

Canada

# **BAITFISH PRIMER**



#### A GUIDE TO IDENTIFYING AND PROTECTING ONTARIO'S BAITFISHES









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# **BAITFISH PRIMER**

by Becky Cudmore and Nicholas E. Mandrak

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#### INTRODUCTION

Recreational angling is a popular pastime in Ontario - well over one million residents and visitors enjoy angling every year. Angling supports many aspects of the Ontario economy, including the baitfish industry. Many anglers use live bait, including baitfishes. Few anglers probably realize that there are over 40 species of legal baitfishes in Ontario. To many, all small fishes look alike; however, upon closer inspection, most baitfish species can be distinguished from one another with relative ease. If you can tell a house sparrow apart from a black-capped chickadee, then (with practice) you will soon be able to distinguish a Creek Chub from a Longnose Dace!

The ability to distinguish among small fish species is important, as the use of many species for bait is illegal. It is discouraged, and often illegal, to use sportfishes, introduced (non-native) fishes, or fish species that are so rare that their use may lead to further declines and possible extinction. Even within fish families generally considered legal baitfishes, there are individual fish species that cannot be used.

Individual fish species may become illegal for baitfish use for various reasons:

- They are listed as extirpated, endangered or threatened under the federal *Species at Risk Act* (SARA) or the *Ontario Endangered Species Act*, 2007 (ESA);
- · They are listed as invasive; and/or
- They are not included on the allowed baitfish species list in the Ontario Fishery Regulations (OFR).



Additionally, there are species that are strongly discouraged for use as baitfishes, as they are species of special concern, or can be easily confused with legally protected fish species identified under the federal *Species at Risk Act*, or the Ontario *Endangered Species Act*, 2007, due to their extirpated, endangered or threatened status.

Baitfishes may be collected by individual anglers possessing a resident fishing licence, or by licensed commercial baitfish harvesters. The commercial baitfish industry in Ontario is comprised of over 1,500 licensed harvesters and dealers. The bait resource and industry is managed by the province through licencing, legal species lists, log books, annual reporting and best management practices. In addition, harvesting takes place in prescribed geographic areas, and is based on principles intended to protect baitfishes and their habitat into the future.

It is imperative that all commercial and recreational baitfish harvesters are aware of, and adhere to, all federal and provincial laws and regulations pertaining to this activity. In addition, all baitfish users should understand the potential impacts of the careless collection and use of baitfishes, and take great care to minimize or eliminate such impacts. By the end of this Primer, you will:

- Understand the federal and provincial legislation and regulations pertinent to the use of baitfishes;
- · Be able to identify small fish species;
- Be able to distinguish between legal and illegal baitfishes;
- Recognize the importance of baitfish habitat;
- Understand the potential impacts of improper baitfish use; and,
- Understand how to minimize negative impacts to our aquatic ecosystems.

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- New York State Department of Environmental Conservation (NYSDEC), Bureau of Fisheries, Albany, NY: All other fish illustrations found in The Baitfish Primer.

#### SUMMARY OF LEGISLATION & REGULATIONS RELATED TO BAITFISHES

# The Ontario Fish and Wildlife Conservation Act

#### Capture of baitfishes

Anglers: Every resident angler with a provincial fishing licence issued under the Fish and Wildlife Conservation Act (FWCA) is allowed under the Ontario Fishery Regulations (OFRs) to set a legal minnow trap (no more than 51cm X 31cm) or capture fishes with a dipnet (no more than 183 cm in diameter or along each side, and during daylight hours only). Baitfishes may be caught for personal use only and anglers must have no more than 120 baitfishes in their possession at any time, which includes both caught and purchased baitfish. Any live holding box must be clearly marked with the name and address of the user, and must be visible without raising it from the water.

Commercial Bait Harvesters: The taking, transporting, buying and selling of baitfishes is authorized for the holder of a commercial bait licence issued by the province under the FWCA and in keeping with the requirements under the OFRs and FWCA. The means of taking baitfishes may be specified on the individual commercial bait licence. Licensed harvesters or dealers are required to record harvest and/or maintain receipt of baitfishes in log books and submit annual reports.

#### Use of Baitfishes

Anglers can find a complete up-to-date listing of which fish species can be used as live baitfish in the Ontario Fishing Regulations (OFR). Species listed as invasive fishes under the OFRs cannot be possessed alive. The use of bait is prohibited in some waters. No crayfishes or salamanders, live fishes or live crayfishes can be brought into Ontario for use as bait. It is illegal to release any live bait, or dump the contents of a bait container (including the water) into any waters or within 30m of any waters.

Anglers may no longer use live Yellow Perch or Alewife in the Great Lakes.

In addition, fishes listed as extirpated, endangered or threatened under either the federal *Species at Risk Act* (SARA) or the provincial *Endangered Species Act*, 2007 cannot be used as baitfishes. Species considered sportfishes cannot be used as live bait (see page 8 for additional details).

The conservation status of baitfish species may change over time. Be sure to check the latest version of the Ontario Fishery Regulations for up-to-date information. Go to www.mnr.gov.on.ca/en/Business/ LetsFish/.

#### The federal Fisheries Act

In Canada, fishes and fish habitat are protected under the federal *Fisheries Act*. This Act makes it unlawful to harmfully alter, disrupt or destroy fish habitat, including baitfish habitat, without authorization from the Minister of Fisheries and Oceans.

Website: http://laws.justice.gc.ca/en/F-14/ index.html

#### The Federal Species at Risk Act

The federal *Species at Risk Act* (SARA) came into force in June 2004, and aims to protect native wildlife at risk, including fishes, from becoming lost from the wild, to provide for their recovery and to manage species of special concern. Under Section 32 of SARA, general prohibitions apply to fishes designated as extirpated, endangered or threatened. Fishes designated as such cannot be killed, harmed, captured or sold and the habitat that has been deemed vital to their survival or recovery is also protected.

Website: http://laws.justice.gc.ca/en/S-15.3/ index.html

# The Ontario Endangered Species Act, 2007

On June 30th 2008, the provincial *Endangered Species Act, 2007 (ESA)* came into effect in Ontario to protect at risk species and their habitats, to promote the recovery of species that are at risk, and to promote stewardship activities to assist in the protection and recovery of species that are at risk. Endangered, threatened or extirpated species, and their habitats, receive legal protection under the ESA. The Act calls for the creation of recovery strategies for endangered and threatened species, and management plans for special concern species.

Website: www.e-laws.gov.on.ca/html/ statutes/english/elaws\_statutes\_07e06\_e.htm



#### POTENTIAL IMPACTS OF HARVEST AND USE OF BAITFISHES

Harvesting may impact the ecosystems from which baitfishes are taken (termed donor ecosystems) and the ecosystems into which baitfishes are released (termed recipient ecosystems).

#### Impacts on donor ecosystems

Since the early 1900s, there were concerns regarding the depletion of the baitfish supply, followed by concerns about the declining numbers of sportfishes as a result of forage fish depletion. If carried out carelessly, baitfish harvesting may directly alter the abundance of targeted (legal baitfishes) and non-targeted (illegal baitfishes) species in the donor ecosystem. Removal of a substantial number of legal baitfishes could potentially have shortand long-term effects on the abundance of forage fishes. To minimize such impacts, bait harvest areas are assigned to specific licensees who manage the resource for sustainability. Commercial bait harvesters accomplish by cycling harvesting locations within their bait harvest area. so that no one location is over-harvested. Resident anglers should follow this practice as well.

Care should be taken to safely return non-targeted species (other than invasive fishes) to the water immediately. If nontargeted species are not immediately returned, these populations could suffer an increased mortality, which may alter species interactions within that ecosystem. Such alterations may result in changes in species composition, increases in invertebrate (e.g., crayfishes) size and abundance, and decreases in productivity, abundance and growth rates of other fish species (including sportfishes). The techniques used to harvest baitfishes may impact the habitat that all aquatic organisms (including baitfishes) depend on for the necessities of life. Baitfishes are typically harvested using seine nets or traps. Seining has greater impacts on habitat, as it is an active method that may cause uprooting of aquatic vegetation, removal of woody debris and disturbance of bottom substrates - all important habitat components required by aquatic organisms for survival.



Traps leave a smaller ecological footprint. This technique is more passive, resulting in little disturbance to the surrounding habitat. Most commercial bait harvesters use traps, especially in vegetated areas. Traps and dipnets (which also have minimal impacts) are the only harvesting methods allowed to be used by resident anglers.

#### Impacts on recipient ecosystems

The impacts of fishes (baitfishes and other species) illegally released into recipient ecosystems have been well documented and can be summarized in four categories.

#### 1. Food web changes

Introduced species have been shown to negatively impact food webs - the links between predators (e.g. sportfishes) and prey (e.g. baitfishes). Introduced fishes, such as the Round Goby, can out-compete native species for food and other resources, or even prey on native species and their eggs.



These impacts may reduce the abundance of native prey that would, in turn, reduce the abundance of the sportfishes dependent upon these prey species for food.

#### 2. Habitat changes

The behaviour of introduced species can cause changes to habitat. For example, the destruction of aquatic vegetation and increased turbidity caused by the feeding and the spawning of the Common Carp is well documented. Native species relying on that habitat would be greatly impacted by such changes.

#### 3. Introduction of disease

Diseases and parasites, may be transferred to native species through introduced species. Exposure to these diseases or parasites may lead to decreased abundance of native species. The spread of "whirling disease" from stocked trout to wild trout is an example of this problem. The spread of disease may occur through baitfish transfer; however, the extent and impact of such transfers is not well understood.

#### 4. Genetic impacts

Native species are well adapted to their environment. Introduced individuals, not adapted to their new environment, may spawn with native individuals of the same species. Their offspring may look the same, but be less adapted to their environment. Introduced individuals may also spawn with native individuals of closely related species. Their offspring, termed hybrids, may be less adapted to their environment, or may become infertile. In most cases, spawning between introduced and native species will lead to the decreased abundance of native species.

These impacts are not limited to introduced baitfishes. Bait bucket water may also carry microscopic invasive species, such as spiny waterflea, fish hook waterflea, and zebra mussel larvae. These invasive species also have harmful impacts on our aquatic ecosystems.

Anyone finding species that they suspect is invasive should remove and freeze the fish, and call the toll-free Invading Species Hotline at 1-800-563-7711 to report the finding. The hotline is a partnership of the Ontario Federation of Anglers and Hunters and the Ontario Ministry of Natural Resources.





#### Importance of baitfish habitat

Baitfishes, like all fishes, require a place to meet their needs for food, shelter and reproduction throughout their entire life. Although habitat requirements may change for each stage in the life cycle of baitfishes, it is important that all needs are met. If, as a result of habitat degradation or loss, one or more of these requirements are not met at any point during their life cycle, their numbers will drop and the population may die out. The abundance of baitfishes is directly related to the quality of their habitat. Therefore, baitfishes can act as indicators of the environmental health of their habitat. A healthy baitfish population provides an important food source for many fish species, including commercial and sportfishes. By providing baitfishes with habitat that includes clean water, adequate food supply, cover, appropriate spawning and rearing grounds and accessible migration routes, we safeguard these important resources for the baitfish, commercial and sport industries, also help ensure a healthy ecosystem.

#### Some threats to baitfish habitat

Many of our actions threaten baitfish habitat. For example, agricultural and forestry activities can affect the quality and quantity of aquatic habitat through damage to in-stream habitat and the introduction of silt and other harmful materials into the water. General construction activities, such as building bridges and culverts, may also affect physical habitat and water quality, as well as impede movement of baitfishes among different habitats.

Other activities along shorelines, such as erosion control projects, marina developments and vegetation removal, may impact baitfish habitat by altering the natural cover and substrates of shoreline habitat. Changing water levels due to climate change and water-taking activities also directly affect the quality and quantity of baitfish habitat.

#### Protecting baitfish habitat

Fisheries and Oceans Canada (DFO) and its partners have developed a series of fact sheets, operational statements and primers to provide information and guidelines on environmentally sound practices when working in and around water. These publications outline some of the types of activities that may negatively impact fish habitat. They also provide direction on how to minimize or eliminate these impacts to fish habitat. For more information on these publications, please see the Further Reading section at the end of this primer. ANATOMICAL KEY



#### PICTORIAL KEY OF FISH FAMILIES IN ONTARIO



Fish families NOT featured in The Baitfish Primer as there are no members considered legal baitfish. Members of these fish families can be easily distinguished from legal baitfishes.



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#### SPECIES ACCOUNTS

- Species are grouped by evolutionary order of families, followed by groups of similar looking species within families.
- The following information is presented in the species accounts:
  - · Characteristics: anatomical features used to distinguish species from similar species
  - Size: known maximum length
  - Similar species: other species with which the species may be confused
  - Ontario distribution: general distribution in Ontario
  - Habitat: brief description of habitat used by the species
  - Use as bait: description of use as bait if it is a legal baitfish, or the reason for its prohibited or cautionary use
- The species are also labeled as **Legal**, **Caution** or **Illegal** based on the following criteria: **Legal**: member of fish family listed as legal in the Ontario Fishery Regulations and not listed by the federal *Species at Risk Act* (SARA), or the provincial *Endangered Species Act*, 2007 (ESA). **Caution**: while not illegal, its use is considered cautionary, as:
  - it may be easily confused with illegal species;
  - it is listed as Special Concern by the federal Species at Risk Act (SARA) or provincial Endangered Species Act, 2007 (ESA); or,
  - · the use of this baitfish is restricted.

Illegal: the use of the species is prohibited as:

- it is listed as Extirpated, Endangered or Threatened under the federal Species at Risk Act (SARA) or the provincial Endangered Species Act, 2007 (ESA);
- it is not listed as legal bait species under the Ontario Fishery Regulations; or,
- it is listed as an invasive fish species in the Ontario Fishery Regulations which prohibit the live possession of the species.

# ALEWIFE

#### (Alosa pseudoharengus)

Characteristics: 1. very laterally compressed body; 2. saw-toothed edged belly; 3. large eye; 4. large mouth. Size: to 205mm Similar species: Gizzard Shad (illegal baitfish, not included in this Primer) Ontario distribution: introduced throughout the Great Lakes Habitat: open water Use as bait: introduced; illegal under the OFRs

### **BLACKCHIN SHINER**

#### (Notropis heterodon)

Characteristics: 1. upturned mouth; 2. black pigment on snout and chin; 3. scales darkly outlined; 4. black stripe along side has zig-zag appearance. Size: to 71mm Similar species: Blacknose Shiner, Bridle Shiner, Pugnose Minnow, Pugnose Shiner Ontario dictibution: control and northern Ontario.

Ontario distribution: central and northern Ontario, limited in southern Ontario Habitat: vegetated, nearshore areas of lakes and small rivers Use as bait: occasionally sold mixed with other shiners



# **BLACKNOSE SHINER**

(Notropis heterolepis) Characteristics: 1. black stripe around snout, barely onto upper lip and not on chin; 2. black crescents within stripe along side; 3. scales darkly outlined except above dark stripe along silver side. Size: to 81mm Similar species: Blackchin Shiner, Bridle Shiner, Pugnose Minnow, Pugnose Shiner Ontario distribution: central and northern Ontario, limited in southern Ontario Habitat: cool, clear, weedy streams and shallow bays of lakes with sand or gravel bottom Use as bait: mixed with other shiners, it may not be recognized BRIDLE SHINER

(Notropis bifrenatus) Characteristics: 1. small, upturned mouth; 2. brown-black stripe along side and around snout; 3. scales darkly outlined; 4. black spot at base of caudal fin. Size: to 50mm Similar species: Blackchin Shiner, Blacknose Shiner, Pugnose Minnow, Pugnose Shiner Ontario distribution: southeastern Ontario Habitat: clear, still, shallow streams, ponds or lakes with submerged aquatic vegetation and bottom is mud, silt, or sand Use as bait: illegal under the OFRs; listed as Special Concern under SARA and ESA

# PUGNOSE MINNOW

(Opsopoeodus emiliae)

Characteristics: 1. small, strongly upturned mouth; 2. two very dark areas (front and rear) on dorsal fin. Size: to 64mm Similar species: Blackchin Shiner, Blacknose Shiner, Bridle Shiner, Pugnose Shiner Ontario distribution: southwestern Ontario Habitat: slow moving waters of turbid small to large streams Use as bait: illegal under OFRs; listed as Special Concern under SARA and ESA, 2007

### **PUGNOSE SHINER**

(Notropis anogenus)

Characteristics: 1. very small, upturned mouth; 2. black pigment on chin, lower lip, side of upper lip;

3. scales darkly outlined; 4. dark stripe along side.

Size: to 60mm

Similar species: Blackchin Shiner, Blacknose Shiner, Bridle Shiner, Pugnose Minnow Ontario distribution: isolated populations in southwestern Ontario and the St. Lawrence River habitat: clear, heavily vegetated lakes, and pools of vegetated streams and rivers with clean sand or mud bottoms

Use as bait: illegal under the OFRS; listed as Endangered under SARA and ESA, 2007



# BLACKNOSE DACE

(Rhinichthys atratulus)

Characteristics: 1. thin barbel in corner of mouth;

2. no groove separating snout from upper lip; 3. pointed snout slightly

overhangs mouth; 4. stripe along side, through eye and onto snout.

Size: to 58mm

Similar species: Longnose Dace

Ontario distribution: widespread

Habitat: small, cool streams

Use as bait: used to a limited extent in Ontario; considered a relatively hardy species

### LONGNOSE DACE

(Rhinichthys cataractae) Characteristics: 1. thin barbel in corner of mouth; 2. no groove separating snout from upper lip; 3. long, fleshy snout extends beyond mouth. Size: to 118mm Similar species: Blacknose Dace Ontario distribution: widespread Habitat: clean, swift streams with gravel beds, occasionally taken in inshore waters of lakes Use as bait: not commonly used, possibly because of its drab colouration and its intolerance of the still water of bait buckets 1

# BLUNTNOSE MINNOW

#### (Pimephales notatus)

Characteristics: 1. crowded scales between head

and dorsal fin; 2. blunt snout overhanging small mouth;

- 3. scales darkly outlined (often with cross-hatched appearance);
- 4. conspicuous black spot on caudal fin base.

Size: to 112mm

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Similar species: Fathead Minnow

Ontario distribution: widespread

Habitat: main river channels over substrate of silt, sand, gravel or rocks; avoids heavy vegetation Use as bait: not a popular species as it does not withstand crowding in a bait bucket as well as other species **1** 

# FATHEAD MINNOW



(Pimephales promelas) Characteristics: 1. crowded scales between head and dorsal fin; 2. blunt snout with slanted mouth; 3. head short, flat on top. Size: to 73mm Similar species: Bluntnose Minnow Ontario distribution: widespread Habitat: found in a wide range of habitats, but generally prefers still waters Use as bait: angler preference varies locally; transports and holds well in commercial tanks and bait buckets

Carps and Minnows



Use as bait: commonly used as a bait species - its large size and silvery appearance make it particularly attractive, transports and holds well in commercial tanks but does not live long in bait buckets



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### STRIPED SHINER

(Luxilus chrysocephalus)

Characteristics: 1. large scales, much deeper than wide;

2. relatively deep body; 3. dark stripes on upper sides

meet at middle of back behind dorsal fin to form large V's; 4. scales between head

and dorsal fin not crowded.

Size: to 240mm

Similar species: Common Shiner

Ontario distribution: southwestern Ontario

Habitat: weedless, medium-sized streams with alternating pools and riffles over a gravel or rubble bottom, often with some silt

Use as bait: not known

### CREEK CHUB

#### (Semotilus atromaculatus) Characteristics: 1. large black spot at front of dorsal fin base; 2. black caudal spot (not obvious in large individuals); 3. black stripe along side around snout and onto upper lip. Size: to 240mm Similar species: Fallfish, Hornyhead Chub, Lake Chub, River Chub Ontario distribution: widespread Habitat: small, clear, streams: nearshore of small lakes Use as bait: one of the most important bait minnows as it is hardy, grows to a large size, and can be readily caught in most streams

# FALLFISH

(Semotilus corporalis) Characteristics: 1. small, thick barbel in groove above corner of mouth; 2. scales on back and upper side darkly outlined. Size: to 420mm Similar species: Creek Chub, Hornyhead Chub, Lake Chub, River Chub Ontario distribution: eastern Ontario Habitat: clear, flowing, gravel-bottomed streams, and lakes Use as bait: limited use

### HORNYHEAD CHUB

#### (Nocomis biguttatus)

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Characteristics: 1. thin barbel at corner of large mouth; 2. large, dark-edged scales; 3. spot on tail. Size: to 188mm Similar species: Creek Chub, Fallfish, Lake Chub, River Chub Ontario distribution: southwestern Ontario, introduced elsewhere Habitat: small- to medium-sized clear streams with gravel bottoms

Use as bait: not important as a bait species in Ontario, probably due to limited distribution and may not be distinguished from the more common Creek Chub; highly regarded in the northern US, especially for Northern Pike; attains large size, is hardy, and can withstand handling in commercial storage tanks and bait buckets

#### ONTARIO'S BAITFISHES AND THEIR HABITAT

ACCORD/ CONTRACTOR

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### **RIVER CHUB**

(Nocomis micropogon) Characteristics: 1. thin barbel at corner of large mouth; 2. large, dark-edged scales; 3. no spot on tail. Size: to 287mm Similar species: Creek Chub, Fallfish, Hornyhead Chub, Lake Chub Ontario distribution: southwestern Ontario, introduced elsewhere Habitat: medium-sized streams with gravel to boulder substrates Use as bait: when used as a baitfish, it may not be distinguished from the more common Creek Chub

# LAKE CHUB

(Couesius plumbeus) Characteristics: 1. thin barbel at corner of large mouth; 2. large pectoral fins; 3. lead-coloured sides and back. Size: to 189mm Similar species: Creek Chub, Fallfish, Hornyhead Chub, River Chub Ontario distribution: widespread Habitat: gravel-bottomed pools and runs of streams, lakes Use as bait: limited use as live bait in Lake Trout fishing in the vicinity of Rossport, Lake Superior; spring spawning runs fished by bait harvesters for Walleye bait

# CUTLIP MINNOW

(Exoglossum maxillingua) Characteristics: 1. fleshy lobe on each side of lower jaw. Size: to 157mm Similar species: none Ontario distribution: southeastern Ontario Habitat: warm, clear, gravelly streams and rivers relatively free of vegetation and silt; dwells mostly under stones in quiet pools Use as bait: illegal under the OFRs; listed as Threatened under ESA, 2007

#### EMERALD SHINER

(Notropis atherinoides) Characteristics: 1. slender, elongate body; 2. large mouth on fairly pointed snout; 3. dorsal fin origin behind pelvic fin origin; 4. black lips (front half). Size: to 124mm Similar species: Rosyface Shiner, Silver Shiner Ontario distribution: widespread Habitat: pools and runs of medium- to large-sized streams and lakes Use as bait: very popular baitfish, particularly for ice fishing; most important commercial baitfish in Ontario

Carps and Minnows

### **ROSYFACE SHINER**

(Notropis rubellus)

Characteristics: 1. slender, elongate body;

2. large mouth on sharply pointed long snouth;

3. dorsal fin origin well behind pelvic fin origin; 4. faint red at base of dorsal fin.

Size: to 92mm

Similar species: Emerald Shiner, Silver Shiner

Ontario distribution: southern Ontario

Habitat: clear, fast-flowing small- to medium-sized streams with bottoms of fine gravel or rubble, usually in or around riffles

Use as bait: not readily kept in commercial tanks

### SILVER SHINER

(Notropis photogenis) Characteristics: 1. slender, elongate body; 2. large mouth on long snout; 3. dorsal fin origin over pelvic fin; 4. two black crescents between nostrils. Size: to 130mm Similar species: Emerald Shiner, Rosyface Shiner Ontario distribution: isolated populations in southwestern Ontario Habitat: clear, weedless medium- to large-sized streams with clean gravel or boulder bottoms, usually in riffles Use as bait: illegal under the OFRs; listed as Special Concern under SARA and ESA, 2007

# FINESCALE DACE

(Chrosomus neogaeus) Characteristics: 1. very small scales; 2 3 2. large mouth extending to under eye; 3. single black stripe along side. Size: to 80mm Similar species: Northern Redbelly Dace, Pearl Dace Ontario distribution: central and northern Ontario, limited in southern Ontario Habitat: tea-stained, cool, small, boggy streams and lakes usually over silt and near vegetation; often common in beaver ponds Use as bait: widely distributed and often abundant baitfish

# NORTHERN REDBELLY DACE

(Chrosomus eos) Characteristics: 1. very small scales; 2. small mouth 3. two black stripes along side.

Size: to 61mm

Similar species: Finescale Dace, Pearl Dace

Ontario distribution: widespread in central and northern Ontario, limited in southern Ontario Habitat: quiet, boggy streams, ponds and small lakes over a bottom of organic muck and vegetation Use as bait: generally considered too small for a bait minnow but is hardy and readily available in less populated areas of Ontario, where it is used for bait

#### ONTARIO'S BAITFISHES AND THEIR HABITAT

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#### PEARL DACE

(Margariscus margarita) Characteristics: 1. very small scales; 2. small mouth; 3. barbel in groove above lip (often missing on one or both sides); 4. many small black and brown specks on silver side. Size: to 132mm Similar species: Finescale Dace, Northern Redbelly Dace, Lake Chub Ontario distribution: widespread Habitat: boggy streams, ponds, and small lakes with sand or gravel bottoms Use as bait: in many areas it is an important bait minnow, but is usually unrecognized and included with other species sold as chub or dace

### **GHOST SHINER**

(Notropis buchanani) Characteristics: 1. body translucent milky white overall in colour. Size: to 64mm Similar species: Mimic Shiner, Sand Shiner Ontario distribution: southwestern Ontario Habitat: quiet waters of large streams and lakes with clean sand, gravel bottoms and some aquatic vegetation Use as bait: illegal under the OFRs

#### **MIMIC SHINER**

(Notropis volucellus) Characteristics: 1. lateral band weakly pigmented; 2. black pigment surrounding anus. Size: to 76mm Similar species: Ghost Shiner, Sand Shiner Ontario distribution: widespread Habitat: quiet or still waters of streams and lakes Use as bait: not known

# SAND SHINER

(Notropis stramineus) Characteristics: 1. lateral band weakly pigmented; 2. no black pigment surrounding anus. Size: to 81 mm Similar species: Ghost Shiner, Mimic Shiner Ontario distribution: southern Ontario Habitat: sandy shallows of small- to large-sized rivers and lakes with some rooted aquatic plants Use as bait: transports and holds well in commercial tanks, can withstand low oxygen conditions



interna



### **REDFIN SHINER**

(Lythrurus umbratilis) Characteristics: 1. very small scales in front of dorsal fin; 2. dark spot at dorsal fin origin. Size: to 81mm Similar species: Spotfin Shiner Ontario distribution: southwestern Ontario Habitat: quiet waters of creeks and small- to medium-sized rivers, with some vegetation Use as bait: generally considered too small and uncommon in Ontario to be used as baitfish

### **SPOTFIN SHINER**

(Cyprinella spiloptera) Characteristics: 1. scales on side diamond-shaped (taller than wide); 2. dusky to black bar on chin; 3. black spot on rear half of dorsal fin. Size: to 120mm Similar species: Redfin Shiner Ontario distribution: southern Ontario Habitat: medium- to large-sized unvegetated streams over sand, gravel, or rubble, often in somewhat turbid waters Use as bait: can be used as a baitfish but of no real importance in Ontario due to limited distribution; not readily kept in tanks

#### ONTARIO'S BAITFISHES AND THEIR HABITAT

1

# SILVER CHUB

#### (Macrhybopsis storeriana)

Characteristics: 1. rounded snout overhanging mouth;

2. barbel in corner of mouth; 3. no spot on caudal peduncle.

Size: to 231mm

Similar species: Spottail Shiner

Ontario distribution: Lake Erie, Lake St. Clair

Habitat: shallow areas of Lake Erie and Lake St. Clair

Use as bait: illegal under the OFRs; listed as Special Concern under SARA and ESA, 2007

# SPOTTAIL SHINER

#### (Notropis hudsonius) Characteristics: 1. rounded snout overhanging mouth; 2. no barbel; 3. large black caudal spot. Size: to 137mm Similar species: Silver Chub Ontario distribution: widespread Habitat: large streams and lakes, usually over sandy or rocky shallows with sparse vegetation Use as bait: most frequently used bait minnow in many parts of northern Ontario

### COMMON CARP

#### (Cyprinus carpio)

Characteristics: 1. deep, thick body, strongly arched to dorsal fin, flattened below; 2. saw-toothed spine at front of dorsal, pectoral and anal fins; 3. two barbels on each side of upper jaw. Size: to 800mm

Similar species: Goldfish, Grass Carp

Ontario distribution: introduced throughout southern Ontario, isolated populations in northern Ontario Habitat: wide variety of habitats, in small- to large-sized streams, nearshore of lakes over all types of substrates

Use as bait: prohibited; introduced

### GOLDFISH

(Carassius auratus) Characteristics: 1. deep, thick body, strongly arched to dorsal fin; 2. saw-toothed spine at front of dorsal, pectoral and anal fins; 3. no barbels. Size: to 457mm Similar species: Common Carp Ontario distribution: introduced throughout southwestern Ontario, isolated populations elsewhere. Habitat: wide variety of habitats, in small to large streams, nearshore of lakes over all types of substrates

Use as bait: prohibited; introduced





#### THE BAITFISH PRIMER

### **GRASS CARP**

(Ctenopharyngodon idella) Characteristics: 1. thick body, not deep; 2. large, dark-edged scales; 3. no spines on dorsal, pectoral and anal fins. Size: to 1500mm Similar species: Common Carp, Goldfish Ontario distribution: isolated individuals introduced in southern Ontario Habitat: wide variety of habitats, large streams and nearshore of lakes over all types of substrates Use as bait: invasive; illegal under the OFRs

### **GRAVEL CHUB**

(Erimystax x-punctatus) Characteristics: 1. small, thin barbel in corner of mouth; 2. many dark X's on back and side. Size: to 99mm Similar species: Creek Chub, Fallfish, Hornyhead Chub, Lake Chub, River Chub Ontario distribution: only known from the Thames River in the 1950's Habitat: gravel-bottomed small- to large-sized streams, preferably slow moving and deep Use as bait: illegal under the OFRs; listed as Extirpated under SARA and ESA, 2007

#### **REDSIDE DACE**

(Clinostomus elongatus) Characteristics: 1. long pointed snout, with very large mouth; 2. bright red stripe on lower side. Size: to 85mm Similar species: Finescale Dace, Northern Redbelly Dace, Pearl Dace Ontario distribution: isolated populations throughout southern Ontario Habitat: clear, cool, flowing streams over rubble or gravel substrate Use as bait: illegal under the OFRS; listed as Endangered under ESA, 2007.

#### LONGNOSE SUCKER

(Catostomus catostomus) Characteristics: 1. thick lips with many 'pimples'; 2. very small scales. Size: to 583mm Similar species: Northern Hog Sucker, White Sucker Ontario distribution: Great Lakes, central and northern Ontario Habitat: cold, deep lakes Use as bait: only incidental, caught rarely with small White Suckers



Suckers and Redhorses





### **GOLDEN REDHORSE**

(Moxostoma erythrurum) Characteristics: 1. large scales; 2. gray caudal fin; 3. concave dorsal fin; 4. lower lip notched. Size: to 660mm Similar species: Black, Greater, River, Shorthead and Silver redhorses; White Sucker Ontario distribution: southwestern Ontario Habitat: clear, small- to large-sized streams in riffles over variety of substrates Use as bait: illegal under the OFRs

### **GREATER REDHORSE**

(Moxostoma valenciennesi) Characteristics: 1. thick lips with grooves; 2. large scales; 3. red caudal fin; 4. concave dorsal fin; 5 5. grooves on lower lip are parallel. Size: to 673mm Similar species: Black, Golden, River, Shorthead and Silver redhorses; White Sucker Ontario distribution: southern Ontario Habitat: large streams in riffles with bottoms of clean sand, gravel or boulders Use as bait: illegal under the OFRs

#### **RIVER REDHORSE**

#### (Moxostoma carinatum)

Characteristics: 1. mouth under snout has thick lips<sup>1</sup> swith grooves; 2. large scales; 3. red caudal fin;

4. dorsal fin edge usually straight; 5. grooves on lower lip are parallel. Size: to 617mm

Ontario distribution: isolated populations in southern Ontario

Similar species: Black, Golden, Greater, <mark>Shorthead and Silver redhorses; White Sucker Habitat: rocky pools and swift runs of small-to-large sized streams ; impoundments Use as bait: illegal under the OFRs; listed as Special Concern under SARA and ESA, 2007</mark>

### SHORTHEAD REDHORSE

(Moxostoma macrolepidotum) Characteristics: 1. thick lips with grooves; 2. large scales; 3. red caudal fin; 4. concave dorsal fin; 5 2 5. lower lip notched. Size: to 620mm Similar species: Black, Golden, Greater, River and Silver redhorses; White Sucker Ontario distribution: widespread Habitat: lakes and streams over bottoms of sand or gravel without heavy silt Use as bait: prohibited; illegal under the OFRs

Suckers and Redhorses

#### ONTARIO'S BAITFISHES AND THEIR HABITAT

# SILVER REDHORSE

#### (Moxostoma anisurum)

Characteristics: 1. thick lips with grooves or pimples 1 on mouth under snout; 2. large scales; 3. gray caudal fin; 4. convex dorsal fin; 5. lower lip notched. Size: to 635mm Similar species: Black, Golden, Greater, River and Shorthead redhorses; White Sucker Ontario distribution: widespread Habitat: mud to rock bottomed pools and runs of small- to large-sized streams; occasionally lakes Use as bait: prohibited; illegal under the OFRs

#### SPOTTED SUCKER

(Minytrema melanops) Characteristics: 1. thin lips with grooves; 2. small scales; 3. rows of dark spots at scale bases on back and side. Size: to 449mm Similar species: other suckers Ontario distribution: southwestern Ontario Habitat: creeks and small rivers with sandy, gravelly, or hard clay bottoms without silt, but occasionally in large rivers and impoundments

Use as bait: illegal under the OFRs; listed as Special Concern under SARA and ESA, 2007

# CENTRAL MUDMINNOW

(Umbra limi) Characteristics: 1. dorsal and anal fins far back on body; 2. black bar on caudal fin base; 3. rounded caudal fin. Size: to 132mm Similar species: Blackstripe Topminnow; Banded Killifish Ontario distribution: southern Ontario Habitat: still, mud-bottomed, often heavily vegetated streams and ponds Use as bait: sold and used as bait, hardy (capable of breathing air)

# RAINBOW SMELT

(Osmerus mordax) Characteristics: 1. streamlined, elongate body; 2. adipose fin; 3. large teeth on jaw and tongue. Size: to 297mm Similar species: Cisco species (illegal baitfish, most at risk; most not included in this Primer) Ontario distribution: native to Ottawa Valley in Ontario, widely introduced elsewhere Habitat: open waters of lakes Use as bait: introduced; illegal under the OFRs



Suckers and Redhorses



WS





(Coregonus artedi) Characteristics: 1. streamlined, elongate body; 2. adipose fin: 3. no teeth. Size: to 395mm Similar species: Rainbow Smelt; other Cisco species (illegal baitfishes, most at risk; not included in this Primer) Ontario distribution: Great Lakes, central and northern Ontario Habitat: primarily found in opens waters of lakes but may occur in large streams in the Hudson Bay region Use as bait: popular in some areas for use as bait for Lake Trout and Salmon

### **BROOK SILVERSIDE**

(Labidesthes sicculus) Characteristics: 1. small upturned mouth: 2. two dorsal fins: 3. long anal fin: Size: to 130 mm Similar species: Emerald Shiner, Rainbow Smelt, Silver Shiner Ontario distribution: southern Ontario Habitat: warm surface waters of clear streams and nearshores of lakes Use as bait: illegal under the OFRs

### **BANDED KILLIFISH**

(Fundulus diaphanus) Characteristics: 1. small upturned mouth: 2. vertical bars between 12 to 20. Size: to 114 mm Similar species: Blackstripe Topminnow; Central Mudminnow Ontario distribution: southern and northwestern Ontario Use as bait: illegal under the OFRs

# **BLACKSTRIPE TOPMINNOW**

(Fundulus notatus) Characteristics: 1. small upturned mouth: 2. dark lateral stripe along side. Size: to 80mm Similar species: Banded Killifish; Central Mudminnow Ontario distribution: Essex County in southwestern Ontario Habitat: warm surface waters of small streams Use as bait: illegal under the OFRs; listed as Special Concern under SARA and ESA, 2007



#### ONTARIO'S BAITFISHES AND THEIR HABITAT

2

### TROUT-PERCH

(Percopsis omiscomaycus) Characteristics: 1. large, unscaled head; 2. adipose fin; 3. spines in dorsal, anal and pelvic fins; 4. rows of 7-12 dusky spots along back, upper side and side. Size: to 123mm Similar species: none Ontario distribution: widespread Habitat: lakes or deep flowing pools of small- to large-sized streams, usually over sand Use as bait: incidental capture and sold with mixed species

### **BROOK STICKLEBACK**

(Culaea inconstans) Characteristics: 1. 4-6 short dorsal spines; 2. deep, thin body with no bony plates on side. Size: to 87mm Similar species: Fourspine, Ninespine and Threespine sticklebacks Ontario distribution: widespread Habitat: quiet, vegetated waters of small rivers, ponds or lakes over sand, muck or mud Use as bait: only incidental

# FOURSPINE STICKLEBACK

(Apeltes quadracus) Characteristics: 1. four dorsal spines of various lengths, wide gap before last spine; 2. no bony plates on side. Size: to 52mm Similar species: Brook, Ninespine and Threespine sticklebacks Ontario distribution: introduced into northwestern Lake Superior Habitat: quiet, vegetated waters Use as bait: introduced; illegal under the OFRs

# NINESPINE STICKLEBACK

(Pungitius pungitius) Characteristics: 1. nine short dorsal spines; 2. slender body; 3. well-developed keel on caudal peduncle; 4. no bony plates on side. Size: to 68mm Similar species: Brook, Fourspine and Threespine sticklebacks Ontario distribution: widespread in northern Ontario, the Great Lakes Habitat: shallow, vegetated areas of streams, ponds or lakes; deep waters of Great Lakes Use as bait: only incidental



### THREESPINE STICKLEBACK

#### (Gasterosteus aculeatus)

Characteristics: 1. three dorsal spines, last very short;

2. bony plates on side; 3. bony keel along side of caudal peduncle. Size: to 76mm

Similar species: Brook, Fourspine and Ninespine sticklebacks Ontario distribution: isolated populations mainly in central and eastern Ontario Habitat: shallow areas over mud or sand with vegetation Use as bait: incidental: introduced in some parts of Ontario

# **MOTTLED SCULPIN**

#### (Cottus bairdii)

Characteristics: 1. dorsal fins joined at base;

2. 2-3 dark bars on body under second dorsal fin;

3. large black spots at front and rear of first dorsal fin.

Size: to 82mm

Similar species: Slimy Sculpin, Round Goby and Tubenose Goby (Spoonhead and Deepwater sculpins look similar but, due to their deepwater habitats, they are not included in this Primer) Ontario distribution: widespread

Habitat: riffles of small streams and headwaters over rubble or gravel; rocky shores of lakes Use as bait: limited; easily confused with illegal gobies

# **SLIMY SCULPIN**

#### (Cottus cognatus)

Characteristics: 1. long, fairly slender body;

2. three pelvic rays; 3. prickles on head and behind pectoral fin base. Size: to 120mm

Similar species: Mottled Sculpin, Round Goby and Tubenose Goby (Spoonhead and Deepwater sculpins look similar but, due to their deepwater habitats, they are not included in this Primer) Ontario distribution: widespread

Habitat: rocky areas of cold streams and lakes Use as bait: limited; easily confused with illegal gobies

# **BLACKSIDE DARTER**

(Percina maculata) Characteristics: 1. slender, elongate body; 2. large mouth; 3. 6-9 large oval black blotches along side; 4. black caudal spot. Size: to 111mm Similar species: Channel Darter, Logperch, River Darter Ontario distribution: southwestern Ontario Habitat: riffles and pools of medium-sized streams over gravel and sand with an abundance of vegetation Use as bait: only incidental





2



### **CHANNEL DARTER**

(Percina copelandi)

Characteristics: 1. slender, elgonated body;

2. blunt snout; 3. 9-10 horizontally oblong black blotches along side;

4. black X's and W's on back and upper side.

Size: to 61mm

Similar species: Blackside Darter, Logpe<mark>rch</mark>, River Darter

Ontario distribution: isolated populations in southern Ontario

Habitat: pools and margins of riffles of small- to medium-sized streams usually over sand and gravel; shores of lakes

Use as bait: illegal under the OFRs; listed as Threatened under SARA and ESA, 2007

# LOGPERCH

(Percina caprodes)

Characteristics: 1. slender, elongate body; 2. large mouth; 3. dusky tear drop;

4. many alternating long and short bars along side.

Size: to 150mm

Similar species: Blackside Darter, Channel Darter, River Darter

Ontario distribution: widespread

Habitat: medium to large streams, rivers and lakes over sand and gravel bottoms Use as bait: occasionally used as live bait but cannot be held long in a bait bucket

# **RIVER DARTER**

#### (Percina shumardi)

Characteristics: 1. slender, elongate body; 2 / 2. large mouth; 3. black teardrop; 3 4. 8-15 black bars along side; 5. small black spot at front,

large black spot near rear of first dorsal fin.

Size: to 80mm

Similar species: Blackside Darter, Channel Darter, Logperch

Ontario distribution: widespread in northwestern Ontario, isolated populations in southwestern Ontario Habitat: medium- to large-sized streams with strong, deep current over sand, gravel or rock Use as bait: only incidental

# FANTAIL DARTER

(Etheostoma flabellare) 2 Characteristics: 1. slender, elongate body; 2. small mouth; 3. black bands on second dorsal fin and caudal fin; 4. gold knobs on tips of dorsal spines. Size: to 70mm Similar species: Greenside Darter, Iowa Darter, Johnny Darter, Least Darter, Rainbow Darter, Tessellated Darter Ontario distribution: southwestern Ontario Habitat: gravel- and boulder-bottomed streams of slow to moderate flow Use as bait: only incidental



#### **RAINBOW DARTER** (Etheostoma caeruleum) Characteristics: 1. relatively deep-bodied: 2. small mouth; 3. no teardrop; 4. 6-10 dark saddles. Size: to 74mm Similar species: Dantail Darter, Greenside Darter, Iowa Darter, Johnny Darter, Least Darter, **Tessellated Darter** Ontario distribution: southwestern Ontario Habitat: fast-flowing gravel and rubble-bottomed riffles of small to medium streams Use as bait: only incidental **TESSELLATED DARTER** (Etheostoma olmstedi) Characteristics: 1. slender, elongate body; 2. small mouth; 3. black teardrop; 4. dark brown X's and W's along side; 5. six dark brown saddles. Size: to 88mm Similar species: Fantail Darter, Greenside Darter, Iowa Darter, Johnny Darter, Least Darter, Rainbow Darter Ontario distribution: southeastern Ontario

- Habitat: lakes and rivers over mud, sand or rock bottom
- Use as bait: only incidental

# EASTERN SAND DARTER

#### (Ammocrypta pellucida)

Characteristics: 1. slender, elongate, transparent body;

2. 10-19 horizontal dark green blotches along side.

Size: to 81mm

Similar species: other darters

Ontario distribution: isolated populations in southwestern Ontario

Habitat: sand-bottomed areas of small to large streams and wave-protected beaches of large lakes Use as bait: illegal under the OFRs; listed as Threatened under SARA and ESA, 2007

### RUFFE

#### (Gymnocephalus cernua)

Characteristics: 1. fairly deep, compressed body;

- 2. broadly joined, spiny dorsal fins;
- 3. many small black spots on dorsal and caudal fins. Size: to 290mm

Similar species: Yellow Perch (not included in this Primer) Ontario distribution: introduced into western Lake Superior Habitat: lakes; quiet pools and margins of streams Use as bait: illegal under the OFRs; invasive species

#### TUBENOSE GOBY

(Proterorhinus semilunaris) 2 Characteristics: 1. fused pelvic fins; 2. long anterior nostrils; 3. spiny dorsal fin with oblique black lines (no spot). Size: to 115mm Similar species: Round Goby, Mottled and Slimy sculpins (Spoonhead and Deepwater sculpins not included in this Primer) Ontario distribution: isolated, introduced populations in southwestern Ontario Habitat: shallow, vegetated areas of lakes and streams Use as bait: illegal under the OFRs; invasive species 2

### **ROUND GOBY**

(Neogobius melanostomus) Characteristics: 1. fused pelvic fins; 2. greenish, spiny dorsal fin with a black spot. Size: to 250mm Similar species: Tubenose Goby, Mottled and Slimy sculpins (Spoonhead and Deepwater sculpins - not included in this Primer) Ontario distribution: introduced populations in the Great Lakes and tributaries Habitat: rocky or gravelly habitat, generally inhabit the nearshore area of lakes but will migrate to deeper water in winter; also found in tributaries Use as bait: illegal under the OFRs; invasive species

### **RUSTY CRAYFISH**

(Orconectes rusticus) Characteristics: 1. greenish coloured claws with dark black bands near the tips; 2. prominent rusty patches on either side of the carapace. Size: to 625mm

Similar species: native crayfishes (not included in this Primer) Ontario distribution: isolated, introduced in southern Ontario

Habitat: streams and lakes with adequate rock, log, and debris cover and substrates of clay, silt and gravel

Use as bait: caution; overland transport is prohibited; rusty crayfish cannot be commercially harvested or sold; anglers can capture their own for bait but must use them in the waterbody where they are captured



2



#### WHAT YOU CAN DO TO MINIMIZE IMPACTS TO OUR AQUATIC ECOSYSTEMS

- Follow, the latest version of the Ontario Fishery Regulations as they pertain to the harvest, sale and use of baitfishes.
- Do not empty the contents of a bait container (including water) within 30m of a waterbody it is illegal.
- Be cautious in timing of baitfish harvesting. 95% of legal baitfishes in this Primer are known to spawn in Ontario during the spring months (April-June).
- Do not over-harvest one area.
- Use traps instead of nets (note only licensed harvesters can use seine nets), especially in vegetated areas. Resident anglers must only use traps or dipnets.
- Remember, not all small fishes are "minnows". "Minnows" refers to a specific family of fishes, the Carps and Minnows family (Cyprinidae). All fish species, including sportfishes, are small at some time during their lives.
- Never release individuals into a waterbody from which they were not harvested.
- If you suspect a species at risk has been harvested, return it immediately to the place of capture.
- Avoid transfer of introduced species destroy all unused bait at least 30m from a waterbody.
- Report sightings or capture of introduced species to the Invading Species Hotline at 1-800-563-7711 or visit www.invadingspecies.com. The Hotline is operated by the Ontario Federation of Anglers and Hunters in partnership with the Ontario Ministry of Natural Resources. Any invasive species caught should be immediately destroyed and not released back into any waters.

#### FURTHER READING

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- Scott, W.B. and E.J. Crossman. 1973. *Freshwater Fishes of Canada*. Bulletin of the Fisheries Research Board of Canada 184. (1999 Reprint, Galt House Publications, Oakville, ON).
- DFO Publications: Working Around Water? Fact Sheets, Operational Statements, Fish Habitat Primers and other DFO publications - www.dfo-mpo.gc.ca. Follow the links to Fish Habitat Management and Publications.
- Bait Association of Ontario and Ontario Ministry of Natural Resources. 2005. The Comprehensive Bait Guide for Eastern Canada, the Great Lakes Region and Northeastern United States. University of Toronto Press. 437 pp.
- Bait Association of Ontario and Ontario Ministry of Natural Resources. 2005. The Essential Bait Guide for Eastern Canada, the Great Lakes Region and Northeastern United States. University of Toronto Press. 193 pp.

#### CONTACTS Fisheries and Oceans Canada, Ontario Offices

#### SOUTHERN ONTARIO DISTRICT

Burlington 304-3027 Harvester Road P.O. Box 85060 Burlington, ON L7R 4K3 Tel: 905-639-0188 Fax: 905-639-3549 E-mail: referralsburlington@dfo-mpo.gc.ca

London 73 Meg Drive London, ON N6E 2V2 Tel: 519-668-2722 Fax: 519-668-1772 E-mail: referralslondon@dfo-mpo.gc.ca

#### EASTERN ONTARIO DISTRICT

Peterborough 501 Towerhill Road, Unit 102 Peterborough, ON K9H 7S3 Tel: 705-750-0269 Fax: 705-750-4016 E-mail: referralspeterborough@dfo-mpo.gc.ca

Prescott 401 King Street West Prescott, ON KOE 1T0 Tel: 613-925-2865 Fax: 613-925-2245 E-mail: referralsprescott@dfo-mpo.gc.ca

#### NORTHERN ONTARIO DISTRICT

Parry Sound 28 Waubeek Street Parry Sound, ON P2A 1B9 Tel: 705-746-2196 Fax: 705-746-4820 E-mail: referralsparysound@dfo-mpo.gc.ca

#### Sudbury and Sault Ste. Marie

1500 Paris Street, Unit 11 Sudbury, ON P3E 3B8 Tel: 705-522-2816 Fax: 705-522-6421 E-mail: referralssudbury@dfo-mpo.gc.ca

#### Thunder Bay and Kenora

425-100 Main Street Thunder Bay, ON P7B 6R9 Tel: 807-346-8118 Fax: 807-346-8545 E-mail: referralsthunderbay@dfo-mpo.gc.ca



10 mm 20 mm 30 mm 40 mm 50 mm 60 mm 70 mm 80 mm 90 mm 100 mm 110 mm 120 mm 130 mm 140 mm 150 mm 160 mm 170 mm

180

mm