



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

# ***SPECIES AT RISK ACT***

## ***Legal listing consultation workbook***



### **Yellow Lampmussel** ***(Lampsilis cariosa)***

Aussi disponible en français

Canada 



## Addition of species to the Species at Risk Act

### Introductory Information

#### **The Species at Risk Act**

The Species at Risk Act (SARA) strengthens and enhances the Government of Canada's capacity to protect Canadian wildlife species, subspecies and distinct populations that are at risk of becoming Extinct or Extirpated. The Act applies only to species on the SARA list.

Openness and transparency, including public consultation, is required in making decisions about which species should be included on the SARA list. The process begins with the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assessing a species as being at risk. Upon receipt of these assessments, the Minister of the Environment, in consultation with the Minister of Fisheries and Oceans, has 90 days to report on how he or she intends to respond to the assessment and to the extent possible, provide timelines for action. Subsequent to the consultative process, a recommendation to the Governor in Council on whether to add certain species to the SARA list or to refer them back to COSEWIC is generated. Once a species is added to the SARA list, specific actions must be taken within specified time periods to help ensure that species' protection and recovery.

#### **Public Consultation**

The Government of Canada proclaimed the Species at Risk Act on June 5, 2003 as part of its strategy for the protection of wildlife species at risk. Attached to the Act is Schedule 1, the list of the species that receive protection under

SARA, commonly referred to as the 'SARA list'.

The existing SARA list reflects the 233 species the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) had assessed and found to be at risk at the time of the reintroduction of SARA to the House of Commons on October 9<sup>th</sup>, 2002.

For more information on SARA visit

[www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)

#### **Role of COSEWIC**

COSEWIC comprises experts on wildlife species at risk. Their backgrounds are in the fields of biology, ecology, genetics, aboriginal traditional knowledge and other relevant fields, and they come from various communities, including government, academia, Aboriginal organizations and non-government organizations.

Initially, COSEWIC commissions a Status Report for the evaluation of the conservation status of a species. To be accepted, status reports must be peer-reviewed and approved by a subcommittee of species specialists. In special circumstances assessments can be done on an emergency basis.

COSEWIC then meets to examine the status report, discuss the species and determine whether or not the species is at risk, and if so, assess the level of risk. For more information on COSEWIC visit

[www.cosewic.gc.ca](http://www.cosewic.gc.ca)



### **Terms used to define the degree of risk to a species**

The degree of risk is categorized according to the terms Extirpated, Endangered, Threatened and Special Concern. A species is assessed by COSEWIC as Extirpated when it is no longer found in the wild in Canada but still exists elsewhere. It is Endangered if it is facing imminent extirpation or extinction. An assessment of Threatened means that the species is likely to become Endangered if nothing is done to reverse the factors leading to its extirpation or extinction. COSEWIC assesses a species as Special Concern if it may become a Threatened or Endangered species because of a combination of biological characteristics and identified threats.

### **New Assessments**

Since October 9<sup>th</sup>, 2002, COSEWIC has assessed or reassessed additional species as being at risk, making them eligible for addition to the SARA list. Of these, aquatic species are the responsibility of the Department of Fisheries and Oceans and terrestrial species are the responsibility of Environment Canada. Responsibility for species that occur in parks administered by the Parks Canada Agency (both terrestrial and aquatic) is shared between the Parks Canada Agency and either Environment Canada or the Department of Fisheries and Oceans.

For more information on the Environment Canada consultations please see the SARA Public Registry:

[www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)

SARA has been designed to conserve Canadian wildlife species and the

habitats that support them. Public involvement is integral to the processes of listing species as being at risk and protecting Canadian wildlife. The best way to secure the survival of species at risk and their habitats is through the active participation of all those concerned. As such, your comments on this document will be given serious consideration.

### **Purpose of the consultation**

Having received the COSEWIC assessment of the species' status, the Minister of Fisheries and Oceans must provide the Minister of the Environment with a recommendation to the Governor in Council. This recommendation must be one of the following:

- a) that the COSEWIC assessment be accepted and the species be added to the SARA list;
- b) that the species not be added to the SARA list; or
- c) that the species be referred back to COSEWIC for further information or consideration.

The Government of Canada is required to take one of these actions within nine months of the Governor in Council having received the assessment from the Minister of the Environment.

COSEWIC bases its assessments solely on the biological status of each species. However, consultation with Canadians regarding the potential social and economic impacts of the addition of each species to the SARA list will occur before the government of Canada arrives at informed decisions on listing. Of particular interest in these consultations is identification of the benefits and costs of adding each of the species to the list



relative to the potential impacts on these species and on society of not adding them.

Therefore, before the government makes decisions regarding the SARA list, affected Canadians will have the opportunity to express their views and concerns. This consultation allows those affected to contribute to the government decision-making process.

### **Role and impact of public consultation**

The results of this public consultation are of great relevance to the entire process of listing species at risk. The comments received will be carefully reviewed and evaluated. They will then be documented in a Regulatory Impact Analysis Statement (RIAS). The RIAS is an integral part of the federal regulatory process and is published with all regulatory proposals in the Canada Gazette Part I.

Following initial consultations, a draft Order (an instrument that serves notice of a decision taken by the executive arm of government) proposing to list all or some of the species under consideration will be prepared. This draft Order will be published along with the RIAS in the Canada Gazette Part I for a comment period. Based on the outcome of the comment period, a recommendation to the Governor in Council on whether to add certain species to the SARA list or to refer them back to COSEWIC will be generated. The final decision will be published in Canada Gazette Part II and on the Public Registry.

### **Significance of the addition of a species to the SARA list**

The protection that comes into effect

following the addition of a species to the SARA list depends upon the degree of risk assigned to that species.

### **Protection for listed Extirpated, Endangered and Threatened species**

Under the Act, prohibitions protect individuals of Extirpated, Endangered and Threatened species. These prohibitions make it an offence to kill, harm, harass, capture or take an individual of a species listed as Extirpated, Endangered or Threatened, or to damage or destroy the residence of one or more individuals (and the critical habitat, if and when identified) of an Endangered or a Threatened species. The Act also makes it an offence to possess, collect, buy, sell or trade an individual of a species that is Extirpated, Endangered or Threatened or a part or derivative of one. These prohibitions come into force when a species is listed on Schedule 1 of the SARA.

The focus of protection will be on those species for which the federal government has direct legal authority. The protection will be in force for all listed birds protected under the Migratory Birds Convention Act, 1994 and for listed aquatic species. The prohibitions will also apply to all listed species on federal lands.

For all other listed Endangered, Threatened and Extirpated species, the provinces and territories have the responsibility to ensure that they receive adequate protection.

Exceptions to the prohibitions on aquatic species may be authorized by the Minister of Fisheries and Oceans, provided that the survival or recovery of the species is not jeopardised. The



Ministers may enter into agreements or issue permits only for (1) research relating to the conservation of a species or (2) for activities that benefit a listed species or enhance its chances of survival or (3) that incidentally affect a listed species.

### **Protection for listed species of Special Concern**

The prohibitions of SARA for species listed as Extirpated, Endangered and Threatened will not apply to species of Special Concern; however any existing protections and prohibitions, such as those authorized by the Migratory Birds Convention Act or the Canada National Parks Act, continue to be in force.

### **Recovery strategies and action plans for Extirpated, Endangered and Threatened species**

The addition of an Extirpated, Endangered or Threatened species to the SARA list triggers the requirement for the preparation of a recovery strategy and action plan which will be the subject of separate consultations.

Recovery strategies will be completed and made available on the SARA Public Registry to allow for public review and comment, within one year for Endangered and within two years for Threatened and Extirpated newly listed species.

Recovery strategies will address the known threats to the species and its habitat. They will identify areas where more research is needed and population objectives that will help ensure the species' survival or recovery, and will include a statement of the timeframe. Recovery strategies and action plans will identify, to the extent possible, the

critical habitat of the species. Action plans will include measures to address threats, help the species recover and protect critical habitat. Measures to implement the recovery strategy will also be identified in the action plan.

Recovery strategies and action plans will be prepared in cooperation with aboriginal organizations, responsible jurisdictions, and relevant management boards directly affected by them. Stakeholders affected by the recovery strategy will also be consulted.

### **Management plans for Species of Special Concern**

For species of Special Concern, management plans will be prepared and made available on the Public Registry within three years of their addition to the SARA list, allowing for public review and comment. Management plans will include appropriate conservation measures for the species and for its habitat.

Management plans will be prepared in cooperation with aboriginal organizations, responsible jurisdictions, and relevant management boards directly affected by them. Stakeholders affected by the management plan will also be consulted.

### **Public comments on the addition of species to the SARA list**

The species described in this workbook has been assessed or reassessed by COSEWIC as a species at risk, and is being considered for addition to the SARA list. Please complete the survey beginning on page 8 and return in person or by regular mail to the address below. In order to consider your comments,





responses are required no later than Oct. 29<sup>th</sup>, 2004.

Species at Risk Coordination Office  
Bedford Institute of Oceanography  
P.O. Box 1006  
1 Challenger Drive  
Dartmouth, NS  
B2Y 4A2

Alternatively, please e-mail your comments (with the species name in the subject line) to

[XMARSARA@mar.dfo-mpo.gc.ca](mailto:XMARSARA@mar.dfo-mpo.gc.ca)

or complete the electronic version of this survey at:

[www.sararegistry.gc.ca](http://www.sararegistry.gc.ca)

Your comments will be reviewed and used to consider whether or not to place each species on the SARA list.

## Species specific information

### Yellow Lampmussel

The yellow lampmussel, *Lampsilis cariosa*, is a freshwater bivalve mollusc. It is oval-shaped and has a glossy surface that varies in color from bright yellow to reddish brown with several fine radiating lines. The interior of the shell is coloured white to pink, and there are several strong hinge teeth. Although the yellow lampmussel has been recorded as large as 110mm in length, it is typically smaller than 75 mm.

In Canada, yellow lampmussel is only known to occur above the dam on the Sydney River in Cape Breton, Nova Scotia, and below the Mactaquac dam in the lower Saint John River, New Brunswick, which includes 5 of its large

tributaries, and several large lakes. Evidence suggests that the St. John River system yellow lampmussel population is the larger of the two.

The yellow lampmussel is found in areas with sand and gravel bottoms in fast flowing, riffle areas of large, low gradient rivers, and the shallow waters (less than 6m) of lakes in areas with sandy bottom and low aquatic plant cover.

The yellow lampmussel requires a host fish (commonly white or yellow perch) for the parasitic portion of its larval development. Although the actual spawning time is not known, it is assumed from similar species that release of these larvae to their hosts happens from spring to early autumn. The parasitic larvae remain on the host fish for roughly 43 to 80 days, and then drop to settle on the substrate below. Within 5 years, yellow lampmussels reach sexual maturity.

Muskrats are the only known predator of this filter feeder, and they seem to prey only on adults.

### COSEWIC assessment

COSEWIC provides the following rationale for designating the yellow lampmussel as **special concern**:

*Populations quite large and apparently stable in Canada but found only in Sydney River, Nova Scotia and Saint John River watershed, New Brunswick. Threats are currently very limited but there are long-term concerns related to the potential for introduction of zebra mussels into the Saint John River, and maintaining habitat quality of the sole population in the Sydney River.*



### **Threats to Yellow Lampmussel**

The breach of the dam on the Sydney River would result in loss of habitat due to both a reduction in shoreline and an influx of salt water upstream of the dam. Siltation and pollution from suburban and recreational activities could also cause habitat damage. Yellow lampmussel populations could also suffer if areas of Sydney River were treated with molluscicides to control “swimmer’s itch”.

There appear to be few threats to the lower Saint John River population although encroaching riparian development in some areas is a concern. Low summer water levels may cause habitat loss due to elevated temperatures and increased saltwater intrusion. The potential introduction and spread of zebra mussels in the Saint John River is another threat to the yellow lampmussel.

### **Protecting Yellow Lampmussel**

The Federal Fisheries Act, intended to protect fish harvested for human consumption and their habitat, protects yellow lampmussel habitat and disturbance to the mussels themselves.

Under the *Maritime Provinces Fishery Regulations*, it is illegal to collect or harvest yellow lampmussels without a license. No licenses have ever been issued to harvest yellow lampmussels in Nova Scotia or New Brunswick.

### **Potential Impacts on Stakeholders**

Once listed in the Species at Risk Act, activities that affect the yellow lampmussel or its habitat may receive more scrutiny. A Management Plan will be developed and there is a range of management measures that may be implemented to conserve the yellow

lampmussel. These measures may lead to a variety of impacts on stakeholders. The following list is not exhaustive. Please use this consultation as an opportunity to list omissions.

### **Aboriginal peoples**

Management strategies that affect the activities of aboriginal people taking place in areas inhabited by yellow lampmussel may be considered.

### **Land owners**

Development restrictions and other planning and management measures may be imposed for areas where yellow lamp mussels are found.

### **Recreational users**

Restrictions and management measures may be imposed to prevent the introduction and spread of zebra mussels. Restrictions on the use of molluscicides to improve swimming areas may be implemented.

### **Research activity**

Those wishing to carry out research on the yellow lampmussel or in areas of their habitat may be required to comply with stricter guidelines. This may limit the types and/or durations of research permitted on yellow lampmussel and may lengthen the preparation time required for planning research projects.

### **References**

COSEWIC 2004. COSEWIC status report on the Yellow Lampmussel, *Lampsilis cariosa* committee on the Status of endangered Wildlife in Canada. Ottawa. Vi + 44 pp.



## **Consultation Workbook Survey – Yellow Lampmussel**

The government's decision on whether or not to list a species under the Species at Risk Act (SARA) will be based on a full description and understanding of the costs and benefits of the impacts of protection and recovery on individuals, organizations, First Nations, industries, and Canadian society in general.

This workbook can be used to provide your opinions about listing yellow lampmussel under SARA. It also begins with some general questions about conservation priorities and your awareness of other aquatic species at risk.

Comments are welcome from individuals of all backgrounds, whether you are engaged in activities that may be affected by yellow lampmussel conservation efforts or are a citizen with an interest in yellow lampmussel.

You should read the consultation workbook before completing these questions.

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### **About the Consultation Workbook Survey**

The consultation workbook survey asks you to answer a series of questions that require reflection about your views relating to the conservation and recovery of yellow lampmussel. There are a variety of question formats in this survey. There are also numerous opportunities for personal responses to further explain your views. If you would like to keep the introductory sections of this workbook, please feel free to detach this section and return only the survey.

Please return your workbook by **Oct. 29, 2004** to:

Species at Risk Coordination Office  
Bedford Institute of Oceanography  
P.O. Box 1006  
1 Challenger Drive  
Dartmouth, NS B2Y 4A2

Alternatively, you may email comments to [XMARSARA@mar.dfo-mpo.gc.ca](mailto:XMARSARA@mar.dfo-mpo.gc.ca) or visit <http://www.sararegistry.gc.ca> to complete an electronic version of this survey. In addition to this survey, public meetings will be held in Nova Scotia and New Brunswick during the consultation period. For specific times and locations of public meetings, please check <http://www.sararegistry.gc.ca>.

The information that you provide is important! We very much appreciate the time and effort you take to complete this survey!

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### Your Opinion on Government Priorities

Commercial fishing, sport fishing, First Nation food and ceremonial fishing, industrial use and conservation needs are all considered when the government makes decisions about conservation policies and programs. How would you rate the importance of these considerations if you were making decisions about the management of aquatic species at risk?

**Please choose an option that reflects your  
rating of the importance of these  
considerations in ocean management**

|  | <b>Very Low<br/>Priority</b> | <b>Somewhat<br/>Low<br/>Priority</b> | <b>Moderate<br/>Priority</b> | <b>Somewhat<br/>High<br/>Priority</b> | <b>Very High<br/>Priority</b> |
|--|------------------------------|--------------------------------------|------------------------------|---------------------------------------|-------------------------------|
| <b>Recreational Fishing</b>                          | <input type="checkbox"/>     | <input type="checkbox"/>             | <input type="checkbox"/>     | <input type="checkbox"/>              | <input type="checkbox"/>      |
| <b>Commercial Fishing</b>                            | <input type="checkbox"/>     | <input type="checkbox"/>             | <input type="checkbox"/>     | <input type="checkbox"/>              | <input type="checkbox"/>      |
| <b>Marine Industries</b>                             | <input type="checkbox"/>     | <input type="checkbox"/>             | <input type="checkbox"/>     | <input type="checkbox"/>              | <input type="checkbox"/>      |
| <b>Conservation</b>                                  | <input type="checkbox"/>     | <input type="checkbox"/>             | <input type="checkbox"/>     | <input type="checkbox"/>              | <input type="checkbox"/>      |
| <b>First Nations Food and<br/>Ceremonial Fishing</b> | <input type="checkbox"/>     | <input type="checkbox"/>             | <input type="checkbox"/>     | <input type="checkbox"/>              | <input type="checkbox"/>      |

Do you have any other comments about how conservation priorities should be determined? If so, please use the space below.



### Your Awareness about Aquatic Species at Risk in the Maritimes

This table shows a number of listed and proposed species at risk in the Maritimes (COSEWIC designations are provided). For each, please indicate your knowledge of this species.

|   | <b>I am not<br/>familiar with<br/>this species</b> | <b>I am somewhat<br/>familiar with<br/>this species</b> | <b>I am very<br/>familiar with<br/>this species</b> |
|---|--|---|---|
| <b>Inner Bay of Fundy Atlantic<br/>Salmon (current SARA status:<br/>endangered)</b> | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Atlantic Whitefish (current SARA<br/>status: endangered)</b>                     | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Lake Utopia Dwarf Smelt (current<br/>SARA status: threatened)</b>                | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Leatherback Turtle (current<br/>SARA status: endangered)</b>                     | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Atlantic Wolffish (current SARA<br/>status: special concern)</b>                 | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>North Atlantic Right Whale<br/>(proposed SARA status:<br/>endangered)</b>        | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Blue Whale (proposed SARA<br/>status: endangered)</b>                            | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Northern Bottlenose Whale<br/>(proposed SARA status:<br/>endangered)</b>         | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Cusk (proposed SARA status:<br/>threatened)</b>                                  | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Porbeagle Shark (proposed SARA<br/>status: endangered)</b>                       | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |
| <b>Yellow Lampmussel (proposed<br/>SARA status: special concern)</b>                | <input type="checkbox"/>                           | <input type="checkbox"/>                                | <input type="checkbox"/>                            |



## Your Opinions about Conservation Priorities for Aquatic Species at Risk in Atlantic Canada

Please choose an option that reflects your rating of what level of priority should be placed on conservation efforts for this species.

|   | Very Low<br>Conservation<br>Priority | Somewhat Low<br>Conservation<br>Priority | Moderate<br>Conservation<br>Priority | Somewhat High<br>Conservation<br>Priority | Very High<br>Conservation<br>Priority | I am not Familiar<br>with this Species<br>so Cannot Say |
|---|--------------------------------------|--|--------------------------------------|---|---------------------------------------|---|
| <b>Inner Bay of Fundy Atlantic Salmon (current SARA status: endangered)</b> | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Atlantic Whitefish (current SARA status: endangered)</b>                 | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Lake Utopia Dwarf Smelt (current SARA status: threatened)</b>            | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Leatherback Turtle (current SARA status: endangered)</b>                 | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Atlantic Wolffish (current SARA status: special concern)</b>             | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>North Atlantic Right Whale (proposed SARA status: endangered)</b>        | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Blue Whale (proposed SARA status: endangered)</b>                        | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Northern Bottlenose Whale (proposed SARA status: endangered)</b>         | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Cusk (proposed SARA status: threatened)</b>                              | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Porbeagle Shark (proposed SARA status: endangered)</b>                   | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |
| <b>Yellow Lampmussel (proposed SARA status: special concern)</b>            | <input type="checkbox"/>             | <input type="checkbox"/>                 | <input type="checkbox"/>             | <input type="checkbox"/>                  | <input type="checkbox"/>              | <input type="checkbox"/>                                |



### Your Opinions about Threats to Yellow Lampmussel

Please indicate your level of concern regarding the following factors that may affect the yellow lampmussel population in Canadian waters.

|   | Very Low                 | Somewhat Low             | Moderate                 | Somewhat High            | Very High                | I Have No Opinion On This Factor |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------------------|
| <b>Siltation and Pollution Caused by Human Activities (property maintenance, recreational activities, etc.)</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| <b>Sedimentation and Eutrophication Caused by Agricultural Runoff and Sewage Discharge</b>                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| <b>Development along Riversides (residential, industrial, agricultural, forestry)</b>                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| <b>Periods of Dry Weather (low water levels and higher upstream saltwater intrusion)</b>                        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| <b>Introduction and Spread of Zebra Mussels</b>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| <b>Predation by Muskrats</b>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| <b>A Breach in the Sydney River Dam</b>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| <b>Use of Molluscicides in Swimming Areas</b>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |



Do you have any comments or concerns about other factors that may affect yellow lampmussel populations? If so, please use the space below.



### **Your Opinions about Possible Initiatives to Help Conserve Yellow Lampmussel**

For each factor, please indicate what level of impact you think this measure will have on the success of yellow lampmussel conservation.

|   | <b>Very Low</b>          | <b>Somewhat Low</b>      | <b>Moderate</b>          | <b>Somewhat High</b>     | <b>Very High</b>         | <b>I Have No Opinion On This Factor</b> |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---|
| <b>Conduct Scientific Research to Better Understand Yellow Lampmussel Behaviour and Distribution</b>                      | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                |
| <b>Increase Public Awareness of the Yellow Lampmussel</b>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                |
| <b>Encourage Land Developers/Owners/Users/ to Develop Practises to Minimise or Eliminate Impacts to Yellow Lampmussel</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                |
| <b>Monitor and Maintain the Sydney River Dam</b>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                |
| <b>Develop and Implement Measures to Prevent the Introduction and Spread of Zebra Mussels by Boaters</b>                  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                |
| <b>Monitor the Predation by Muskrats for Consideration in Future Management Decisions</b>                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                |
| <b>Limit the Use of Molluscicides</b>   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>                |





Do you have any comments about how other measures might help to conserve yellow lampmussel? If so, please use the space below.



### Your Opinion about the Potential Direct or Indirect Costs of Yellow Lampmussel Conservation

Please choose an option that reflects your rating of the likely economic impacts (direct and indirect) of yellow lampmussel conservation to this industry or group.

|   | Negligible               | Somewhat<br>Low          | Moderate                 | Somewhat<br>High         | Very High                | I Have No<br>Opinion On<br>This Factor |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--|
| <b>Costs to Land<br/>Developers/Owners</b>    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>Costs to Recreational Water<br/>Users</b>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>Costs to Municipalities</b>                | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>Costs to the Agricultural<br/>Industry</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>Costs to First Nations</b>                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>Costs to Scientific Researchers</b>        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>Costs to my Personal<br/>Household</b>     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |

Do you have any other comments about how conservation interventions might lead to costs on other people or industry sectors, or about what your suggestions are to minimize costs? Costs might be direct (e.g., increasing the cost of doing business) or they might be indirect (e.g., lost opportunities for commercial activities). If so, please use the space below.



### Your Opinion about the Potential Benefits of Yellow Lampmussel Conservation to Canadian Society

Please choose an option that reflects your rating of the likely benefits (economic or social) of yellow lampmussel conservation to this industry or segment of society.

|   | Negligible               | Somewhat Low             | Moderate                 | Somewhat High            | Very High                | I Have No Opinion On This Impact |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------------------|
| Benefits to Communities Adjacent to Yellow Lampmussel Populations | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| Benefits to Canadian Society as a Whole                           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| Benefits to First Nations   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |
| Benefits to the Scientific Community                              | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         |



### Your Opinion about Other Potential Benefits of Yellow Lampmussel Conservation

Please choose an option that reflects your level of agreement or disagreement with the following statements.

|   | Strongly<br>Disagree     | Somewhat<br>Disagree     | Neither<br>Agree Nor<br>Disagree | Somewhat<br>Agree        | Strongly<br>Agree        | I Have No<br>Opinion On<br>This Impact |
|---|--------------------------|--------------------------|----------------------------------|--------------------------|--------------------------|--|
| <b>I think that yellow lampmussels are valuable because they play an important role in maintaining healthy freshwater ecosystems.</b> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>I think that yellow lampmussels will be valuable to future generations.</b>  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>I think that many people in Canada value yellow lampmussels even though they may never personally see a yellow lampmussel.</b>     | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>I think that many people in Canada value yellow lampmussels even though they currently have no commercial value.</b>               | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |
| <b>I think ensuring environmental quality over the long term is more important than creating more jobs in the short term.</b>         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>               |



Do you have any other comments about who might benefit from yellow lampmussel conservation and how important this benefit might be? If so, please use the space below.



### Comments about the Proposed Listing Status of Yellow Lampmussel

Have you read the COSEWIC status report for yellow lampmussel?

Yes ☐

No ☐

Please choose an option that reflects your level of support for the Government of Canada listing yellow lampmussel as a species of special concern under the *Species at Risk Act*.

I **Strongly Disagree** with listing yellow lampmussel as a species of special concern ☐

I **Somewhat Disagree** with listing yellow lampmussel as a species of special concern ☐

I **Neither Agree nor Disagree** with listing yellow lampmussel as a species of special concern ☐

I **Somewhat Agree** with listing yellow lampmussel as a species of special concern ☐

I **Strongly Agree** with listing yellow lampmussel as a species of special concern ☐

**If you disagree** with listing yellow lampmussel as a species of special concern, could you please tell us why?





**If you agree** with listing yellow lampmussel as a species of special concern, could you please tell us why?

How can you as an individual, or your industry, organization or community, participate in the conservation of this species? Please give examples of particular activities if you can.



Do you have any other comments about this survey or SARA that you would like to share with us? If so, please use the space below.



## Background Information about You

### What is Your Age Category?

- < 20 Years ☐
- 20-29 Years ☐
- 30-39 Years ☐
- 40-49 Years ☐
- 50-59 Years ☐
- 60-69 Years ☐
- > 70 Years ☐

### What is Your Gender?

- Female ☐
- Male ☐

### Where do you live?

- Nova Scotia ☐
- New Brunswick ☐
- Prince Edward Island ☐
- Newfoundland and Labrador ☐
- Quebec ☐
- Ontario ☐
- Western Canada or Territories ☐
- Outside Canada but I am a Canadian Citizen or Permanent Resident ☐
- Outside Canada - I am not a Canadian Citizen or Permanent Resident ☐



**In which sector are you employed?**

- |                                |                          |
|--------------------------------|--------------------------|
| Retired                        | <input type="checkbox"/> |
| Full-Time Homemaker            | <input type="checkbox"/> |
| Student                        | <input type="checkbox"/> |
| Commercial Fishing/Processing  | <input type="checkbox"/> |
| Farming                        | <input type="checkbox"/> |
| Forestry                       | <input type="checkbox"/> |
| Oil and Gas                    | <input type="checkbox"/> |
| Professional Services          | <input type="checkbox"/> |
| Private Sector – Other         | <input type="checkbox"/> |
| Academic                       | <input type="checkbox"/> |
| Federal Government             | <input type="checkbox"/> |
| Provincial Government          | <input type="checkbox"/> |
| Non-Governmental Organization  | <input type="checkbox"/> |
| I am Between Jobs              | <input type="checkbox"/> |
| I am Employed in another Field | <input type="checkbox"/> |

***If you work in the commercial fishing or processing industry***, what types of commercial fishing activities have you engaged in over the past 5 years? Please check all the applicable boxes.

- |   |                          |
|---|--------------------------|
| Work in a Processing Plant                        | <input type="checkbox"/> |
| Fish for Groundfish on a Fixed Gear Vessel (<45') | <input type="checkbox"/> |
| Fish for Groundfish on a Fixed Gear Vessel (>45') | <input type="checkbox"/> |
| Fish for Groundfish on a Mobile Gear Vessel       | <input type="checkbox"/> |
| Fish for Lobster                                  | <input type="checkbox"/> |
| Fish for Scallops                                 | <input type="checkbox"/> |
| Fish for Snow Crab                                | <input type="checkbox"/> |
| Fish for Large Pelagics on a Longline Vessel      | <input type="checkbox"/> |
| Work in the Aquaculture Industry                  | <input type="checkbox"/> |
| Fish for Other Species or Using Other Methods     | <input type="checkbox"/> |
| Industry Association Representative or Consultant | <input type="checkbox"/> |

**You've now finished the survey – thank you very much for your help**

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