Round Goby Sampling Protocol

Lake Kashagawigamog Organization

The following is a protocol was created for the Lake Kashagawigamog Organization provided by students from the Community Based Research Programme from Trent University affiliated through ULinks in Haliburton.

Background Information:

The round goby (Neogobius melanostomus) is a small, bottom feeding fish that is invasive. It originated from the Black and Caspian seas in eastern Europe and was found in North America in 1990 (MNRF, 2018). The first sighting in Ontario was in the St. Clair River north of Windsor. Like other invasive, it is believed that the goby was transported through the ballast water of ships (MNRF, 2018).

Life History:

The round goby inhabits rocky and sandy bottom lakes and slow-moving water ways (MNRF, 2018). They feed on insects and other small organisms found in lake or river bottoms (MNRF, 2018). Adult's will feed on zebra and quagga mussels and occasionally small fish and fish eggs. Round goby's are able to spawn several times a year which allows them to multiply quickly and spread (MNRF, 2018).

Why Be Concerned?

Round goby's are competition in the food web, they can feed aggressively leaving little food for other fish fry (Game Fish) or forage fish (Minnows) (MNRF, 2018). This can directly impact the population levels of native fish. The ability to spawn several times a year allows them to grow a population that can easily exceed native fish populations that only spawn once a year, once again taking over that niche in the food chain (MNRF, 2018). Finally, the round goby is known to cause outbreaks in botulism type E, causing fish and fish-eating birds to die off in the Great Lakes, a species particularly affected that we all love is the common loon (MNRF, 2018).

Sampling Protocol

The purpose is to determine the presence or absence of the round goby. This protocol is not should not be used to determine the abundance of the population. **If a round goby has been identified, a new protocol should be considered to monitor their progress and abundance while considering mitigation techniques.**

The following will outline the materials and outline the procedure to complete the sampling for the round goby.

Time of Year:

Sampling should occur during the hottest days of the year. Looking at local 14-day forecast will help plan for this. Once a day has been established, sampling the following year should occur within a week of the previous year to maintain consistent reliable data.

Material:

- Pontoon boat (Preferable)
- All required safety equipment for pleasure craft operations
- Pleasure craft certified operator
- Wet cat food in mesh bag (Or dry, both have proven to work)
- Minnow traps
- Twisty ties to close minnow trap
- String to tie minnow trap to buoy
- Buoy (can range from plastic bottle to actual Buoy, needs to be visible to boater)
- Data sheets
- A tote bin to facilitate carrying
- Identification sheets
- Depth finder or fish finder that displays depth

Procedure:

1. Once at the given location, fill out the required information on the data sheet.
2. Begin assembling the minnow traps with cat food in them. Make sure they are sealed and tied tightly so that the fish do not escape the minnow trap! (See instructional video for assistance during this step)
3. Attach the buoy to the minnow trap.
4. Deploy the minnow trap at a depth of **SEVEN FEET** in a transect parallel to the shoreline.
5. Deploying 4-6 traps(or as many as you have) per site will be sufficient.
6. The following year, sampling should occur in the same location to maintain consistency.

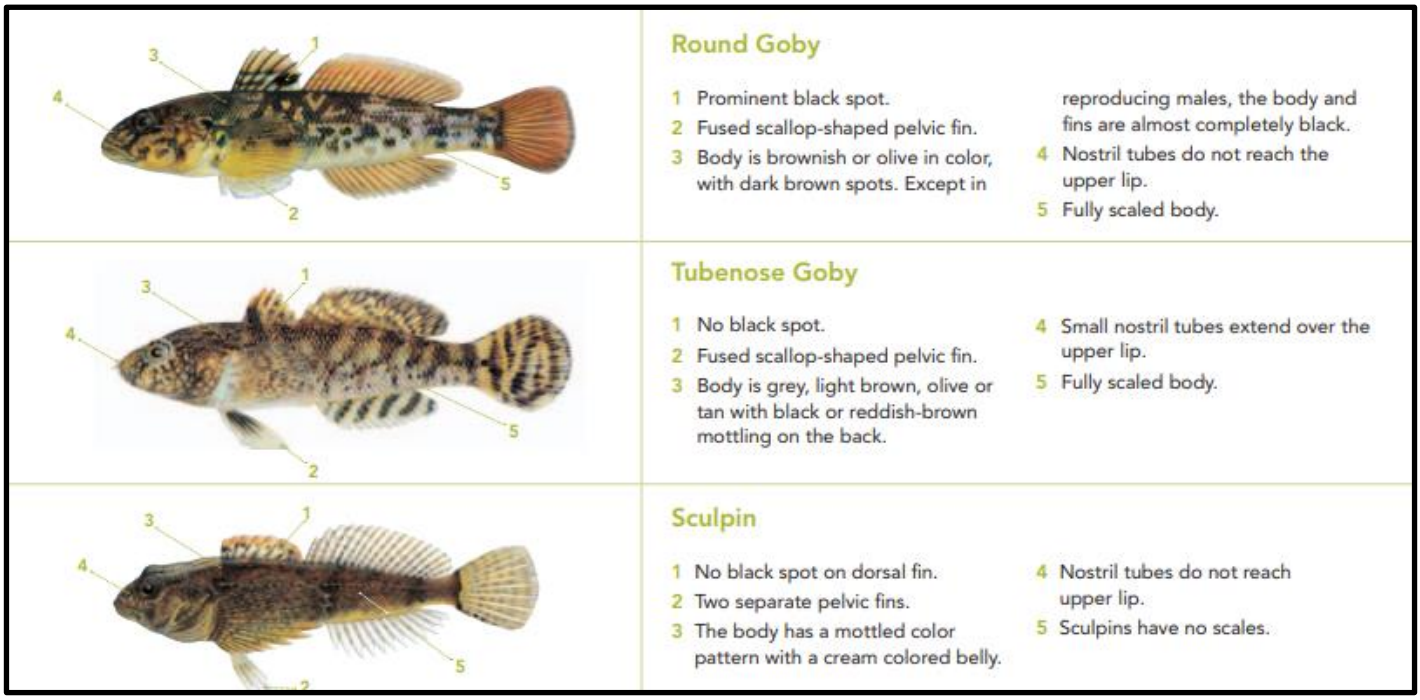
Location of Sampling:

1. Sampling should be done at the location where the water enters and leaves the lake. Does not need to be right at the mouth of the rivers, but basically at either ends of the lake. (See attached map for recommended locations)


Sampling Locations
The following is a map dipicting the sampling locations sites for the round goby on Kashagawigamog Lake.
Legend
Kashagawigamog Lake
Sampling Location
Shamrock Service Centre
Sampling Location
Blairhampton
Kashagawigamog Lake
Allsaw
Donald
Sampling Location
Ingoldsby
Google earth
Image © 2018 DigitalGlobe
© 2018 Google
N
4 km

Identification Card

It is important to note that one of the key identification features are the pelvic fin highlighted in the images. The pelvic fin is the fin on the underbelly, right behind the gills.



Round Goby

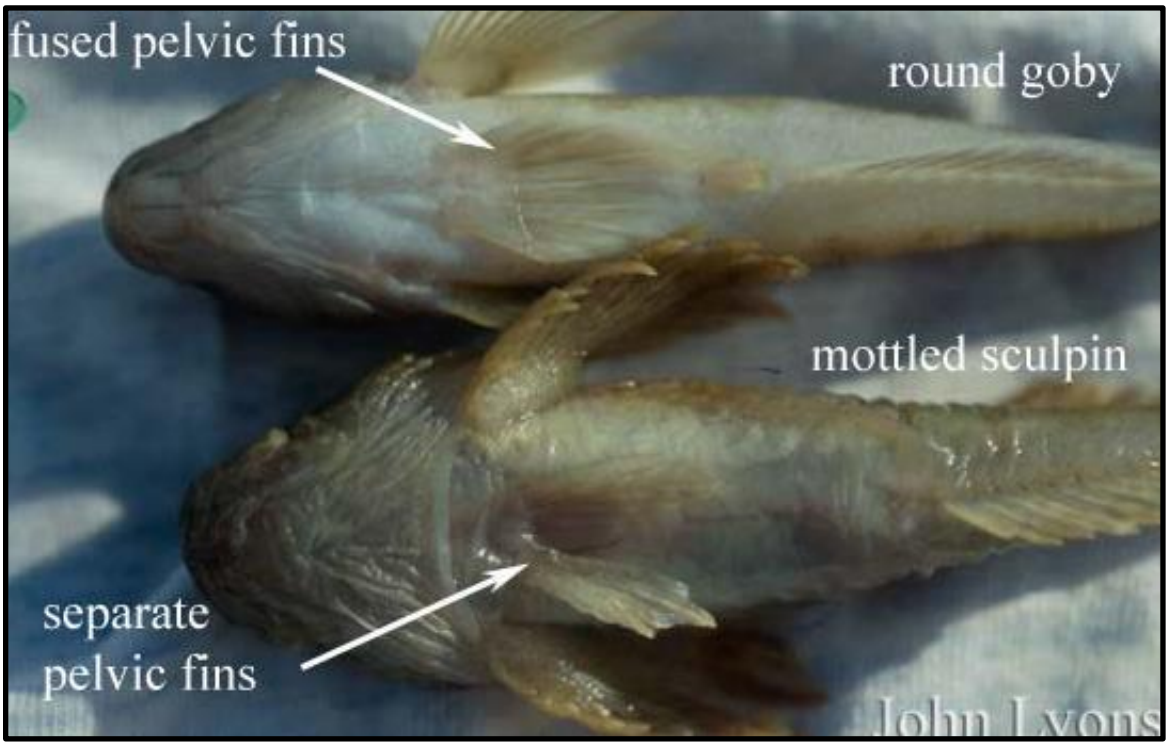
1 Prominent black spot.
2 Fused scallop-shaped pelvic fin.
3 Body is brownish or olive in color, with dark brown spots. Except in reproducing males, the body and fins are almost completely black.
4 Nostril tubes do not reach the upper lip.
5 Fully scaled body.

Tubenose Goby

1 No black spot.
2 Fused scallop-shaped pelvic fin.
3 Body is grey, light brown, olive or tan with black or reddish-brown mottling on the back.
4 Small nostril tubes extend over the upper lip.
5 Fully scaled body.

Sculpin

1 No black spot on dorsal fin.
2 Two separate pelvic fins.
3 The body has a mottled color pattern with a cream colored belly.
4 Nostril tubes do not reach upper lip.
5 Sculpins have no scales.



Sampling Data Sheet for Round Goby

Monitoring Location (UTM Coordinates)		Zone: Easting: Northing:	
Details of Location			
Date & Time of Sampling			
Elapsed-time	Start (hour)		
	Stop (hour)		
Total Sampling Time (min.)			
Weather Conditions Temperature (□C)		Fine / Sunny / Cloudy / Rainy	
Site Conditions			
Present or Absent			
Number of Traps Used			

	Name & Designation	Signature	Date
Field Operator:	_____	_____	_____
Field Operator:	_____	_____	_____
Field Operator:	_____	_____	_____