fish?

U.S. Fish & Wildlife Service headhunters and DNR creel clerks will help out with collections at some tournaments and access sites. However, a study similar to this was done on Lake Huron in the 1980's and 2009-2011 and most of their fish came from anglers and charter captains!

What if I run out of tags or bags?

Tags are available online for you to print. Tags and bags will also be available at some of drop-off sites (see list of 2017 Lake Michigan Diet Study Drop-off Sites).

How will I be informed about results?

Results will be featured in online articles at the MSU Extension website and in presentations at Sea Grant workshops. YouTube videos will also be posted to let anglers know what the study finds. Another way to stay up-to-date on results is to sign up for the Great Lakes Angler Diary web-based app by e-mailing GLanglerdiary@gmail.com. Even if you do not use the app, once you register you will be placed on a mailing list to get results from the diet study and other volunteer data collection programs related to Great lakes fisheries.