

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

1 **River Darter (Great Lakes – Upper St. Lawrence populations)**

2 **Ontario Government Response Statement**

3 **Protecting and Recovering Species at Risk in Ontario**

4 Species at risk recovery is a key part of protecting Ontario’s biodiversity. The
5 *Endangered Species Act, 2007* (ESA) is the Government of Ontario’s legislative
6 commitment to protecting and recovering species at risk and their habitats.

7 Under the ESA, the Government of Ontario must ensure that a recovery strategy is
8 prepared for each species that is listed as endangered or threatened. A recovery
9 strategy provides science-based advice to government on what is required to achieve
10 recovery of a species.

11 Within nine months after a recovery strategy is prepared, the ESA requires the
12 government to publish a statement summarizing the government’s intended actions and
13 priorities in response to the recovery strategy. The response statement is the
14 government’s policy response to the scientific advice provided in the recovery strategy.
15 In addition to the strategy, the government response statement considered (where
16 available) input from Indigenous communities and organizations, stakeholders, other
17 jurisdictions, and members of the public. It reflects the best available local and scientific
18 knowledge, including Traditional Ecological Knowledge where it has been shared by
19 communities and Knowledge Holders, as appropriate and may be adapted if new
20 information becomes available. In implementing the actions in the response statement,
21 the ESA allows the government to determine what is feasible, taking into account social,
22 cultural and economic factors.

23 The Recovery Strategy for the River Darter (*Percina shumardi*) (Great Lakes – Upper
24 St. Lawrence populations) in Ontario was completed on May 30, 2018.

25 River Darter is a small, bottom-dwelling fish from the Percidae family which grows up to
26 9.4 cm long. It has two spots on its spiny dorsal fin, 8-15 dark blotches on its sides, and
27 7-8 blotches that resemble saddles on its back.

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

28 **Protecting and Recovering River Darter (Great Lakes – Upper St. Lawrence**
29 **populations)**

30 River Darter (Great Lakes – Upper St. Lawrence populations) is listed as an
31 endangered species under the ESA, which protects both the fish and its habitat. The
32 ESA prohibits harm or harassment of the species and damage or destruction of its
33 habitat without authorization. Such authorization would require that conditions
34 established by the Ontario government be met.

35 Similar to other darter species in Canada, the River Darter is widely distributed across
36 eastern North America. Its range extends from the coast of the Gulf of Mexico in Texas
37 northward to the Nelson River in Manitoba and from the Saskatchewan River in
38 Saskatchewan eastward to Lake St. Clair tributaries in southern Ontario. There are
39 three River Darter populations in Ontario: the Saskatchewan – Nelson River population
40 in northwestern Ontario, Southern Hudson Bay – James Bay population in northern
41 Ontario, and Great Lakes – Upper St. Lawrence populations in southern Ontario. The
42 Great Lakes – Upper St. Lawrence population is listed on the Species at Risk in Ontario
43 List as endangered, while both Saskatchewan – Nelson River and Southern Hudson
44 Bay – James Bay populations are classified as not at risk. Although there has been an
45 extensive search for River Darters in the Great Lakes – Upper St. Lawrence area, only
46 29 individuals have been collected in Lake St. Clair and its tributaries since 1973 when
47 the species was first recorded in Lake St. Clair. The majority of these collections were
48 made in Lake St. Clair (14), Sydenham River (9), and Thames River (4); one individual
49 was collected in Bear Creek which may contain more individuals since it is a tributary of
50 Lake St. Clair. Despite limitations of sampling small fish in deeper areas of lakes and
51 rivers, progress has been made toward improving sampling methodologies and more
52 targeted surveys have recently been conducted for the River Darter (Great Lakes –
53 Upper St. Lawrence populations). This small number of collections likely reflects the
54 current rarity of this species in southern Ontario.

55 Recent River Darter (Great Lakes – Upper St. Lawrence populations) surveys in 2012-
56 2016 from the Sydenham and Thames Rivers identified several consistent habitat
57 features for River Darters collected in these water bodies including large stream width,
58 high turbidity, lack of aquatic vegetation, and little overhead cover. In other areas of the
59 Lake St. Clair watershed this species has mainly been collected from nearshore areas
60 of lakes and medium-sized rivers but has been found in small rivers such as Bear
61 Creek. In Manitoba and northwestern Ontario, this species has been collected from
62 rivers with gravel and cobble substrates which are thought to be important for spawning.

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

63 Typically, River Darter eggs are laid in the substrate. Reproductive information specific
64 to the River Darter (Great Lakes – Upper St. Lawrence populations) is unknown.

65 Several other knowledge gaps exist for this population since records only date back to
66 1973 and only a few dozen individuals have been collected to date. This presents
67 challenges in determining long-term population trends; distribution, dispersal, and
68 abundance information; and biological and life history characteristics (e.g. spawning
69 habitat and locations, survival rates at different life stages) specific to this population.
70 Opportunities to fill knowledge gaps through the involvement of Indigenous communities
71 and organizations and Traditional Ecological Knowledge may exist as there are several
72 locations where River Darter (Great Lakes – Upper St. Lawrence populations) habitat
73 intersects with Indigenous lands, including Bkejwanong (Walpole Island First Nation).

74 Urbanization and agriculture have significantly altered the landscape in southern
75 Ontario. The impact of these alterations on the River Darter (Great Lakes – Upper St.
76 Lawrence populations) is unclear since collections only date back to 1973. It is possible
77 that this species has always been rare in the area but that remains unknown given the
78 lack of historical data. Ongoing pollution (e.g., agricultural run-off, toxic spill events, and
79 household effluents) from existing and continued developments threaten the River
80 Darter (Great Lakes – Upper St. Lawrence populations) and its habitat through the
81 eutrophication (oxygen deprivation) of water bodies, toxicity to this species and its prey,
82 and sedimentation and siltation. Sedimentation and siltation can smother River Darter
83 eggs and impede respiration and the ability to locate prey due to increased turbidity.
84 Habitat modifications, such as shoreline hardening and dredging can also damage or
85 destroy River Darter habitat and eggs.

86 Invasive species, such as dreissenid mussels (e.g., Zebra Mussels (*Dreissena*
87 *polymorpha*) and Quagga Mussels (*Dreissena bugensis*)) and invasive gobies (i.e.,
88 Round Goby (*Neogobius melanostomus*) and Tubenose Goby (*Proterorhinus*
89 *semilunaris*)), may threaten this species by affecting habitat and prey availability,
90 although the effects of these invasive species on River Darter are not well understood.
91 The diet of River Darter consists of a variety of invertebrates, crustaceans, fish eggs,
92 and snails and subsequent competition for food and habitat resources with invasive
93 gobies may occur as these species occupy similar habitats. The impact of dams and
94 other barriers to dispersal are unknown; however, are expected to have a minimal
95 impact on Great Lakes – Upper St. Lawrence populations' as they are distributed
96 downstream of major dams and their dispersal upstream is limited by their small size.

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

97 The River Darter (Great Lakes – Upper St. Lawrence populations) is rare in southern
98 Ontario and faces several general threats at different life stages. However, the impact of
99 these threats is not well known due to a lack of historical information and a small
100 number of collections. Gathering information and incorporating Traditional Ecological
101 Knowledge, as available and shared by communities, may help fill knowledge gaps and
102 support effective threat mitigation and habitat management. Conducting inventories
103 where the species is known to occur and has occurred historically will improve
104 knowledge about the species' status within different water bodies (i.e., historical or
105 extant). Monitoring efforts should focus on where the species is currently found. While
106 these efforts may detect new individuals, the species is still expected to be rare and
107 may not currently be self-sustaining in the absence of additional recovery actions.
108 Accordingly, the government supports investigating the feasibility and necessity of
109 population augmentation where the species is known to occur.

Government's Recovery Goal

110 The government's goal for the recovery of River Darter (Great Lakes – Upper St.
111 Lawrence populations) is to support the persistence of self-sustaining populations
112 across the species' distribution. The government supports investigating the feasibility of
113 augmenting existing populations.
114

115 Actions

116 Protecting and recovering species at risk is a shared responsibility. No single agency or
117 organization has the knowledge, authority or financial resources to protect and recover
118 all of Ontario's species at risk. Successful recovery requires inter-governmental co-
119 operation and the involvement of many individuals, organizations and communities. In
120 developing the government response statement, the government considered what
121 actions are feasible for the government to lead directly and what actions are feasible for
122 the government to support its conservation partners to undertake.

123 Government-led Actions

124 To help protect and recover River Darter (Great Lakes – Upper St. Lawrence
125 populations), the government will directly undertake the following actions:

- 126 • Collaborate with federal partners, such as Fisheries and Oceans Canada, to
127 implement protection and recovery actions, such as working to explore the
128 removal of River Darter (Great Lakes – St. Lawrence population) from the list of
129 eligible bait species under the Ontario Fishery Regulations. As appropriate and

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

- 130 necessary, undertake targeted communication with anglers and bait harvesters to
131 increase awareness of eligible and ineligible baitfish species.
- 132 • Continue to implement the *Ontario Invasive Species Strategic Plan* to address
133 the invasive species (e.g., Round Goby, Zebra Mussel, Quagga Mussel) that
134 threaten River Darter (Great Lakes – Upper St. Lawrence populations).
 - 135 • Continue to protect the River Darter (Great Lakes – Upper St. Lawrence
136 populations) and its habitat under the ESA.
 - 137 • Educate other agencies and authorities involved in planning and environmental
138 assessment processes on the protection requirements under the ESA.
 - 139 • Encourage the submission of River Darter (Great Lakes – Upper St. Lawrence
140 populations) data to Ontario’s central repository through the citizen science
141 projects that they receive data from (e.g., [iNaturalist](#)) and directly through the
142 [Natural Heritage Information Centre](#).
 - 143 • Undertake communications and outreach to increase public awareness of
144 species at risk in Ontario.
 - 145 • Support conservation, agency, municipal and industry partners, and Indigenous
146 communities and organizations to undertake activities to protect and recover
147 River Darter (Great Lakes – Upper St. Lawrence populations). Support will be
148 provided where appropriate through funding, agreements, permits (including
149 conditions) and/or advisory services.
 - 150 • Encourage collaboration, and establish and communicate annual priority actions
151 for government support in order to reduce duplication of efforts.

152 **Government-supported Actions**

153 The government endorses the following actions as being necessary for the protection
154 and recovery of River Darter (Great Lakes – Upper St. Lawrence populations). Actions
155 identified as “high” will be given priority consideration for funding under the Species at
156 Risk Stewardship Program. Where reasonable, the government will also consider the
157 priority assigned to these actions when reviewing and issuing authorizations under the
158 ESA. Other organizations are encouraged to consider these priorities when developing
159 projects or mitigation plans related to species at risk. The government will focus its
160 support on these high-priority actions over the next five years.

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

161 **Focus Area:** **Research and Monitoring**
162 **Objective:** Increase the level of understanding of River Darter (Great Lakes –
163 Upper St. Lawrence populations) abundance, habitat requirements,
164 life history characteristics, population and habitat trends, and the
165 feasibility and necessity of population management actions (i.e.,
166 augmentation).

167 River Darters are difficult to collect since they are a small, bottom-dwelling species, and
168 individuals in the Great Lakes – Upper St. Lawrence populations are particularly difficult
169 to collect due to their rarity in southern Ontario. However, improved sampling
170 methodologies and more targeted surveys have resulted in several recent collections in
171 this region. By standardizing these, comparisons of the status of populations can be
172 made across the species’ range and consistent monitoring can be implemented where
173 this species is known to occur. Involvement of local Indigenous communities and
174 organizations throughout this process should be encouraged. As available and
175 appropriate, Traditional Ecological Knowledge on the River Darter (Great Lakes – Upper
176 St. Lawrence populations) may be helpful in informing inventory efforts and better
177 understanding the species, its threats and any trends identified during monitoring
178 efforts. In addition to filling these knowledge gaps, investigating the necessity and
179 feasibility of augmenting existing populations through additional population
180 management techniques such as captive rearing and release programs, will support
181 evaluation and implementation of future recovery efforts.

- 182 **Actions:**
- 183 1. **(High)** Develop and implement a standardized protocol to inventory
184 and monitor River Darter (Great Lakes – Upper St. Lawrence
185 populations), and where possible, coordinate efforts for other
186 species at risk fish which occur in the same ecosystem. Actions
187 include:
- 188 ○ verifying the species’ status in current and historical habitat;
189 and,
 - 190 ○ monitoring changes in abundance, distribution and habitat
191 conditions where the species is known to occur.
- 192 2. Research habitat needs of all life-stages and important life history
193 characteristics (e.g., spawning period), to inform recovery efforts.
- 194 3. Investigate the severity and extent of known threats, such as
195 siltation and sedimentation, nutrient loading, runoff of pollutants,

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

196 dredging, and potential threats such as invasive species, in current
197 and historical habitat.

198 4. Investigate the necessity and feasibility of augmenting the species
199 where River Darter (Great Lakes – St. Lawrence populations) is
200 presently found. Actions may include:

- 201 ○ assessing whether current threats can be sufficiently
202 mitigated or reversed in order to enable successful
203 augmentation;
- 204 ○ undertaking population viability analysis for extant
205 populations; and,
- 206 ○ evaluating the feasibility of captive rearing and release,
207 including identifying potential source populations.
208

209 Focus Area:	Habitat and Threat Management
210 Objective:	Maintain or improve the quality of River Darter (Great Lakes – 211 Upper St. Lawrence populations) habitat in Ontario through the 212 mitigation of threats.

213 The River Darter (Great Lakes – Upper St. Lawrence populations) occurs in highly
214 developed landscape in southern Ontario and faces several threats from continued
215 development, shoreline alterations (including hardening and dredging), and ongoing
216 pollution which can damage or destroy this species' habitat. As specific habitat and life
217 history requirements (and associated threats) are investigated for this population, the
218 collaborative implementation of actions to effectively mitigate threats and manage
219 habitat will support the protection and recovery of the species.

Actions:

- 220
- 221 5. **(High)** Minimize threats in and around the species' habitat by
222 undertaking activities and completing effectiveness monitoring for
223 these activities, including:
- 224 ○ implementing natural shoreline stabilization techniques to
225 prevent sedimentation caused by erosion;
 - 226 ○ developing and implementing Environmental Farm Plans
227 and Nutrient Management Plans; and
 - 228 ○ developing, implementing and updating best management
229 practices to inform dredging operations and techniques to

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

230 reduce siltation, turbidity, nutrient loading, and runoff of
231 pollutants.

232

233 **Focus Area: Awareness**
234 **Objective:** Increase level of public awareness and engagement in protecting
235 and recovering River Darter (Great Lakes – Upper St. Lawrence
236 populations).

237 River Darter (Great Lakes – Upper St. Lawrence populations) habitat in Southern
238 Ontario is used by residents, tourists, and businesses for navigation and recreation.
239 This area is also bordered by Indigenous lands, agricultural fields, livestock farms, and
240 residential and commercial developments. Promoting awareness of this species,
241 including potential threats such as invasive species, and encouraging collaborative and
242 coordinated efforts among Indigenous communities and organizations, organizations,
243 stakeholders, and members of the public will help to ensure that protection and recovery
244 efforts will be effective and efficient.

245 **Actions:**

246 6. Collaborate with Indigenous communities and organizations
247 landowners, land managers, and conservation partners to promote
248 awareness of River Darter (Great Lakes – Upper St. Lawrence
249 populations) among people engaged in agricultural, stewardship,
250 fishing, and shoreline modification activities within the species'
251 range by sharing information on:
252 ○ how to identify the species;
253 ○ the species' habitat requirements;
254 ○ protection afforded to the species and its habitat under the
255 ESA; and,
256 ○ actions that can be taken to avoid or minimize impacts to the
257 species and its habitat.

258 7. Undertake work consistent with existing provincial programs to
259 promote awareness of invasive species (e.g., Ontario's Invading
260 Species Awareness Program) in Ontario and implement actions to
261 prevent, respond to, and manage the spread of invasive species.

262 **Implementing Actions**

263 Financial support for the implementation of actions may be available through the
264 Species at Risk Stewardship Program. Conservation partners are encouraged to

DRAFT Government Response Statement
to the
Recovery Strategy for the River Darter (Great Lakes – Upper St. Lawrence populations)
in Ontario

265 discuss project proposals related to the actions in this response statement with program
266 staff. The Ontario government can also advise if any authorizations under the ESA or
267 other legislation may be required to undertake the project.

268 Implementation of the actions may be subject to changing priorities across the multitude
269 of species at risk, available resources and the capacity of partners to undertake
270 recovery activities. Where appropriate, the implementation of actions for multiple
271 species will be co-ordinated across government response statements.

272 **Reviewing Progress**

273 The ESA requires the Ontario government to conduct a review of progress towards
274 protecting and recovering a species not later than five years from the publication of this
275 response statement. The review will help identify if adjustments are needed to achieve
276 the protection and recovery of River Darter (Great Lakes – Upper St. Lawrence
277 populations).

278 **Acknowledgement**

279 We would like to thank all those who participated in the development of the Recovery
280 Strategy for the River Darter (*Percina shumardi*) (Great Lakes – Upper St. Lawrence
281 populations) in Ontario for their dedication to protecting and recovering species at risk.

282 **For Additional Information:**

283 Visit the species at risk website at ontario.ca/speciesatrisk

284 Contact the Natural Resources Information Centre

285 1-800-667-1940

286 TTY 1-866-686-6072

287 mnr.nric.mnr@ontario.ca