

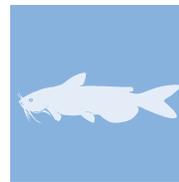
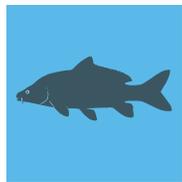
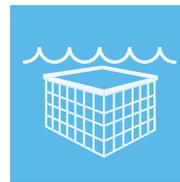
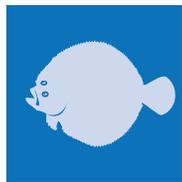


Food and Agriculture  
Organization of the  
United Nations

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COUNTRY REPORTS

**Canada**



Country Report Supporting the Preparation of the  
First Report on *The State of the World's Aquatic  
Genetic Resources for Food and Agriculture*

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This Country Report has been submitted by the national authorities as a contribution to the Food and Agriculture Organization of the United Nations (FAO) publication, *The State of the World's Aquatic Genetic Resources for Food and Agriculture*. The information in this Country Report has not been verified by FAO, and its content is entirely the responsibility of the entity preparing the Country Report, and does not necessarily represent the views of FAO, or its Members. The designations employed and the presentation of material do not imply the expression of any opinion whatsoever on the part of FAO concerning legal or development status of any country, territory, city or area or of its authorities or concerning the delimitation of its frontiers or boundaries. The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by FAO in preference to others of a similar nature that are not mentioned.



Food and Agriculture  
Organization of the  
United Nations

COMMISSION ON  
GENETIC RESOURCES  
FOR FOOD AND  
AGRICULTURE

**Questionnaire for the Preparation of  
Country Reports for *the First State of  
the World's Aquatic Genetic Resources  
for Food and Agriculture***

COMMISSION ON  
GENETIC RESOURCES  
FOR FOOD AND  
AGRICULTURE



## INSTRUCTIONS FOR COMPLETING THE DYNAMIC GUIDELINES

### How do I complete the dynamic guidelines?

1. You will require Adobe Reader to open the dynamic guidelines. Adobe Reader can be downloaded free of charge from: <http://get.adobe.com/uk/reader/otherversions/>. Use Adobe Reader Version 10 or higher.
2. Open the dynamic guidelines and save it (save as a pdf) on your hard drive.
3. Please rename it <name of your country>.pdf.
4. You may forward the dynamic guidelines to stakeholders you would like to involve or inform by e-mail. You may also print and/or save the dynamic guidelines.
5. It is advisable to prepare textual responses (including any formatting such as bullet points) first in a separate document and then to copy and paste them into the form. Please use font Arial 10. Acronyms and abbreviations should be avoided if possible. If included, they must be introduced (i.e. written out in full) the first time they are used. Note that the text boxes are expandable. Once text has been entered, the box will automatically enlarge to make its content fully visible when you click outside its border. To delete a row you have added, click on the "X" on the far right of the table
6. When you have finished completing the dynamic guidelines, click the "Submit form" button at the end of the form and send the completed dynamic guidelines to [Devin.Bartely@fao.org](mailto:Devin.Bartely@fao.org); [Matthias.Halwart@fao.org](mailto:Matthias.Halwart@fao.org); and [ruth.garciagomez@fao.org](mailto:ruth.garciagomez@fao.org).
7. This should automatically attach the document to an email that you can then send. Otherwise, please attach the completed dynamic guidelines manually to an e-mail and send it to [Devin.Bartely@fao.org](mailto:Devin.Bartely@fao.org); [Matthias.Halwart@fao.org](mailto:Matthias.Halwart@fao.org); and [ruth.garciagomez@fao.org](mailto:ruth.garciagomez@fao.org).
8. A letter confirming official endorsement by relevant authorities should also be attached to the email.
9. You will receive a confirmation that the submission was successful.

### Where can I get further assistance?

If you have any questions regarding the dynamic guidelines, please contact [Devin.Bartely@fao.org](mailto:Devin.Bartely@fao.org); [Matthias.Halwart@fao.org](mailto:Matthias.Halwart@fao.org); [ruth.garciagomez@fao.org](mailto:ruth.garciagomez@fao.org)

Several websites provide useful information on aquatic species that can be consulted for proper species names and for information on aquatic genetic resources: [AlgaeBase](#), [Aquamaps](#), [Barcode of Life](#), [Census of Marine Life](#), [FishBase](#), [Frozen Ark](#), [GenBank](#), [Global Biodiversity Information Facility](#), [International Union for Conservation of Nature](#), [National Institutes of Health Database on Genomes and Bioinformatics](#), [Ornamental Fish International](#), [SealifeBase](#), [Sea Around Us](#), and [World Register of Marine Species](#).

### How, by whom and by when must the completed dynamic guidelines be submitted?

Once officially endorsed by the relevant authorities, the completed dynamic guidelines should be submitted (click the "Submit form" button on the header banner) by the National Focal Point. **Completed dynamic guidelines should be sent by December 31<sup>st</sup> 2015.**

[www.algaebase.org](http://www.algaebase.org)  
[www.aquamaps.org](http://www.aquamaps.org)  
[www.barcodeoflife.org](http://www.barcodeoflife.org)  
[www.coml.org](http://www.coml.org)  
[www.fishbase.org](http://www.fishbase.org)  
[www.frozenark.org](http://www.frozenark.org)  
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[www.iucn.org](http://www.iucn.org)  
<http://discover.nci.nih.gov/>  
[www.ornamental-fish-int.org](http://www.ornamental-fish-int.org)  
[www.sealifebase.org](http://www.sealifebase.org)  
[www.seaaroundus.org](http://www.seaaroundus.org)  
[www.marinespecies.org](http://www.marinespecies.org)

## I. INTRODUCTION

At its Thirteenth Regular Session, the Commission noted that the preparation of a country-driven *State of the World's Aquatic Genetic Resources for Food and Agriculture* would provide countries with opportunities for assessing the status of their aquatic genetic resources for food and agriculture and enhancing the contributions of aquatic genetic resources to food security and rural development. Additionally the process of producing Country Reports will assist countries in determining their needs and priorities for the conservation and sustainable use of aquatic genetic resources for food and agriculture, and will help raise awareness among policy-makers.

## II. COUNTRY REPORTS

As with the other sectors, *The State of the World's Aquatic Genetic Resources for Food and Agriculture (SoWAqGR)* will be compiled from Country Reports. It is recognized that guidance is necessary in order to assist countries in completing those reports under a common framework. The Country Reports will become official government documents submitted to FAO.

The following questionnaire is the suggested format for the preparation and submission of Country Reports. The questionnaire has been prepared by FAO to assist in the preparation of Country Reports contributing to the SoWAqGR Report. It has been designed to assist countries to undertake a strategic assessment of their aquatic genetic resources for food and agriculture.

The scope of the first State of the World's Aquatic Genetic Resources for Food and Agriculture, and therefore the emphasis in the Country Reports, is farmed aquatic species and their wild relatives within national jurisdiction.

Country Reports should:

- become powerful tools for improving the conservation, sustainable use and development of aquatic genetic resources for food and agriculture, at national and regional levels;
- identify threats to aquatic genetic resources, gaps in information about aquatic genetic resources and needs for the strengthening of national capacity to manage aquatic genetic resources effectively;
- inform the development of national policies, legislation, research and development, education, training and extension concerning the conservation, sustainable use and development of aquatic genetic resources for food and agriculture;
- contribute to raising public awareness about the importance of aquatic genetic resources for food and agriculture;
- complement other national reporting activities on the conservation, sustainable use and development of aquatic genetic resources.

### Timeline and process

In line with the overall process, as established by the Commission, the Director-General of FAO sent a Circular State Letter on 19 April 2012 to countries requesting them to identify National Focal Points for the preparation of Country Reports by 31 December, 2015.

The following steps are recommended in preparing the Country Report, using a participatory approach:

- Each participating country should appoint a National Focal Point for the coordination of the preparation of the Country Report who will also act as focal point to FAO. National Focal Points should be communicated to the Secretary, Commission on Genetic Resources for Food and Agriculture ([cgrfa@fao.org](mailto:cgrfa@fao.org)) immediately.
- Countries are encouraged to establish a national committee to oversee the preparation of the Country Report. The national committee should consist of as many representative stakeholders as practical (representing government, industry, research and civil society).
- The national committee should meet frequently to review progress and consult widely with key stakeholders.

- The National Focal Point should coordinate the preparation of the first draft of the Country Report, which should be reviewed by the national committee. The National Focal Point should facilitate a consultative process for broader stakeholder review.
- Following the stakeholder review, the National Focal Point should coordinate the finalization of the Country Report, submit it to the government for official endorsement and transmit it to FAO in one of the Organization's official languages (Arabic, Chinese, English, French, Russian and Spanish) by 31 December 2015.
- The Country Report will be an official government report.
- If countries are unable to submit final Country Reports by the set deadline, preliminary reports of findings should be provided to FAO to contribute to the identification of global priorities for inclusion in the SoWAqGR Report.

**QUESTIONNAIRE FOR PREPARATION OF COUNTRY REPORTS FOR  
THE STATE OF THE WORLD'S AQUATIC GENETIC RESOURCES FOR FOOD  
AND AGRICULTURE**

Country report supporting the preparation of  
The State of the World's Aquatic Genetic Resources for Food and Agriculture

Country	Canada
Prepared By	Ministry of Fisheries and Oceans Canada
Date	Mar 18, 2016

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## I. EXECUTIVE SUMMARY

The Country Report should contain an executive summary of 2-3 pages highlighting the main findings of the analysis and providing an overview of key issues, constraints and existing capacity to address the issues and challenges. The executive summary should indicate trends and driving forces and present an overview of the proposed strategic directions for future actions aimed at the national, regional and global levels.

*Please include the Executive Summary here.*

At the Fourteenth Session of the Food and Agriculture Organization's (FAO) Commission on Genetic Resources for Food and Agriculture, the Commission called on countries to participate in the process leading to the State of the World's Aquatic Genetic Resources report by preparing national reports on aquatic genetic resources. The Commission, at this session, also decided that the scope of the report would be farmed aquatic species and their wild relatives within national jurisdiction. The purpose of this document is to describe Canada's aquatic genetic resources (AqGR) for food and agriculture in accordance with requested participation. Given the importance of genetic data for the conservation and management of wild capture fisheries of species that are not farmed, Canada will offer a broader approach.

Conservation and use of genetic resources is managed in Canada through the legislative regimes established for fisheries, aquaculture and research. The Department of Fisheries and Oceans Canada has the lead federal role for marine resources. The Department's work is guided by five key pieces of legislation and related regulations: the Department of Fisheries and Oceans Act, Oceans Act, the Fisheries Act, the Coastal Fisheries Protection Act, and the Species at Risk Act. Aquaculture is an area of shared jurisdiction in Canada. Sub-national provincial and territorial governments have regional responsibilities and interests in management of natural resources located within their geographical area. Many provinces have their own provincial departments responsible for fisheries and aquaculture owing to the significance of these industries to those provinces and their people, including many rural communities. Canada's recreational fisheries are a shared responsibility between federal, provincial and territorial governments. While roles vary between different provinces and territories, generally, the federal government is responsible for all marine species with the exception of anadromous and catadromous species in inland waters in some regions; and provincial and territorial governments are responsible for freshwater species, with the exception of salmon in British Columbia.

In terms of resource use, shellfish has been the most harvested category of wild fish while pelagic and groundfish together account for 50% of Canadian annual harvest in metric tonnes. The Atlantic fishery accounts for approximately 80% of total landings, with lobster (*Homarus americanus*), crab (*Chionoecetes opilio* and *Cancer magister*), shrimp (*Pandalus borealis*) and scallops (*Placopecten magellanicus*) being the highest value harvests. The Pacific fishery accounts for roughly 16% of total landings – cultured and wild salmon (genus *Oncorhynchus* and *Salmo*), hake (*Merluccius productus*), rockfish (*Sebastes*), crabs (*C. opilio* and *C. magister*), oysters (*Ostreidae*) and herring roe (*Clupea pallasii*) are the highest in value. Aquaculture production in Canada has grown fourfold over the past 20 years, now representing 14% of total fish and seafood production in Canada by landed volume, and 34% by value. Value has since increased due mainly to increased salmon prices. The main species of aquatic resources used in aquaculture in Canada are Atlantic salmon (*Salmo salar*), Chinook salmon (*Oncorhynchus tshawytscha*), trout (*Oncorhynchus mykiss*), Arctic char (*Salvelinus alpinus*), Blue Mussel (*Mytilus edulis*), oysters (family *Ostreidae*) and clams.

Aquatic genetic resources socio-economically benefit many communities, and in particular coast communities, in Canada. However, the global demand for seafood products, climate change and other environmental impacts, may put aquatic genetic resources at risk if appropriate conservation and management measures are not in place. Access and conservation efforts for wild species and in situ resources are in place through permit/licence restrictions and requirements, spatial planning tools, such as coastal land use plans, and through combined planning for species at risk and multiple user interest. Access to and use of ex situ resources for farming, broodstock development or culture-based fisheries, also requires permits, leases, and/or licensing. Aquatic genetic resources (AqGRs) are available for domestic and international scientific purposes and management integrates genetic resources through research on genetic population structure, gene expression, disease resilience and species tracking.

There are many programs and research facilities involved in research on aquatic genetic resources across Canada. Given its commercial value, considerable attention to date has focused on both Pacific and Atlantic salmon, including interactions between wild and farmed fish. The information gathered from research and the management of this one industry often translates to other species. Knowledge sharing amongst other salmon producing countries can be viewed as a starting point for many other learning opportunities. Similarly, this survey of Canada's aquatic genetic resources can also be viewed as a starting point and learning opportunity.

## II. INTRODUCTION

The main objective of the Introduction is to present an overview that will allow a person who is unfamiliar with the country to appreciate the context for the Country Report. The Introduction should present a broad overview and present background information from your country on farmed aquatic species, their wild relatives and culture based fisheries. Detailed information should be provided in the main body of the Country Report. Countries may wish to consider developing their Introductions after completing the main body of their Country Reports.

*Please write the overview here*

Canada has a rich fishing history, an expanding aquaculture industry and an emerging biotechnology sector interested in aquatic genetic resources. Canadian governance has a long-standing tradition in science-based decision-making, the precautionary approach and is using emerging tools such as ecosystem-based management. Management of activities that impact organisms at or below the species level, including to the genetic level, is a crucial aspect of conservation. Understanding genetic diversity contributes to conservation of biodiversity, to healthy aquatic environment and to the development and sustainability of the food and agriculture industry.

In Canada, aquatic conservation and management terminology remains focused on units of mainly larger scale such as species, populations and strains; accepting that genetic resources are captured as being smaller units of the whole. Access to aquatic resources, including those identified at their genetic level, for capture fisheries, aquaculture and culture-based fisheries occurs in Canada through various federally- or provincially-managed permitting, leasing and licensing processes. Conditions of licence qualify access and integrate restrictions that are in place to enhance conservation, or species protection. Legislation on the transfer of organisms also safeguards against genetic and ecological interactions that can result from an introduction. Harvesting aquatic genetic resources for biotechnologies or product development similarly requires a permit for access, whereas genetic resources already housed in collections or gene banks may be accessed through scientific research proposals. Commercialization of genetic resources may occur after a period of research and development, which may include the application of intellectual property law and patents.

In Canada, there is a growing trend towards the integration of genetic research into management and industrial advancement. Biotechnology and genomic research and development programs, operating through government with industry and stakeholder involvement, target improved management and sustainability of aquatic resources. Genetic resources are also integral to research contributing to the prevention of disease, as well as to greater understanding of genetic interactions between wild and farmed species.

Genetic resources are available for Canadian and international research projects, and many broad-scale genetic-based projects have increased the capacity of publicly accessible gene banks and research infrastructure. Research continues to contribute to the understanding of genetic diversity and highlights the potential of genomics and biotechnology internationally.

Appreciating the complexities that conservation and sustainable use of genetic resources implies, the information in this report reflects current Canadian capacity and Canadian focus. This report represents an initial step in gathering and summarizing information related to aquatic genetic information. Current ability to track the status of genetic resources varies by species, given available resources.

### Country Description

Canada is a federation comprised of ten provinces (Alberta, British Columbia, Manitoba, Newfoundland and Labrador, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, Quebec and Saskatchewan) and three territories (Northwest Territories, Nunavut and Yukon). Located between latitudes 41° and 84°N, and longitudes 52° and 141°W, Canada is the second largest country in the world, by total area (including water) and has the longest coastline in the world at 244 000 km. Eight out of ten provinces and the three territories are bordered by the Arctic, Atlantic or Pacific Ocean. In 2012 more than 7 million Canadians, or twenty percent of Canada's total population of almost 35 million people, lived in coastal cities and ports along the three oceans and the St. Lawrence River.

As a developed country, Canada ranks high in international measurements of education, government transparency, civil liberties, quality of life, and economic freedom. As a federation, Canada has a federal government responsible for matters related to the national economy, trade and international relations, as well as the management of natural resources, including aquatic and fisheries resources. The federal government also has fiduciary responsibilities related to Aboriginal peoples.

Canada is a coastal state with sovereign interests in all of its three bordering oceans. Canada's maritime zones, comprised of internal waters, the territorial sea, the 200 nautical-mile exclusive economic zone (EEZ), and a continental shelf, amount to 7.1 million square kilometres – a full 70 per cent of the size of Canada's landmass. In addition to Canada's maritime salt-water expanses, Canada's rivers supply roughly 9% of the world's renewable energy supply annually. An enormous number of lakes are enclosed within Canada's borders, while the Great Lakes are shared between Canada and the United States.

Inside Canada's political boundaries, the aquatic and maritime environments are designated by DFO into aquatic ecozones,

which group similar organisms, with similar or linked ecological requirements, into a geographically defined boundary. Canada's five aquatic ecozones are: Arctic Archipelago, Arctic Basin, Atlantic, Northwest Atlantic and Pacific. Within these ecozones are 13 marine/aquatic bioregions (see Figure 1: Large Ocean Management Areas and Bioregions for Canada's National Network of Marine Protected Area). The marine/aquatic bioregions of Pacific Canada are 1) the Strait of Georgia; 2) Southern Shelf; 3) Offshore Pacific; and 4) the Northern Shelf; of the Arctic include 5) the Arctic Basin; 6) Western Arctic; 7) Arctic Archipelago; and 8) the Eastern Arctic; of the Atlantic include 9) the Hudson Bay Complex; 10) the Newfoundland-Labrador Shelves; 11) Scotian Shelf; and 12) the Gulf of St. Lawrence. Lastly, there is 13) the Great Lakes bioregion.

Seafood is the largest food commodity exported from Canada, with approximately 85% of Canadian wild capture fish, and seafood products are exported around the world. Canada's five most valuable wild fishery exports by species in 2012 were lobster (*H. americanus*), Snow Crab (*C. opilio*), shrimp (*P. borealis*), herring (family Clupea) and Giant Sea Scallops (*Placopecten magellanicus*). This is a significant driver of Canada's economy, generating \$4.4 billion in export revenues in 2012. Fishery operations employ approximately 80 000 people nationwide.

Together, lobster (*H. americanus*), crab (*C. opilio* and *C. magister*) and shrimp (*P. borealis*) comprise 67% of the landed value of all fish and shellfish harvested in Canada. Pelagic and groundfish together account for 50% of the harvest. The Atlantic fishery accounts for approximately 80% of total landings with value leaders lobster (*H. americanus*), shrimp and scallops. The Pacific fishery accounts for roughly 16% of total landings – farmed and wild salmon (family *Oncorhynchus*), halibut (*hippoglossus*), geoducks (*Panopea generosa*), crab (*C. magister*) and prawns (*penaeus*) are the value leaders.

### III. MAIN BODY OF THE COUNTRY REPORT

Aquaculture, culture-based fisheries and capture fisheries, have differing importance among countries. The structure of chapters in each Country Report will reflect those differences. Countries which do not have a well-developed aquaculture sector but where wild relatives of farmed aquatic species are located, should report on these resources. Countries should decide how to prioritize the coverage of their Country Reports depending on their aquatic genetic resources.

#### **Chapter 1: The Use and Exchange of Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction**

The main objective of Chapter 1 is to provide annotated inventories of aquatic genetic resources (AqGR) of farmed aquatic species and their wild relatives.

##### **Farmed aquatic species**

1. Over the last 10 years, has production been: *Please mark appropriate box.*

- Increasing
- Stable
- Decreasing
- Stopped
- Still in Research and Development
- Fluctuating
- Not known

2. What is the expected trend over the next 10 years? *Please mark appropriate box.*

- Increasing
- Stable
- Decreasing
- Stopped
- Still in Research and Development
- Fluctuating
- Not known

3. Is the identification and naming of farmed species, subspecies, hybrids, crossbreeds, strains, triploids, other distinct types accurate and up- to-date? *Please mark appropriate box.*

- Yes
- No
- Mostly Yes
- Mostly No

*Please include any explanation or additional information here.*

4. To what extent are genetic data for farmed aquatic organisms

a) Available? *Please mark appropriate box.*

- Not at all
- To a minor extent
- To some extent
- To a great extent

b) Used in management? *Please mark appropriate box.*

- Not at all
- To a minor extent
- To some extent
- To a great extent

*Please add any explanation here.*

Though there is broad use of genetic data, the amount of use in aquaculture is unknown.

5. To what extent are the aquatic organisms farmed in your country sourced as wild seed or from wild brood stock?

*Please mark appropriate box.*

- Not at all
- To a minor extent
- To some extent
- To a great extent

*Please add any explanation here.*

Mostly shellfish species, but some finfish species such as halibut.

6. What proportions (%) of breeding programmes and efforts for the genetic improvement of farmed aquatic species in your country are being managed by the public sector (government research, universities etc.), the private sector, and public-private partnerships?

• Percent managed by public sector. **Please Enter Percentage Here**

• Percent managed by private sector. **Please Enter Percentage Here**

• Percent managed by private /public partnership. **Please Enter Percentage Here**

**Total**

*Please add any explanation here.*

For the public sector there are no government selective breeding programs for aquaculture species. Input from Universities is small, and typically involves partnerships with the private sector. In some cases, private broodstock programs may receive government financial support to help with development.

7. To what extent do genetically improved aquatic organisms, including hybrids, crossbreeds, strains, triploids and other distinct types contribute to national aquaculture production in terms of volume ?

*Please mark appropriate box.*

- Not at all
- To a minor extent
- To some extent
- To a great extent

8. Please list most significant examples where genetic improvement contributed to increased production and indicate whether they were developed by public, private or public/private partnerships.

Add Row

Species	Type of genetic improvement <i>mark all that apply</i>	Developed By <i>mark all that apply</i>	
	<input checked="" type="checkbox"/> Traditional selective breeding	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Hybrids	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
Atlantic salmon	<input checked="" type="checkbox"/> Triploids and other polyploids	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	X
	<input checked="" type="checkbox"/> Mono-sex production	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input checked="" type="checkbox"/> Other	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input checked="" type="checkbox"/> Traditional selective breeding	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Hybrids	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
Oncorhynchus mykiss	<input checked="" type="checkbox"/> Triploids and other polyploids	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" type="checkbox"/> Private/Public partnership	X
	<input checked="" type="checkbox"/> Mono-sex production	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Other	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	

	<input checked="" type="checkbox"/> Traditional selective breeding		<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Hybrids		<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
Arctic char	<input checked="" type="checkbox"/> Triploids and other polyploids		<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" type="checkbox"/> Private/Public partnership	X
	<input checked="" type="checkbox"/> Mono-sex production		<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input checked="" type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Other		<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Traditional selective breeding		<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input checked="" type="checkbox"/> Hybrids	Specify parental species in the box below Patinopecten caurinus x P. yessoensis	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
Pectinidae	<input type="checkbox"/> Triploids and other polyploids		<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	X
	<input type="checkbox"/> Mono-sex production		<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Other		<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	

	<input checked="" type="checkbox"/> Traditional selective breeding	<input checked="" type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Hybrids	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
Oreochromis niloticus	<input type="checkbox"/> Triploids and other polyploids	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	X
	<input type="checkbox"/> Mono-sex production	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	
	<input type="checkbox"/> Other	<input type="checkbox"/> Private Sector <input type="checkbox"/> Public Sector <input type="checkbox"/> Private/Public partnership	

9. Please fill in table 1.1

**Table 1.1 Aquatic genetic resources (AqGR) of farmed aquatic species in your country**

Add Row							
Farmed species	Genetic type	Availability of genetic data	Trends in production	Future trends in production	Genetic improvement	Future genetic improvement	Comments
List species (scientific names), strains and varieties as scientific names (put in brackets the most widely used national common name or names) and indicate whether native or introduced	<i>Indicate all genetic types that apply to the species</i>	Are genetic data available for farmed populations? If yes, give summary details in comments	Over the last 10 years, production has been <b>(mark one)</b>	Expected trend over the next 10 years is that production will <b>(mark one)</b>	Which genetic technologies are currently being used on the species <b>(mark all that apply)</b>	<b>mark all that apply</b>	For example important traits improved, how data are used in management or name of breed, source of information, etc.
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input checked="" type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input checked="" type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input checked="" type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input checked="" type="checkbox"/> Other (specify in comment)	Atlantic salmon  Genetic data is available in primary scientific literature. Production stable in most regions, increasing in others.  St. John river strain on east coast, Norwegian Mowi strains on west coast.  Some transgenics on east coast.  Grown primarily in net pens, though pilot studies established to grow (to market size) in land-based systems on-going.
Salmo salar							X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input checked="" type="checkbox"/> Cross breeds <input checked="" type="checkbox"/> Strains <input type="checkbox"/> Varieties <input checked="" type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Arctic charr</p> <p>Genetic data is available in primary scientific literature.</p> <p>Strains are Fraser River and Nauyuk Lake in the east, and in the west, Nauyuk Lake and Tree River.</p> <p>Induced triploidy used for reproductive sterilization.</p> <p>Grown primarily in land-based freshwater systems.</p>	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Brook trout</p> <p>Hybridization with Arctic Char and possibly brown trout.</p> <p>Very limited.</p> <p>Land-based tanks and earthen ponds.</p>	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input checked="" type="checkbox"/> Cross breeds <input checked="" type="checkbox"/> Strains <input type="checkbox"/> Varieties <input checked="" type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Arctic charr</p> <p>Genetic data is available in primary scientific literature.</p> <p>Strains are Fraser River and Nauyuk Lake in the east, and in the west, Nauyuk Lake and Tree River.</p> <p>Induced triploidy used for reproductive sterilization.</p> <p>Grown primarily in land-based freshwater systems.</p>	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Brook trout</p> <p>Hybridization with Arctic Char and possibly brown trout.</p> <p>Very limited.</p> <p>Land-based tanks and earthen ponds.</p>	X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Chinook salmon</p> <p>Grown in net pens, and land-based facilities.</p>	<input checked="" type="checkbox"/>
<p>Oncorhynchus tshawytscha</p>								
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Coho salmon</p> <p>Grown in net pens, and land-based facilities.</p>	<input checked="" type="checkbox"/>
<p>Oncorhynchus kisutch</p>								

<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Oncorhynchus mykiss	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input checked="" type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input checked="" type="checkbox"/> Other (specify in comment)	Rainbow trout	
	<input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids						Native on west coast, introduced east of continental divide	
							Several strains	X
							Genetic data available through primary scientific literature	
							Transgenics under development	
							Grown in net pens, and land-based facilities.	
<input type="radio"/> Native <input checked="" type="radio"/> Introduced								
Oreochromis niloticus	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input checked="" type="checkbox"/> Cross breeds <input checked="" type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Tilapia	X
							Grown in land-based systems only.	

<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Brown trout</p> <p>Possibly some hybridization with brook trout in Quebec</p> <p>Land-based tanks and earthen ponds.</p> <p>Alternative species under development</p>	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<p>Yellow perch</p> <p>Alternative species under development</p>	X
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	American eel  Alternative species under development	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Atlantic cod  Genetic data available in primary scientific literature  Grown in net pens	X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Crayfish  Alternative species under development	X
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Grass carp  Used in ponds for weed control	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Crayfish  Alternative species under development	X
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Grass carp  Used in ponds for weed control	X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Buffalo fish  Land-based tanks and earthen ponds.	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	White sturgeon  Alternative species under development  Land-based tanks only	X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Oncorhynchus nerka	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Sockeye salmon	
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="checkbox"/> Fluctuating	<input type="checkbox"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Alternative species under development	X
	<input type="checkbox"/> Cross breeds		<input type="checkbox"/> Decreasing	<input type="checkbox"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	Freshwater land-based tanks only	
	<input type="checkbox"/> Strains		<input type="checkbox"/> Stopped	<input type="checkbox"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="checkbox"/> Not known	<input type="checkbox"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="checkbox"/> Increasing	<input type="checkbox"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Morone saxatilis	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Stripped Bass	
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="checkbox"/> Fluctuating	<input type="checkbox"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Genetic data available in primary scientific literature	X
	<input type="checkbox"/> Cross breeds		<input type="checkbox"/> Decreasing	<input type="checkbox"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="checkbox"/> Stopped	<input type="checkbox"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="checkbox"/> Not known	<input type="checkbox"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Micropterus dolomieu	<input type="checkbox"/> Selective bred type	<input checked="" type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Smallmouth bass	X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	Grown in tanks and earthen ponds	
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
<i>Crassostrea virginica</i>	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Eastern oyster	
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	Increasing supply of hatchery juveniles as number of hatcheries increase	<input checked="" type="checkbox"/> X
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
<i>Crassostrea gigas</i>	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Pacific oyster	
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Historically introduced for stocking purposes.	
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	Naturalized populations now exist. Culture of this species occurred much later	<input checked="" type="checkbox"/> X
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input checked="" type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Giant Scallops  Hybridized with <i>P. caurinus</i> or weathervane scallops	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input checked="" type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Weathervane scallop  Hybridized with Giant scallop	X

<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
Argopecten irradians	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Bay, or Northern scallops	<input checked="" type="checkbox"/> X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	very limited/small industry	
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Placopecten magellanicus	<input type="checkbox"/> Selective bred type	<input checked="" type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization		
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Atlantic deep sea scallops	<input checked="" type="checkbox"/> X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	very limited/small industry	
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
<b>Mytilus edulis</b>	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input checked="" type="checkbox"/> Hybridization	<input checked="" type="checkbox"/> Hybridization	Blue mussle	
	<input checked="" type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Hatchery juveniles	<input checked="" type="checkbox"/> X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	Genetic differentiation between species	
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
<b>Mytilus galloprovincialis</b>	<input checked="" type="checkbox"/> Selective bred type	<input type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Mediterranean or Gallo mussels	<input checked="" type="checkbox"/> X
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)		
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Mytilus trossulus	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding	Western blue muscle	
	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Blue mussel is a generic term for a collection of closely related species. One species, Mytilus trossulus, is native to the west coast, a second species Mytilus edulis was found in the 1980s	X
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Not common	
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced								
Panopea generosa	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input checked="" type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Geoduck clams	X
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	very limited/small industry	
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Manila clams  Historical introduction occurred at the same time as the Pacific Oyster. Culture of this species occurred much later.  Naturalized populations now exist.  Hatchery juveniles imported from US	
Ruditapes philippinarum	<input type="checkbox"/> Selective bred type							X
	<input type="checkbox"/> Hybrids  <input type="checkbox"/> Cross breeds  <input type="checkbox"/> Strains  <input type="checkbox"/> Varieties  <input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input checked="" type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input checked="" type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Littleneck clam  No aquaculture	
Protothaca staminea	<input type="checkbox"/> Selective bred type							X
	<input type="checkbox"/> Hybrids  <input type="checkbox"/> Cross breeds  <input type="checkbox"/> Strains  <input type="checkbox"/> Varieties  <input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding		
<i>Mercenaria mercenaria</i>	<input type="checkbox"/> Selective bred type	<input checked="" type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Hard clam	
	<input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Trials with strains from US very limited/small industry	X
<input type="radio"/> Native <input checked="" type="radio"/> Introduced	<input type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding	Savory clam	
<i>Nuttallia obscurata</i>	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Native to Japan, but established in North America	
	<input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Not Known	<input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input checked="" type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input checked="" type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Historical accidental introduction probably via ship ballast water. Naturalised populations now exist. Culture of this species occurred much later. No more aquaculture	X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Short-nose sturgeon  Alternative species under development	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Atlantic sturgeon  Alternative species under development	X

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input checked="" type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input checked="" type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input checked="" type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Atlantic halibut  Grown in tanks and net-pens  Alternative species under development  Genetic data available through primary scientific literature	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	Northern abalone  Grown in land-based systems only	X
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type <input type="checkbox"/> Selective bred type <input type="checkbox"/> Hybrids <input type="checkbox"/> Cross breeds <input type="checkbox"/> Strains <input type="checkbox"/> Varieties <input type="checkbox"/> Polyploids	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Stopped <input type="radio"/> Not known	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Selective breeding <input type="checkbox"/> Hybridization <input type="checkbox"/> Polyploidy (chromosome set manipulation) <input type="checkbox"/> Monosex <input type="checkbox"/> Marker assisted selection <input type="checkbox"/> Other (specify in comment)		

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input checked="" type="radio"/> Yes	<input checked="" type="radio"/> Increasing	<input checked="" type="radio"/> Increasing	<input checked="" type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Anoplopoma fimbria	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Sablefish	
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Alternative species under development	X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	Genetic data available through primary scientific literature	
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							
<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input checked="" type="checkbox"/> Selective breeding		
Anarrhichthys ocellatus	<input type="checkbox"/> Selective bred type	<input type="radio"/> No	<input type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	Wolf eels	
	<input type="checkbox"/> Hybrids	<input checked="" type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	Alternative species under development	X
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex		
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection		
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)		
	<input type="checkbox"/> Polyploids							

<input checked="" type="radio"/> Native <input type="radio"/> Introduced	<input checked="" type="checkbox"/> Wild Type	<input type="radio"/> Yes	<input type="radio"/> Increasing	<input type="radio"/> Increasing	<input type="checkbox"/> Selective breeding	<input type="checkbox"/> Selective breeding	
<i>Mya arenaria</i>	<input type="checkbox"/> Selective bred type	<input checked="" type="radio"/> No	<input checked="" type="radio"/> Stable	<input checked="" type="radio"/> Stable	<input type="checkbox"/> Hybridization	<input type="checkbox"/> Hybridization	
	<input type="checkbox"/> Hybrids	<input type="radio"/> Not Known	<input type="radio"/> Fluctuating	<input type="radio"/> Fluctuating	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	<input type="checkbox"/> Polyploidy (chromosome set manipulation)	
	<input type="checkbox"/> Cross breeds		<input type="radio"/> Decreasing	<input type="radio"/> Decreasing	<input type="checkbox"/> Monosex	<input type="checkbox"/> Monosex	
	<input type="checkbox"/> Strains		<input type="radio"/> Stopped	<input type="radio"/> Stopped	<input type="checkbox"/> Marker assisted selection	<input type="checkbox"/> Marker assisted selection	
	<input type="checkbox"/> Varieties		<input type="radio"/> Not known	<input type="radio"/> Not known	<input type="checkbox"/> Other (specify in comment)	<input type="checkbox"/> Other (specify in comment)	
	<input type="checkbox"/> Polyploids						Soft-shell clam

X

10. Which aquatic species in your country are thought to have potential for domestication and future use in aquaculture?

Add Row

Species <i>Type and select a species</i>	Is the species native to your country?	Comments <i>For example main sources of information</i>	
Anarrhichthys ocellatus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	Wolf eels Alternative species under development	X
Anoplopoma fimbria	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	Sablefish Alternative species under development Genetic data available through primary scientific literature	X
Hippoglossus hippoglossus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	Atlantic halibut Grown in tanks and net-pens Alternative species under development Genetic data available through primary scientific literature	X

Acipenser oxyrinchus	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Atlantic sturgeon</p> <p>Alternative species under development</p>	X
Acipenser brevirostrum	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Short-nose sturgeon</p> <p>Alternative species under development</p>	X
Morone saxatilis	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<p>Stripped Bass</p> <p>Alternative species under development</p>	X

11. Please list the aquatic genetic resources of farmed aquatic species your country has transferred or exchanged with other countries over the past 10 years.

Add Row					
Species	Genetic alteration of exchanged material <b>Mark all that apply</b>	Details of transfer or exchange	Type of genetic material exchanged <b>Mark all that apply</b>	Country or countries involved with exchange <b>Hold CTRL button to select more than one country</b>	Comments <i>Please add main purpose or objective of the exchange and main sources of information</i>
Atlantic salmon	<input type="checkbox"/> No deliberate genetic alteration <input checked="" type="checkbox"/> Traditional selective breeding <input type="checkbox"/> Hybrids <input checked="" type="checkbox"/> Triploids and other polyploids <input checked="" type="checkbox"/> Mono-sex production <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Import <input checked="" type="checkbox"/> Export	<input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Gametes <input type="checkbox"/> Tissues <input checked="" type="checkbox"/> Embryos <input type="checkbox"/> Living specimens <input type="checkbox"/> Other	Thailand Timor-Leste Togo Tokelau (Associate Member) Tonga Trinidad and Tobago Tunisia Turkey Turkmenistan Tuvalu Uganda Ukraine United Arab Emirates United Kingdom United Republic of Tanzania United States of America Uruguay	Food production <div style="text-align: right; border: 1px solid black; width: 20px; float: right;">X</div>
Oncorhynchus mykiss	<input type="checkbox"/> No deliberate genetic alteration <input checked="" type="checkbox"/> Traditional selective breeding <input type="checkbox"/> Hybrids <input checked="" type="checkbox"/> Triploids and other polyploids <input checked="" type="checkbox"/> Mono-sex production <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Import <input checked="" type="checkbox"/> Export	<input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Gametes <input type="checkbox"/> Tissues <input checked="" type="checkbox"/> Embryos <input type="checkbox"/> Living specimens <input type="checkbox"/> Other	Thailand Timor-Leste Togo Tokelau (Associate Member) Tonga Trinidad and Tobago Tunisia Turkey Turkmenistan Tuvalu Uganda Ukraine United Arab Emirates United Kingdom United Republic of Tanzania United States of America Uruguay	Food production <div style="text-align: right; border: 1px solid black; width: 20px; float: right;">X</div>

<p>Oreochromis niloticus</p>	<p>No deliberate genetic alteration  <input type="checkbox"/> Traditional selective breeding  <input checked="" type="checkbox"/> Hybrids  <input type="checkbox"/> Triploids and other polyploids  <input type="checkbox"/> Mono-sex production  <input type="checkbox"/> Other</p>	<p><input checked="" type="checkbox"/> Import  <input checked="" type="checkbox"/> Export</p>	<p><input type="checkbox"/> DNA  <input type="checkbox"/> Genes  <input type="checkbox"/> Gametes  <input type="checkbox"/> Tissues  <input type="checkbox"/> Embryos  <input checked="" type="checkbox"/> Living specimens  <input type="checkbox"/> Other</p>	<p>Thailand  Timor-Leste  Togo  Tokelau (Associate Member)  Tonga  Trinidad and Tobago  Tunisia  Turkey  Turkmenistan  Tuvalu  Uganda  Ukraine  United Arab Emirates  United Kingdom  United Republic of Tanzania  United States of America  Uruguay</p>	<p>Tilapia  Food production</p>	<p>X</p>
<p>Patinopecten yessoensis</p>	<p>No deliberate genetic alteration  <input checked="" type="checkbox"/> Traditional selective breeding  <input type="checkbox"/> Hybrids  <input type="checkbox"/> Triploids and other polyploids  <input type="checkbox"/> Mono-sex production  <input type="checkbox"/> Other</p>	<p><input checked="" type="checkbox"/> Import  <input type="checkbox"/> Export</p>	<p><input type="checkbox"/> DNA  <input type="checkbox"/> Genes  <input type="checkbox"/> Gametes  <input type="checkbox"/> Tissues  <input type="checkbox"/> Embryos  <input checked="" type="checkbox"/> Living specimens  <input type="checkbox"/> Other</p>	<p>Thailand  Timor-Leste  Togo  Tokelau (Associate Member)  Tonga  Trinidad and Tobago  Tunisia  Turkey  Turkmenistan  Tuvalu  Uganda  Ukraine  United Arab Emirates  United Kingdom  United Republic of Tanzania  United States of America  Uruguay</p>	<p>Japanese scallop  Food production  One time import</p>	<p>X</p>
<p>Crassostrea gigas</p>	<p>No deliberate genetic alteration  <input checked="" type="checkbox"/> Traditional selective breeding  <input type="checkbox"/> Hybrids  <input type="checkbox"/> Triploids and other polyploids  <input type="checkbox"/> Mono-sex production  <input type="checkbox"/> Other</p>	<p><input checked="" type="checkbox"/> Import  <input type="checkbox"/> Export</p>	<p><input type="checkbox"/> DNA  <input type="checkbox"/> Genes  <input type="checkbox"/> Gametes  <input type="checkbox"/> Tissues  <input type="checkbox"/> Embryos  <input checked="" type="checkbox"/> Living specimens  <input type="checkbox"/> Other</p>	<p>Thailand  Timor-Leste  Togo  Tokelau (Associate Member)  Tonga  Trinidad and Tobago  Tunisia  Turkey  Turkmenistan  Tuvalu  Uganda  Ukraine  United Arab Emirates  United Kingdom  United Republic of Tanzania  United States of America  Uruguay</p>	<p>Pacific oyster  Food production</p>	<p>X</p>

### Wild relatives of farmed aquatic species

12. Please list any wild relatives of aquatic species present in your country that are farmed in another country (but not in your country) and indicate their uses.

This question refers to aquatic genetic resources that are present in the wild in your country and that are being farmed elsewhere (but not farmed in your country), indicating any uses these resources may have in your country.

Add Row

Species	Use <i>(mark all that apply)</i>	Comments	
	<input type="checkbox"/> Capture fisheries		
	<input type="checkbox"/> Recreational fishery		
	<input type="checkbox"/> Aquaria		
	<input type="checkbox"/> Biological control		
	<input type="checkbox"/> Research and development		X
	<input type="checkbox"/> Other (specify in comments)		

13. Please list the aquatic genetic resources of wild relatives of farmed aquatic species your country has transferred or exchanged with other countries over the past 10 years.

Add Row

This question refers to wild aquatic genetic resources collected from the wild, not from farming facilities as in question 11.

Species	Details of transfer or exchange <i>mark all that apply</i>	Type of genetic material exchanged	Country <b>Hold CTRL button to select more than one country</b>	Comments <i>main sources of information, if the transfer was legal or not</i>	
	<input type="checkbox"/> Import <input type="checkbox"/> Export	<input type="checkbox"/> Tissues <input type="checkbox"/> Gametes <input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Embryos <input type="checkbox"/> Living specimens <input type="checkbox"/> Other	Afghanistan Albania Algeria Andorra Angola Antigua and Barbuda Argentina Armenia Australia Austria Azerbaijan Bahamas Bahrain Bangladesh Barbados Belarus		<input type="checkbox"/> X

14. Please fill in table 1.2

**Table 1.2 Aquatic genetic resources of wild relatives of farmed aquatic species in your country.**

<div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Add Row</div>										
Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species
For each row, list the species as scientific names (put in brackets the most widely used national common For each species, include the named stocks and name of other management units if known)	Is the species <b>(mark as appropriate)</b> :	Is this species targeted by capture fisheries?	Are there any management measures in place?	Are genetic data available for the fishery?	Are genetic data used in management?	Over the last 10 years, catches have been:	Expected trend over the next 10 years.	Indicate the ecosystem where the fishery is located <b>(mark all that apply)</b>	The habitat or range is	What are likely reasons for changes? <b>(mark all that apply)</b>
Salmo salar	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other <b>(specify)</b> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known

X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Oncorhynchus mykiss	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input checked="" type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Salvelinus alpinus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Decreasing <input checked="" type="radio"/> Not known	<input type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Salvelinus fontinalis	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Oncorhynchus tshawytscha	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input checked="" type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Decreasing <input checked="" type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Oncorhynchus kisutch	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input checked="" type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Oncorhynchus mykiss	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input checked="" type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Perca flavescens	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Anguilla rostrata	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Decreasing <input checked="" type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Gadus morhua	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input checked="" type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Decreasing <input checked="" type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Ictiobus spp	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Acipenser transmontanus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Oncorhynchus nerka	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Decreasing <input checked="" type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Morone saxatilis	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Decreasing <input checked="" type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Micropterus dolomieu	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Micropterus salmoides	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input checked="" type="checkbox"/> Lake <input checked="" type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Crassostrea virginica	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input checked="" type="checkbox"/> Introduced <input type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input checked="" type="checkbox"/> Other (specify) <div style="border: 1px solid black; padding: 2px;">Subtidal</div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Crassostrea gigas	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input checked="" type="checkbox"/> Introduced <input type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other <b>(specify)</b> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Patinopecten caurinus	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other <b>(specify)</b> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Patinopecten caurinus	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input checked="" type="checkbox"/> Other (specify) <div style="border: 1px solid black; padding: 2px; width: fit-content;">Placopecten magellanicus</div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Decreasing <input checked="" type="radio"/> Not known	<input type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Placopecten magellanicus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify)	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input checked="" type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Mytilus edulis	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input checked="" type="checkbox"/> Introduced <input type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input checked="" type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Mytilus trossulus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input checked="" type="checkbox"/> Other (specify) <div style="border: 1px solid black; padding: 2px;">Subtidal</div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Panopea generosa	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input checked="" type="checkbox"/> Other (specify) <div style="border: 1px solid black; padding: 2px; width: 100px; margin-top: 5px;">Subtidal</div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Ruditapes philippinarum	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; padding: 2px; width: 100px; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Protothaca staminea	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Mercenaria mercenaria	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Acipenser oxyrinchus	<input type="checkbox"/> Straddling <input type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input type="radio"/> Stable <input type="radio"/> Fluctuating <input checked="" type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input checked="" type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input type="radio"/> Stable <input checked="" type="radio"/> Decreasing <input type="radio"/> Not known	<input checked="" type="checkbox"/> Habitat <input checked="" type="checkbox"/> Climate <input checked="" type="checkbox"/> Invasive species <input checked="" type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Hippoglossus hippoglossus	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Haliotis kamtschatkana	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input checked="" type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X
Anoplopoma fimbria	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input type="checkbox"/> Coastal in EEZ <input checked="" type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other (specify) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

Target species, stocks or other management units	Characteristics of species	Capture fisheries	Management measures	Availability of genetic data	Use of genetic data in management	Trends in catches	Future trends in catches	Ecosystem(s) where the fishery is located	Changes in ranges and habitats	Reasons for change in abundance of species	
Anarrhichthys ocellatus	<input type="checkbox"/> Straddling <input checked="" type="checkbox"/> Transboundary <input type="checkbox"/> Introduced <input checked="" type="checkbox"/> Native	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Not Known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Fluctuating <input type="radio"/> Decreasing <input type="radio"/> Depleted <input type="radio"/> Not known	<input type="checkbox"/> Intertidal <input checked="" type="checkbox"/> Coastal in EEZ <input type="checkbox"/> High seas <input type="checkbox"/> Lake <input type="checkbox"/> Reservoir <input type="checkbox"/> River <input type="checkbox"/> Swamp <input type="checkbox"/> Other <b>(specify)</b> <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="radio"/> Increasing <input checked="" type="radio"/> Stable <input type="radio"/> Decreasing <input type="radio"/> Not known	<input type="checkbox"/> Habitat <input type="checkbox"/> Climate <input type="checkbox"/> Invasive species <input type="checkbox"/> Pollution <input type="checkbox"/> Rehabilitation of habitat <input type="checkbox"/> Others <input type="checkbox"/> Not known	X

## Chapter 2: Drivers and Trends in Aquaculture: Consequences for Aquatic Genetic Resources within National Jurisdiction

The main objective of Chapter 2 is to review the main drivers and trends that are shaping aquaculture and their consequences for aquatic genetic resources.

15. Please indicate the ways the aquatic genetic resources (AqGR) of **farmed aquatic species** have been impacted by the following drivers. Please give examples of positive and negative impacts for specific drivers.

This question refers to drivers impacting farmed aquatic genetic resources, not about impacts on the entire aquaculture sector. Drivers should be seen from a national perspective.

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Human population increase	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	Increasing global demand for healthy, high quality seafood is driving aquaculture growth, product diversification and research into new market opportunities.
Increased wealth and demand for fish	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	Potential growth may also arise from several alternate or new species, including cockles (family Cardiidae), sea cucumbers ( <i>P. californicus</i> ), sea urchins ( <i>S. droebachiensis</i> ), several marine plants, American Eels ( <i>Anguilla rostrata</i> ), Atlantic Wolffish ( <i>Anarhichas lupus</i> ), as well as Halibut ( <i>H. hippoglossus</i> ), Cod (family Gadidae), Striped Bass ( <i>Morone saxatilis</i> ), Haddock ( <i>M. aeglefinus</i> ), Geoducks ( <i>Panopea generosa</i> ), Black Cod/Sablefish ( <i>A. fimbria</i> ), and Quahogs ( <i>Mercenaria mercenaria</i> ).
Governance (ability of government, industry and the public to work together in managing resources)	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	Interest in population revival is driving the research and development of culture-based broodstock and wild species enhancement. For example, the demand for gonads and roe (eggs) of Green Sea Urchin ( <i>S. droebachiensis</i> ) and Red Sea Urchin ( <i>S. franciscanus</i> ) has resulted in many traditional fisheries being virtually depleted of sea urchins. Canadian sea urchin aquaculture provides an opportunity to raise healthy, disease resistant populations which could supply the increasing demand and contribute to the rehabilitation of wild sea urchin populations.
Climate change	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	Increasing water temperatures can result in mortalities and increased disease, especially for more northern species such as Arctic Char. Climate change may also result to the loss or migration of wild genetic resources,
Competition for resources, especially freshwater	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	<p>Competition for freshwater may limit the growth of operations that are closer to populated areas, where water may also be used for drinking agriculture, and recreation, or for the production hydro electric power. Recycling Aquaculture Systems (RAS) help to alleviate this conflict.</p> <p>Interactions between cage sites and other stakeholders who share local environmental resources can result in a negative image for aquaculture and may limit growth near populated areas.</p>

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Changes in values and ethics of consumers	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	Improvements in aquaculture practices, and greater regulatory oversight has resulted in greater consumer acceptance of aquaculture products in general. Increasingly, aquaculture is seen by the consumer as a sustainable alternative to wild seafood, which continues to dwindle under pressure from the global capture fishery. Land-based aquaculture is viewed as especially sustainable.
Other	<input type="radio"/> Strongly positive	
<b>Add other drivers as necessary</b>	<input type="radio"/> Positive	
	<input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Add Row	Remove Row	

16. Please indicate the ways the aquatic genetic resources of **wild relatives of farmed aquatic species** in nature have been impacted by the following drivers. Please give examples of positive and negative impacts for specific drivers.

This question refers to drivers impacting wild aquatic genetic resources of farmed species, not about impacts on the entire aquaculture sector. Drivers should be seen from a national perspective.

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Human population increase	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	<p>Demand on fisheries from global population increase, food shortage and demand for fish oils and fish products</p> <p>Urban development or agricultural run-off, can threaten aquatic genetic diversity through habitat loss.</p>
Increased wealth and demand for fish	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Governance (ability of government, industry and the public to work together in managing resources)	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	<p>Many Canadians and communities identify with fishing yet some historically significant marine stocks remain at low levels despite implementing management measures, including closures. Recovery of certain depleted stocks, such as Atlantic Cod (<i>Gadus morhua</i>), has been limited despite strong control and limited or prohibited fishing. Despite the challenges, commercial wild capture fisheries remain the mainstay for the economy of approximately 1,500 communities in rural and coastal Canada.</p>
Climate change	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	<p>Climate change and oceanographic variability affect most Canadian aquatic ecozones, influencing resource diversity and availability. Changes to the functioning of ecosystems and species within the ecosystem that are due to external causes, such as climate change or contaminants.</p> <p>In Atlantic Canada, for example, the bottom water of the Lower St. Lawrence Estuary has become increasingly acidic over the past 70 years. As a result of this acidity, bottom-dwelling, carbonate-secreting organisms, including bivalve molluscan shellfish (such as clams, oysters, mussels, cockles and scallops), must now expend more energy to make their skeletons and shells. The full extent of the impact of this increased demand is not well understood</p>
Competition for resources, especially freshwater	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input checked="" type="radio"/> No effect <input type="radio"/> Unknown	

Driver impacting aquaculture	Effect on AqGR <i>Mark appropriate box</i>	Comments <i>List examples or other relevant information</i>
Changes in values and ethics of consumers	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input checked="" type="radio"/> No effect <input type="radio"/> Unknown	
Other <b>Add other drivers as necessary</b>	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Add Row	Remove Row	

17. What countermeasures might be taken to reduce adverse impacts on the aquatic genetic resources that sustain current aquaculture and/or provide for its future development?

*Describe countermeasures*

Science-based Decision Making:

Scientific advice has contributed to the development of various national fisheries management and conservation policies such as the Sustainable Fisheries Framework, Canada's Policy for Conservation of Wild Pacific Salmon, Wild Atlantic Salmon Conservation Policy, Canada's Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas and the associated Ecological Risk Assessment Framework (among others). Fisheries and Oceans Canada's science advisory processes are managed by the Department's multi-stakeholder Canadian Science Advisory Secretariat (CSAS). CSAS conducts scheduled investigations and reviews on a number of subjects related to aquatic genetic resources, fisheries and aquaculture. CSAS science advisory reports inform decision making with regards to recovery and conservation plans for many important species and areas. Among the extensive list of assessments carried out by CSAS, covering a comprehensive span of issues, numerous endangered or threatened species and their recovery potential have been assessed; multiple reviews of the genetic variation of salmon have occurred; the effects of escaped aquaculture fish on natural ecosystems in Canada and the aquatic genetic resources contained within has been analyzed; as has the potential exposure and associated biological effects from aquaculture pest and pathogen treatments such as anti-sea lice bath treatments. CSAS has also assessed the development of conservation objectives and indicators for marine protected areas, further conservation measures within existing initiatives, and the impact of threats from non-fishing or aquaculture activities including mine developments, seismic activities and exploration drilling projects.

Genetic Tools in Conservation and Management of Capture Fisheries:

Many conservation initiatives, such as helping to protect vulnerable, endangered and protected species, including those listed under the Species at Risk Act and the Convention on the International Trade of Endangered Species, use genetic marking. In applying tools such as DNA surveys and tracking the genetic diversity of species, valuable information is generated to inform the design of spatial planning measures and to identify population units that are vulnerable, or threatened. Fisheries and Oceans Canada maintains facilities for live-gene banking of endangered units of Atlantic salmon on the east coast, and propagates strains of Pacific salmonids in its west coast hatcheries for enhancement and research. Genetic and Genomic methodologies are being developed (or used), to reduce the cost of physically tagging fish, and increase the effectiveness of large scale monitoring programs.

Conservation Measures:

Integrated Fisheries Management Plans, and for British Columbia Integrated Aquaculture Management Plans, are established by Fisheries and Oceans Canada for most fisheries and aquaculture target species. Plans combine the best available science on a species (including available genetic data) with aquaculture and wild capture fisheries industry data on capacity and methods for cultivating and harvesting. By providing a clear and concise summary of the characteristics of a fishery, scientific aspects, management objectives, management measures used to achieve those objectives and criteria by which attainment of objectives will be measured, conservation objectives, including the preservation of genetic diversity, under the various Canadian legislation (Ocean Act, Fisheries Act, Species at Risk Act etc.) can be achieved. Canada also has a series of marine spatial planning measures that aim to conserve and protect aquatic resources including, inter alia, temporal or area closures, gear restrictions, and coastal land use plans.

The recent Fisheries Protection Policy Statement, 2013, focuses efforts under the Fisheries Act on also protecting the productivity of commercial, recreational and Aboriginal fisheries by instituting enhanced compliance and protection tools that are more easily enforceable; providing clarity, certainty and consistency of regulatory requirements; and enabling enhanced partnerships with stakeholders. These changes to the Fisheries Act include a prohibition against causing serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery, provisions of sufficient water and unimpeded passage for fish, and a framework for regulatory decision-making. These provisions guide the Minister's decision-making process in order to provide for sustainable and productive fisheries.

**Biotechnologies**

18. To what extent have the following biotechnologies been used in your country for the genetic improvement of farmed aquatic organisms.

Biotechnology	Extent of use	Comments <i>main sources of information, important species for which the biotechnology is applied</i>
Selective breeding	<input type="radio"/> Not at all <input type="radio"/> To a minor extent <input checked="" type="radio"/> To some extent <input type="radio"/> To a great extent	Atlantic salmon, rainbow trout, Arctic char, Coho salmon, Chinook salmon
Hybridization	<input type="radio"/> Not at all <input checked="" type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	brown trout x brook trout Atlantic salmon x brown trout Scallops
Polyploidy (chromosome set manipulation)	<input type="radio"/> Not at all <input type="radio"/> To a minor extent <input checked="" type="radio"/> To some extent <input type="radio"/> To a great extent	Atlantic salmon, rainbow trout, Arctic char,
Monosex production	<input type="radio"/> Not at all <input checked="" type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	Atlantic salmon, rainbow trout, Arctic char,
Marker assisted selection	<input type="radio"/> Not at all <input checked="" type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	Atlantic salmon, rainbow trout, Arctic char,
Gynogenesis/androgenesis	<input type="radio"/> Not at all <input checked="" type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	Atlantic salmon, rainbow trout, Arctic char,
Other <b>Continue adding row as necessary</b>	<input type="radio"/> Not at all <input type="radio"/> To a minor extent <input type="radio"/> To some extent <input type="radio"/> To a great extent	
Add Row	Remove Row	

19. Please indicate the ways aquatic genetic resources of the wild relatives of farmed aquatic species have been impacted by drivers that are changing aquatic ecosystems. Please give countermeasures that might be taken to reduce adverse consequences for the aquatic genetic resources that sustain capture fisheries on wild relatives of farmed species.

Drivers that are changing aquatic ecosystems	Effect on AqGR <i>mark appropriate box</i>	Countermeasures and effects
Habitat loss and degradation	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	The decline in capacity and productivity of wild capture fisheries is related to a suite of different factors. Biological and ecological factors, such as increased natural species mortality, species range expansions and contractions, and changes in fish size, species assemblages, and community structure are some of the drivers influencing capacity
Pollution of waters	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Increased frequency of extreme climatic events and long-term climate change	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
Establishment of invasive species	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	Invasive species pose a significant risk to Canadian aquatic genetic resources. For example, non-native Clubbed Tunicates ( <i>Styela clava</i> ) interfere with the settlement of oyster and mussel larvae and compete for space and food with young native mussels and oysters. This has the potential to affect wild capture and aquaculture fisheries. Canada has identified that the most effective approach to dealing with invasive species involves managing the pathways through which invasive species enter and spread through Canadian waters. For aquatic species, these pathways are shipping, recreational and commercial boating, the use of live bait, the aquarium/water garden trade, live food fish, unauthorized introductions and transfers, and canals and water diversions. The Aquatic Invasive Species Canadian Action Plan to Address the Threat of Aquatic Invasive Species was developed in 2002. Operating under the auspices of the Canadian Council of Fisheries and Aquaculture Ministers, the Aquatic Invasive Species Task Group was directed to develop the Canadian action plan for aquatic invasive species. The task group includes representatives from Fisheries and Oceans Canada, every province and territory, as well as special advisors from Transport Canada, Environment Canada and the Department of National Defence. These and other programs pertain to Canada's domestic commitments to preserve aquatic genetic diversity against many drivers as well as to Canada's international

Drivers that are changing aquatic ecosystems	Effect on AqGR <i>mark appropriate box</i>	Countermeasures and effects
		commitments, including those outlined under the Convention on Biological Diversity. Species Specific Conservation Measures
Introductions of parasites and pathogens	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input checked="" type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	<p>There are a number of pathogens that occur in Canada which may lead to outbreaks of disease that can threaten aquatic genetic resources and that are a concern to the Canadian government. Under the National Aquatic Animal Health Program, using World Organization for Animal Health standards, epidemiological expertise and scientific information, the Canadian Food Inspection Agency assesses the risks of pathogens to cultured and wild fish populations and takes measures to minimize the likelihood of introducing or spreading pathogens which can lead to diseases of concern to human health. DFO maintains all responsibility for aquatic fish health under Fish Health Protection Regulations.</p> <p>Aquatic animal parasites, such as sea lice, also threaten the health of aquatic resources. Aquatic animal parasites occur naturally in the ocean environment and can be transferred from wild to farmed fish and vice versa. If left unaddressed, the aquatic animal parasites can affect the health of wild fish stocks and as such may negatively impact the genetic diversity of Canada's aquatic resources. To mitigate threats to aquatic genetic resources from this and other pests, Canadian sea farmers regularly monitor and report aquaculture activities; choose sites with appropriate water currents through environmental surveys; engage in site following; use biological, non-chemical means of control; use veterinarian-directed therapeutants to treat infested fish; and other approaches according to strong regulatory measures set by Fisheries and Oceans Canada and the provincial governments. In southern New Brunswick, for example, an Integrated Pest Management Program for Sea Lice has been developed, complemented by a Sea Lice Monitoring Program for Marine Salmon Aquaculture Sites to protect wild and farmed salmon stocks in the region.</p>
Impacts of purposeful stocking and escapes from aquaculture	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	<p>Canadian regulators take a number of measures to minimize risks to Canada's aquatic genetic resources, such as wild fish populations, from escaped finfish. Fisheries and Oceans Canada and industry place high importance on preventing escapes, both to prevent losses of farm stock and to mitigate any potential impacts of escaped fish on wild fish stocks. Canadian aquaculture regulators require management plans for mitigating escape issues, and contingency plans in case of disease outbreaks within the Conditions of Licence. Specific requirements address maintenance of cage and net integrity as well as assurance that nets are appropriate strength, in good repair and are deployed properly. Within Integrated Management Aquaculture Plans (IMAPs), a monitoring and audit program reviews these and other items, as well as promotes training and innovation. License holders must have an escape prevention and response plan in place at all facilities and ensure that staff is familiar with it. Fisheries and Oceans Canada investigates and reports on the causes of escapes, as well as monitors compliance with Conditions of Licence, including those related to the maintenance of cage and net integrity, ensuring nets are of the appropriate strength and age, in good repair, and deployed correctly.</p> <p>Containment prevents genetic interactions between farmed and wild fish. Closed containment technologies seek to isolate the rearing environment and reduce and eliminate interactions with</p>

Drivers that are changing aquatic ecosystems	Effect on AqGR <i>mark appropriate box</i>	Countermeasures and effects
		<p>the natural environment, and subsequently help mitigate the risks to Canada's aquatic genetic resources from aquaculture activities. The technology most commonly used in the Canadian salmon farming industry is land-based and re-circulating aquaculture systems that physically separate fish from the external environment and eliminate the transfer of pathogens between wild and farmed populations. These containment technologies are also used for other commercially farmed species including tilapia, sturgeon, arctic char and trout. Technologies to mitigate wild and cultured fish interactions can relate to mechanical, geographical, biological, or genetically engineered species approaches. Genomics research seeks to manage our genetic resources, improve production and traceability, and minimize genetic impacts. Also on the rise is the use of aquaculture certification and traceability programs which helps to further spurs efforts to minimize the likelihood risk of adverse impacts to the environment from aquaculture, or culture based fisheries, of cultured fish on wild relatives by introducing market accountability, and ensuring the source of the product meets set standards and is verifiable.</p>
Capture fisheries	<p> <input type="radio"/> Strongly positive  <input type="radio"/> Positive  <input checked="" type="radio"/> Negative  <input type="radio"/> Strongly negative  <input type="radio"/> No effect  <input type="radio"/> Unknown         </p>	<p>In general, wild capture fisheries effort has decreased over the past ten years (2002-2011). The total landed volume of marine resources in wild capture fisheries has declined in the past ten years by 7 - 37%. Financial value has also declined but not to the same extent as landed volume. The landed volume of anadromous fish decreased by almost 41%, whereas its value changed by less than 1%. Groundfish similarly declined in volume by 30% but changed in value by only 5%.</p> <p>Integrated Fisheries Management Plans, and for British Columbia Integrated Aquaculture Management Plans, are established by Fisheries and Oceans Canada for most fisheries and aquaculture target species. Plans combine the best available science on a species (including available genetic data) with aquaculture and wild capture fisheries industry data on capacity and methods for cultivating and harvesting. By providing a clear and concise summary of the characteristics of a fishery, scientific aspects, management objectives, management measures used to achieve those objectives and criteria by which attainment of objectives will be measured, conservation objectives, including the preservation of genetic diversity, under the various Canadian legislation (Ocean Act, Fisheries Act, Species at Risk Act etc.) can be achieved. Canada also has a series of marine spatial planning measures that aim to conserve and protect aquatic resources including, inter alia, temporal or area closures, gear restrictions, and coastal land use plans.</p> <p>The recent Fisheries Protection Policy Statement, 2013, focuses efforts under the Fisheries Act on also protecting the productivity of commercial, recreational and Aboriginal fisheries by instituting enhanced compliance and protection tools that are more easily enforceable; providing clarity, certainty and consistency of regulatory requirements; and enabling enhanced partnerships with stakeholders. These changes to the Fisheries Act include a prohibition against causing serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery, provisions of sufficient water and unimpeded passage for fish, and a framework for regulatory decision-making. These provisions guide the Minister's decision-making process in order to provide for sustainable and productive</p>

Drivers that are changing aquatic ecosystems	Effect on AqGR <i>mark appropriate box</i>	Countermeasures and effects
		<p>fisheries.</p> <p>The decline in capacity and productivity of wild capture fisheries is related to a suite of different factors. Biological and ecological factors, such as increased natural species mortality, species range expansions and contractions, and changes in fish size, species assemblages, and community structure are some of the drivers influencing capacity. The impact of these effects is not well understood. Of the FAO-identified drivers influencing the sustainability of aquatic genetic resources, demand on fisheries (from global population increase, food shortage and demand for fish oils and fish products), climate change and other environmental impacts (e.g. acidification), and combined demand for resources among user groups are collectively posing challenges to the management of aquatic genetic resources in Canada.</p>
Other	<input type="radio"/> Strongly positive <input type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect <input type="radio"/> Unknown	
<b><i>Continue listing other driverst</i></b>		
Add Row	Remove Row	

### Chapter 3: *In Situ* Conservation of Aquatic Genetic Resources of Farmed Aquatic Species and their wild Relatives within National Jurisdiction

The main objective of Chapter 3 is to review the current status and future prospects for the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives within national jurisdiction for food and agriculture.

The specific objectives are as follows:

- To review the current and likely future contributions to *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives by those who use them in responsible and well managed capture fisheries, aquaculture, and culture-based fisheries.
- To identify and describe any existing and planned aquatic protected areas that are contributing, or will contribute, to *in situ* conservation of aquatic genetic resources of wild relatives of farmed aquatic species.
- To identify and describe any major existing and planned efforts for the *in situ* conservation of threatened or endangered aquatic genetic resources (farmed and wild).
- To review needs and priorities for the future development of *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives.

#### Overview of the current status and future prospects for the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives

20. To what extent are responsible and well managed aquaculture and culture-based fisheries contributing to *in situ* conservation of the aquatic genetic resources of farmed aquatic species and their wild relatives.

***Please mark appropriate box.***

- To a great extent  
 To a limited extent  
 Not at all  
 Not applicable

***Please include any additional information***

Integrated Fisheries Management Plans are established by Fisheries and Oceans Canada for most fisheries and aquaculture target species. Plans combine the best available science on a species (including available genetic data) with aquaculture and wild capture fisheries industry data on capacity and methods for cultivating and harvesting. By providing a clear and concise summary of the characteristics of a fishery, scientific aspects, management objectives, management measures used to achieve those objectives and criteria by which attainment of objectives will be measured, conservation objectives, including the preservation of genetic diversity, under the various Canadian legislation (Ocean Act, Fisheries Act, Species at Risk Act etc.) can be achieved. Canada also has a series of marine spatial planning measures that aim to conserve and protect aquatic resources including, inter alia, temporal or area closures, gear restrictions, and coastal land use plans.

The recent Fisheries Protection Policy Statement, 2013, focuses efforts under the Fisheries Act on also protecting the productivity of commercial, recreational and Aboriginal fisheries by instituting enhanced compliance and protection tools that are more easily enforceable; providing clarity, certainty and consistency of regulatory requirements; and enabling enhanced partnerships with stakeholders. These changes to the Fisheries Act include a prohibition against causing serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery, provisions of sufficient water and unimpeded passage for fish, and a framework for regulatory decision-making. These provisions guide the Minister's decision-making process in order to provide for sustainable and productive fisheries.

21. To what extent are existing facilities contributing to *in situ* conservation of aquatic genetic resources of wild relatives of farmed aquatic species?

**Please mark appropriate box.**

- To a great extent  
 To a limited extent  
 Not at all  
 Not applicable

**Please include any additional information**

Canada's Policy for Conservation of Wild Pacific Salmon aims to safeguard the genetic diversity of wild Pacific salmon by restoring and maintaining healthy and diverse populations and habitat, ensuring ecosystem integrity and managing fisheries for sustainable benefits. The Policy encourages people throughout British Columbia and the Yukon to contribute to decisions about salmon conservation that reflect societal values. The Commercial Salmon Advisory Board, a multi-interest forum, provides advice and recommendations on policy matters related to the commercial salmon fishery, conflict resolution and for developing commercial harvest plans. The Fisheries and Oceans Canada Salmonid Enhancement Program plays a key role in Canada's work to conserve and manage Pacific salmon stocks. The program's activities aim to rebuild vulnerable salmon stocks, provide harvest opportunities and improve fish habitat to sustain salmon populations. Major hatcheries and spawning channels, on some of North America's greatest salmonid producing rivers, incubate and release millions of juveniles each year. The program was launched in 1977 and has evolved into a valued program which engages citizens in hands-on activities to revitalize salmon in their neighbourhood streams.

Fish stocking is warranted under certain situations to rehabilitate and maintain natural populations or enhance recreational fishing. For instance, under the New Brunswick Fish Stocking Policy, fish stocking is used to enhance recreational opportunities (brook trout and land-locked salmon) where stocked fish or enhanced populations will not significantly impact the naturally-occurring aquatic community. Fish stocking for rehabilitation takes precedence over enhancement and is used in conjunction with other requisite changes and appropriate management strategies to help depressed wild, native fish populations return to self-sustaining state. The New Brunswick Department of Natural Resources, in cooperation with Fisheries and Oceans Canada, began rearing and stocking fish in 1976 and continued to raise fish for stocking purposes until 2004, when the provincial hatchery was decommissioned and purchasing of fish rearing and stocking services began from private facilities. The New Brunswick Department of Natural Resources continues to decide which waters to stock and to determine the species, strains, and quality of fish to be raised for stocking initiatives.

22. Please provide *examples* of current or planned activities for the *in situ* conservation of endangered or threatened farmed species and their wild relatives with demonstrated or potential importance for aquaculture, culture-based fisheries, and capture fisheries.

**Please describe examples**

In terms of conservation of genetic resources in the context of aquaculture and culture-based fisheries, Canadian regulators consider many threats including: disease, pest and aquatic animal health management; fish escapes and containment; organic material and its management; removal of fish; the use of chemicals and their management; physical alteration of habitat and its management; genetic drift from the artificial manipulation of wild stocks in enhancement programs; and, risks associated with introductions and transfers of aquatic organisms. Fisheries and Oceans Canada's management objective for aquaculture is to ensure that fish and fish habitat are protected using mitigation, monitoring and compliance approaches that are efficient, effective and commensurate with the potential risk to the environment.

Many conservation initiatives, such as helping to protect vulnerable, endangered and protected species, including those listed under the Species at Risk Act and the Convention on the International Trade of Endangered Species, use genetic marking. In applying tools such as DNA surveys and tracking the genetic diversity of species, valuable information is generated to inform the design of spatial planning measures and to identify population units that are vulnerable, or threatened. Fisheries and Oceans Canada maintains facilities for live-gene banking of endangered units of Atlantic salmon on the east coast, and propagates strains of Pacific salmonids in its west coast hatcheries for enhancement and research. Genetic and Genomic methodologies are being developed (or used), to reduce the cost of physically tagging fish, and increase the effectiveness of large scale monitoring programs.

23. Please rank (from 1 to 10) the importance of the following objectives for *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives in your country.

Objectives of <i>in situ</i> conservation	Rank 1=Very Important 10=No importance
Preservation of aquatic genetic diversity	<input type="text" value="1"/>
Maintain good strains for aquaculture production	<input type="text" value="4"/>
Meet consumer and market demands	<input type="text" value="1"/>
To help adapt to impacts of climate change	<input type="text" value="1"/>
Future breed improvement in aquaculture	<input type="text" value="4"/>
<b><i>Please continue listing any other objectives as needed</i></b>	<input type="text"/>
Add Row	

**Review of the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives through their use in responsible and well managed aquaculture and culture-based fisheries**

24. Is the *in situ* conservation of aquatic genetic resources included in the policy as an objective in the management of aquaculture and/or culture-based fisheries in your country?

***Please mark appropriate box***

- Yes  
 Not yet, but planned to be included  
 No  
 Unknown

***If yes, please give examples***

The recent Fisheries Protection Policy Statement, 2013, focuses efforts under the Fisheries Act on also protecting the productivity of commercial, recreational and Aboriginal fisheries by instituting enhanced compliance and protection tools that are more easily enforceable; providing clarity, certainty and consistency of regulatory requirements; and enabling enhanced partnerships with stakeholders. These changes to the Fisheries Act include a prohibition against causing serious harm to fish that are part of or support a commercial, recreational or Aboriginal fishery, provisions of sufficient water and unimpeded passage for fish, and a framework for regulatory decision-making. These provisions guide the Minister's decision-making process in order to provide for sustainable and productive fisheries.

25. To what extent are collectors of wild seed and brood stock for aquaculture and culture-based fisheries contributing to the conservation of aquatic genetic resources by maintaining habitats and/or limiting the quantities collected?

***Please mark appropriate box***

- To a great extent  
 To a limited extent  
 Not at all  
 Not applicable

***Please include any additional details***

In Canada, all three wolffish species, the Northern (*A. denticulatus*), Spotted (*A. minor*) and Atlantic (*A. lupus*), and the American Eel are listed under SARA. Due to their ability to thrive in cold marine waters, their remarkable attributes for domestication (tolerance to density, salinity, water quality changes, egg and larval size, no live prey requirements) and market potential (excellent flesh and taste characteristics), Spotted and Atlantic Wolffish are considered very promising candidate species for cold water aquaculture in the North Atlantic. Research efforts in Canada are aimed at developing domestic wolffish broodstocks and improving juvenile wolffish survival which may create new aquaculture products and contribute to rehabilitation of wild stocks through stock enhancement. Similarly, developing broodstock and hatchery seed sources for American Eels in preference to wild-sourced broodstock and seeds has the potential to ensure long term sustainability of the developing Eel aquaculture industry and protect vulnerable wild Eel populations.

**Review of the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives through their use in responsible and well managed capture fisheries**

26. Is the conservation of aquatic genetic resources of wild relatives of farmed aquatic species included as an objective in the management of any capture fisheries in your country?

*Please mark appropriate box*

*If yes, please give examples*

- Yes  
 Not yet, but under development  
 No  
 Unknown

Fisheries and Oceans Canada's science advisory processes are managed by the Department's multi-stakeholder Canadian Science Advisory Secretariat (CSAS). CSAS conducts scheduled investigations and reviews on a number of subjects related to aquatic genetic resources, fisheries and aquaculture. CSAS science advisory reports inform decision making with regards to recovery and conservation plans for many important species and areas. Among the extensive list of assessments carried out by CSAS, covering a comprehensive span of issues, numerous endangered or threatened species and their recovery potential have been assessed; multiple reviews of the genetic variation of salmon have occurred; the effects of escaped aquaculture fish on natural ecosystems in Canada and the aquatic genetic resources contained within has been analyzed; as has the potential exposure and associated biological effects from aquaculture pest and pathogen treatments such as anti-sea lice bath treatments. CSAS has also assessed the development of conservation objectives and indicators for marine protected areas, further conservation measures within existing initiatives, and the impact of threats from non-fishing or aquaculture activities including mine developments, seismic activities and exploration drilling projects.

**Review of the *in situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives through the establishment and management of aquatic protected areas**

27. Please list any aquatic protected areas in your country that are contributing to the *in situ* conservation of aquatic genetic resources of wild relatives of farmed aquatic species and an assessment of effectiveness

Add Row

Aquatic protected area	Effectiveness of conserving Aquatic Genetic Resources	Comments <i>provide any additional information</i>	
<p>Out of the 797 marine protected areas captured in this report, 705 of them are managed provincially, 83 are managed federally, and the remaining nine are managed by either non-governmental organizations or through co-management arrangements. The level of protection provided by different jurisdictions varies, depending on both their mandate and the conservation objective(s) of the site.</p> <p>Most of Canada's existing protected marine area is protected for ecological reasons—although in some cases the ecological purpose is combined with sustainable harvesting and/or socio-cultural purposes to reflect multiple priorities. Ecological, socio-cultural, and sustainable use considerations are all very interconnected in oceans management. The health of a marine</p>	<p><input checked="" type="radio"/> Very effective  <input type="radio"/> Somewhat effective  <input type="radio"/> Not effective  <input type="radio"/> Unknown</p>	<p>This report highlights existing marine protected areas, which collectively protect 1% of Canada's oceans and Great Lakes. Many additional sites are currently under study or are in the process of being established, such as the proposed Gwaii Haanas National Marine Conservation Area Reserve and Haida Heritage Site. Progress in recent years can also be measured in terms of initial financial investments; advice acquired from national and international marine protected area practitioners and ecosystem scientists; establishment of processes, partnerships and governance structures; and policy development. With all this in place as a foundation, we are well poised to move ahead with additional marine protected area establishment in Canada.</p>	X

Aquatic protected area	Effectiveness of conserving Aquatic Genetic Resources	Comments <i>provide any additional information</i>	
ecosystem has real impacts on the amount of fish and other resources that can be sustainably harvested from it,which affects local economies and community well-being. Therefore, protecting an area for ecological reasons provides benefits beyond the ecosystem.			

#### Chapter 4: *Ex Situ* Conservation of Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction

The main objective of Chapter 4 is to review the current status and future prospects for the *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives.

The specific objectives are:

- To review existing *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives in aquaculture facilities, culture collections and gene banks, research facilities, zoos and aquaria;
- To review the contributions that various stakeholders are making to the *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives;
- To review needs and priorities for the future development of *ex situ* conservation of aquatic genetic resources of farmed aquatic species and their wild relatives, including any that are threatened or endangered.

#### Review of existing and planned collections of live breeding individuals of aquatic genetic resources of farmed aquatic species and their wild relatives

28. Please list your country's existing collections of live breeding aquatic organisms that can be considered as contributing to the *ex situ* conservation of aquatic genetic resources. This includes not only collections of species farmed directly for human use, but also collections of live feed organisms (e.g., bacterial flocs, yeasts, microalgae, rotifers and brine shrimp (*Artemia*)).

Add Row				
Species (include information on subspecies or strain in comments if available)	Type of use <i>Please mark all that apply</i>	Is the species (or subspecies) threatened or endangered for example in the IUCN Red List, CITES Appendices or national lists? <i>Please mark appropriate box</i>	Comments <i>Please list any additional information</i>	
Salmo salar	<input type="checkbox"/> Direct human consumption <input type="checkbox"/> Live feed organism <input type="checkbox"/> Other	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown	In Canada, the federal Department of Fisheries and Oceans runs an Atlantic salmon live gene bank program to protect against the potential loss of genetic diversity resulting from population declines within the inner Bay of Fundy region. These populations are considered to be both phenotypically and genetically distinct from other populations in the region, including those from the outer Bay of Fundy	X

**Review of existing *ex situ* conservation activities of aquatic genetic resources of farmed aquatic species and their wild relatives *in vitro*.**

29. Please list your country's *in vitro* collections and gene banks of the gametes, embryos, tissues, spores and other quiescent forms of farmed aquatic species and their wild relatives, using cryopreservation or other methods of long-term storage. Describe the major examples, identifying the facilities in which the collections are held. Include examples of any such genetic material from your country that is being kept in *in vitro* collections outside your country on behalf of beneficiaries in your country.

Add Row					
Species (include information on subspecies or strain if available in comments)	Users and managers <i>List all that apply</i>	Type of <i>ex-situ</i> conservation collection <i>in vitro</i> <i>mark all that apply</i>	Facilities where collection is located <i>mark all that apply</i>	Comments <i>list all breeds, subspecies of the species and any additional information</i>	
		<input type="checkbox"/> In vitro collection of gametes <input type="checkbox"/> In vitro collection of embryos <input type="checkbox"/> In vitro collection of tissues <input type="checkbox"/> Spores <input type="checkbox"/> Other	<input type="checkbox"/> Aquaculture facilities <input type="checkbox"/> Research facilities <input type="checkbox"/> Universities <input type="checkbox"/> Zoos and aquaria <input type="checkbox"/> Other		X

30. Please rank (from 1 – 10) the importance of the following objectives for ex situ conservation of aquatic genetic resources of farmed aquatic species and their wild relatives in your country

Objectives of <i>ex situ</i> conservation	Rank 1=Very Important 10=No importance
Preservation of aquatic genetic diversity	<input type="text" value="1"/>
Maintain good strains for aquaculture production	<input type="text" value="10"/>
Meet consumer and market demands	<input type="text" value="10"/>
To help adapt to impacts of climate change	<input type="text" value="2"/>
Future breed improvement in aquaculture	<input type="text" value="10"/>
Other	
<b><i>Continue adding row as necessary</i></b>	<input type="text"/>
Add Row	Remove Row

## **Chapter 5: Stakeholders with Interests in Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction**

The main objective of Chapter 5 is to provide an overview of the perspectives and needs of the principal stakeholders who have interests in aquatic genetic resources of farmed aquatic species and their wild relatives for food and agriculture. Stakeholder groups can be identified from existing institutional knowledge, from sectoral and sub-sectoral consultations conducted during the country reporting process and where necessary from expert opinions. Gender issues pertaining to the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives should be considered, as well as the perspectives and needs of indigenous peoples and local communities.

The specific objectives are:

- To describe the different principal stakeholder groups with interests in aquatic genetic resources of farmed aquatic species and their wild relatives To identify the type(s) of aquatic genetic resources of farmed aquatic species and their wild relatives in which each stakeholder group has interests and why.
- To describe the roles of stakeholder groups and the actions they are taking for the conservation, sustainable use and development of the aquatic genetic resources in which they have interests.
- To describe the further actions that stakeholder groups would like to see taken for the conservation, sustainable use and development of aquatic genetic resources in which they have interests, and the constraints that are hindering those actions, including lack of capacity and perceived threats.

**Overview of the principal stakeholder groups who have interests in aquatic genetic resources of farmed aquatic species and their wild relatives**

31. Please indicate the principal stakeholder groups who have interests in aquatic genetic resources of farmed aquatic species and their wild relatives including, *inter alia*: fish farmers; fishers in capture fisheries; persons involved in stocking and harvesting in culture-based fisheries; persons employed in postharvest chains; government officials; staff and members of aquaculture associations; managers of aquatic protected areas and others working for the conservation of aquatic ecosystems; researchers; and civil society.

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Fish Farmers	<input type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Fishers	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input type="checkbox"/> Advocacy <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Fish hatchery people	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input type="checkbox"/> Marketing <input type="checkbox"/> Processing <input type="checkbox"/> Advocacy <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
People involved in marketing	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Government resource managers	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input type="checkbox"/> Marketing <input type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Fishing or aquaculture associations	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Aquatic protected area managers	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Production <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input checked="" type="checkbox"/> Research <input type="checkbox"/> Marketing <input type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Policy Makers	<input checked="" type="checkbox"/> Conservation <input checked="" type="checkbox"/> Production <input checked="" type="checkbox"/> Feed manufacturing <input type="checkbox"/> Breeding <input type="checkbox"/> Research <input checked="" type="checkbox"/> Marketing <input checked="" type="checkbox"/> Processing <input checked="" type="checkbox"/> Advocacy <input type="checkbox"/> Outreach/Extension <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 20px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>
Non-Governmental Organizations	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Marketing <input type="checkbox"/> Production <input type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Advocacy <input type="checkbox"/> Breeding <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Research <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Intergovernmental Organizations	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Marketing <input type="checkbox"/> Production <input type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input checked="" type="checkbox"/> Advocacy <input type="checkbox"/> Breeding <input checked="" type="checkbox"/> Outreach/Extension <input type="checkbox"/> Research <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input checked="" type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Donors	<input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Marketing <input type="checkbox"/> Production <input type="checkbox"/> Processing <input type="checkbox"/> Feed manufacturing <input type="checkbox"/> Advocacy <input type="checkbox"/> Breeding <input type="checkbox"/> Outreach/Extension <input checked="" type="checkbox"/> Research <input type="checkbox"/> Other ( <b>specify</b> ) <div style="border: 1px solid black; height: 30px; width: 100%; margin-top: 5px;"></div>	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	

Stakeholders	Role of stakeholder in regards og AqGR <i>mark all that apply</i>	Genetic resource of main interest <i>mark all that apply</i>	Comments <i>Please provide any information or explanation of stakeholders' role</i>										
Consumers	<table border="0"><tr><td><input checked="" type="checkbox"/> Conservation</td><td><input type="checkbox"/> Marketing</td></tr><tr><td><input checked="" type="checkbox"/> Production</td><td><input type="checkbox"/> Processing</td></tr><tr><td><input type="checkbox"/> Feed manufacturing</td><td><input type="checkbox"/> Advocacy</td></tr><tr><td><input type="checkbox"/> Breeding</td><td><input type="checkbox"/> Outreach/Extension</td></tr><tr><td><input type="checkbox"/> Research</td><td><input type="checkbox"/> Other (<b>specify</b>)</td></tr></table> <div data-bbox="867 602 1224 703" style="border: 1px solid black; height: 60px; width: 100%;"></div>	<input checked="" type="checkbox"/> Conservation	<input type="checkbox"/> Marketing	<input checked="" type="checkbox"/> Production	<input type="checkbox"/> Processing	<input type="checkbox"/> Feed manufacturing	<input type="checkbox"/> Advocacy	<input type="checkbox"/> Breeding	<input type="checkbox"/> Outreach/Extension	<input type="checkbox"/> Research	<input type="checkbox"/> Other ( <b>specify</b> )	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
<input checked="" type="checkbox"/> Conservation	<input type="checkbox"/> Marketing												
<input checked="" type="checkbox"/> Production	<input type="checkbox"/> Processing												
<input type="checkbox"/> Feed manufacturing	<input type="checkbox"/> Advocacy												
<input type="checkbox"/> Breeding	<input type="checkbox"/> Outreach/Extension												
<input type="checkbox"/> Research	<input type="checkbox"/> Other ( <b>specify</b> )												

a) Please indicate the most important role of women in regards to AqGR

b) Please indicate the most important role of indigenous and local communities in regards to AqGR

Advisory boards, or committees, exist for all capture fisheries species and contribute to the development of Integrated Fisheries Management Plans. Similar to capture fisheries, various Aquaculture Management Advisory Committees, comprised of a range of stakeholders, advise Fisheries and Oceans Canada on matters related to aquaculture. Committees provide a venue for discussion and dialogue, both between and among industry, Aboriginal groups, and local/provincial/federal governments. Coordinated analysis and advice received by Fisheries and Oceans Canada plays an important role in the ongoing development of Integrated Aquaculture Management Plans and increases participation in the planning and management cycle for aquaculture.

The Aboriginal Fisheries Strategy, launched in 1992, was established in response to a landmark decision in the Supreme Court of Canada reinforcing Aboriginal rights to fish for food, social and ceremonial purposes. A key objective of the strategy is to provide Aboriginal groups with an opportunity to participate in the management of fisheries. The Integrated Aboriginal Policy Framework provides guidance towards this objective. With funding provided under the Strategy, Aboriginal groups are able to participate effectively in advisory and decision-making processes used for aquatic resource and oceans management. Funding may also be available to obtain access to commercial fishery and aquaculture opportunities. Consultation with Aboriginal groups also occurs concerning new aquaculture licence applications and amendments and review processes where there is a potential to impact claimed and/or established rights and title licensing and review processes.

Recreational fisheries are also a significant stakeholder with interests in aquatic genetic resources. Given the socio-economic benefits of this sector, there is keen interest from tourism boards, rural communities and sport fisherman in continuing to address the impacts of climate change, stocking, and the biodiversity of local population groups on aquatic ecosystems.

## Chapter 6: National Policies and Legislation for Aquatic Genetic Resources of Farmed Aquatic Species and their Wild Relatives within National Jurisdiction

The main objective of Chapter 6 is to review the status and adequacy of national policies and legislation concerning aquatic genetic resources of farmed aquatic species and their wild relatives including access and benefit sharing.

The specific objectives are as follows:

- To describe the existing national policy and legal framework for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.
- To review current national policies and instruments for access to aquatic genetic resources of farmed aquatic species and their wild relatives and the fair and equitable sharing of benefits arising from their utilization.
- To identify any significant gaps in policies and legislation concerning aquatic genetic resources of farmed aquatic species and their wild relatives..

### Review of national policies and legislation for Aquatic Genetic Resources of farmed aquatic species and their wild relatives within national jurisdiction

32. Please list national legislation, policies and/or mechanisms that address aquatic genetic resources of farmed species and their wild relatives (see question 47 regarding international agreements).

Add Row

National legislation, policy and/or mechanism	Date established	Scope <i>Select all that apply</i>	Comments <i>Please provide any additional information for example whether it has been effective or not; and main sources of information</i>	
Department of Fisheries and Oceans Act	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input checked="" type="checkbox"/> Aquaculture <input checked="" type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input checked="" type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Fisheries and Oceans Canada has the lead federal role in managing Canada's fisheries and safeguarding its waters. Canada has not developed specific legislation that contemplates aquatic genetic resources. Canada's legislative regime for the conservation and management of species and habitat includes the conservation and management of genetic resources, given that genetic resources make up all or part of the biological resources to which the law applies.	X

National legislation, policy and/or mechanism	Date established	Scope <i>Select all that apply</i>	Comments <i>Please provide any additional information for example whether it has been effective or not; and main sources of information</i>	
Oceans Act	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input checked="" type="checkbox"/> Aquaculture <input checked="" type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input checked="" type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	<p>In 1997, Canada adopted its Oceans Act, making a legal commitment to conserve, protect and develop the oceans in a sustainable manner. The Oceans Act gives the Minister of Fisheries and Oceans Canada the legal authority to bring together all of Canada's oceans stakeholders to develop an oceans management strategy based on sustainable development and integrated management of activities and aquatic resources in estuarine, coastal and marine waters. The Act holds that conservation based on an ecosystem and precautionary approach is of fundamental importance to maintaining biological diversity and productivity in the marine environment. As such, threats of harm to an ecosystem and species where there is scientific uncertainty are managed through numerous initiatives including the National Conservation Plan and other spatial conservation measures, designated through regulations under this legislation.</p>	X
Fisheries Act	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input checked="" type="checkbox"/> Aquaculture <input checked="" type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input checked="" type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	<p>The Fisheries Act is the cornerstone of Canada's fisheries management policy, providing broad powers to the Minister of Fisheries and Oceans Canada for the management, conservation and protection of aquatic resources. These powers include discretion to issue licences or leases for fisheries or fishing, allocate harvests among user groups, and protect fish habitat and prevent pollution. The Act also applies to tidal and recreational fishing, freshwater fisheries, Aboriginal fisheries and certain aspects of aquaculture.</p>	X

National legislation, policy and/or mechanism	Date established	Scope <i>Select all that apply</i>	Comments <i>Please provide any additional information for example whether it has been effective or not; and main sources of information</i>	
Species at Risk Act	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	The Species at Risk Act (SARA) was proclaimed in June 2003. It was created to prevent wildlife species from being extirpated or becoming extinct, to provide for the recovery of wildlife species that are extirpated, endangered or threatened as a result of human activity, and to manage species of special concern in order to prevent them from becoming endangered or threatened. To this end, the aim of SARA is to ensure that populations are not irreversibly reduced by harvest or habitat destruction and is concerned with the evolutionary basis of stock definition. Recovery and/or conservation programs are established for each species added to Schedule 1 of SARA, the official List of Wildlife Species at Risk under the Act. These initiatives are also reflected within Integrated Fisheries (or Aquaculture) Management Plans.	X
Canadian Environmental Protection Act	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	The Canadian Environmental Protection Act (CEPA) regulates for access and use.	X
National Code on Introductions and Transfers of Aquatic Organisms (2003)	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input checked="" type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Introduction and transfer of organisms are considered under the National Code on Introductions and Transfers of Aquatic Organisms	X

National legislation, policy and/or mechanism	Date established	Scope <i>Select all that apply</i>	Comments <i>Please provide any additional information for example whether it has been effective or not; and main sources of information</i>	
Aquatic Invasive Species Regulations	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input checked="" type="checkbox"/> Importation <input checked="" type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	Fisheries and Oceans Canada has developed new federal regulations to manage and control aquatic invasive species in Canada. The Aquatic Invasive Species Regulations were published in the Canada Gazette, Part II, on June 17th, 2015.	X
Aquaculture Activities Regulations	<input type="text"/>	<input type="checkbox"/> Genes or molecules only <input type="checkbox"/> Aquaculture <input type="checkbox"/> Capture fisheries <input checked="" type="checkbox"/> Conservation <input type="checkbox"/> Intellectual property protection <input type="checkbox"/> Importation <input type="checkbox"/> Trade and commerce <input type="checkbox"/> Access and benefit sharing <input type="checkbox"/> Other	The Aquaculture Activities Regulations (AAR) clarify conditions under which aquaculture operators may install, operate, maintain or remove an aquaculture facility, or undertake measures to treat their fish for disease and parasites, as well as deposit organic matter, under sections 35 and 36 of the Fisheries Act.	X

**Review of the current status and gaps in national policies and legislation for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives**

33. Please list any gaps in the coverage or constraints in implementing national legislation, policies and/or mechanisms in regard to aquatic genetic resources.

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34. Please indicate any national aquatic genetic resources of farmed aquatic species and their wild relatives for which your country restricts access.

Type of genetic resource (can be species name, DNA, gametes or other descriptor)	Comments	
DNA	<p><b><i>Please, provide verifiable main sources of information, effectiveness of the restriction, description of type of restriction and for whom does the restriction apply</i></b></p>	
Stock, breed or variety		
Species		
Other		
<b>Continue adding row as necessary</b>		
see comments	<p>Federal policy has been to enable unrestricted access to genetic resources in Canadian gene banks to bona fide researchers and breeders anywhere in the world for the purpose of research and breeding. Providing unrestricted access to the genetic resource is identified as one means of sharing benefits arising from the use of genetic resources. Development of federal policy on access and benefit-sharing in terms of genetic resources has been ongoing as Canada considers accession to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.</p>	
Add Row		Remove Row

35. Over the past 10 years, indicate the actions your country has taken to maintain or enhance access to aquatic genetic resources of farmed aquatic species and their wild relatives located outside your country; for example, by establishing germplasm acquisition agreements or material transfer agreements.

Add Row

Action taken to enhance access to aquatic genetic resources outside your country	Type of genetic resource <i>Mark all that apply</i>	Comment <i>for example other types of genetic resources</i>	
	<input type="checkbox"/> DNA <input type="checkbox"/> Genes <input type="checkbox"/> Gametes <input type="checkbox"/> Tissues <input type="checkbox"/> Embryos <input type="checkbox"/> Living specimens		X

36. Please indicate any obstacles your country has encountered when trying to access aquatic genetic resources of farmed aquatic species and their wild relatives outside of your country (including access for research purposes).

Obstacles to accessing aquatic genetic resources	Please describe type of genetic resource <i>mark all that apply</i>	Comments <i>please include additional information as needed</i>
Intellectual property protection	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
National laws of your country	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	Canadian Food Inspections Agency, CEPA, Fisheries Act, Invasive species regulations
National laws of donor country	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	Iceland blocks export of Arctic Char broodstock
International laws or protocols	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	Development of federal policy on access and benefit-sharing in terms of genetic resources has been ongoing as Canada considers accession to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.
Too expensive	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Material transfer agreements required	<input type="checkbox"/> DNA <input checked="" type="checkbox"/> Stock, breed or variety <input checked="" type="checkbox"/> Species <input type="checkbox"/> Other	
Knowledge gaps	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
Public perception	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	

Obstacles to accessing aquatic genetic resources	Please describe type of genetic resource <i>mark all that apply</i>	Comments <i>please include additional information as needed</i>
Other	<input type="checkbox"/> DNA <input type="checkbox"/> Stock, breed or variety <input type="checkbox"/> Species <input type="checkbox"/> Other	
<b>Continue adding row as necessary</b>		
Add Row		

## Chapter 7: Research, Education, Training and Extension on Aquatic Genetic Resources within National Jurisdiction: Coordination, Networking and Information

The main objective of Chapter 7 is to review the status and adequacy of national research, education, training and extension, coordination and networking arrangements and information systems that support the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives for food and agriculture.

The specific objectives are:

- To describe the current status, future plans, gaps, needs and priorities for research, training, extension and education on the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives
- To describe existing or planned national networks for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.
- To describe existing or planned information systems for the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.

### Research

37. Does your national research programme support the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives? If yes, give details of current and/or planned research; if no, explain the main reasons why not in box below.

*Please mark appropriate box*

- Yes  
 No  
 Unknown

*Please provide details*

Since 1999, the Canadian government has been committed to maintaining genomic research and development capacity in federal departments and agencies. The Genomic Research and Development Initiative (GRDI), coordinated by National Research Council of Canada, contributes funds towards achieving objectives under many departments including Fisheries and Oceans Canada who has the lead for aquatic genomics research. Through the GRDI, fisheries scientists develop and apply leading-edge genomics research tools and techniques to improve Canada's ability to protect endangered species, manage fisheries, avoid over exploitation of resources, prosecute poachers, improve aquaculture practices, control disease outbreaks, and remediate contaminated sites. Currently, aquatic genomics research is being conducted across the country. The recent renewal of GRDI has contributed \$2.3 million to Fisheries and Oceans Canada over 2014 to 2017, with the potential for a two year renewal. The National Research Council of Canada has also provided research funding and grants for the National Aquatic Biotechnology and Genomics Research and Development Strategy amounting to \$12.9 million. The NRC also provides limited funding opportunities to small-medium sized businesses that are engaged in technology-driven and innovative enterprises through its Industrial Research Assistance Program.

38. Please list main institutions, organizations, corporations and other entities in your country that are engaged in field and/or laboratory research related to the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.

Add Row

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
the Centre for Aquaculture and Environmental Research	<input type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input type="checkbox"/> Genetic improvement <input type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input checked="" type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>In British Columbia, the Centre for Aquaculture and Environmental Research (CAER), located in West Vancouver, is a research and education facility co-funded by DFO and the University of British Columbia. The centre conducts internationally recognized research on many topics including aquatic animal nutrition, coastal habitat issues, salmon migration physiology and applications of biotechnology and genomics to wild and aquaculture topics. Hosted at the CAER, the Centre for Aquatic Biotechnology Regulatory Research (CABRR) is a national Centre of Expertise within Fisheries and Oceans Canada (DFO) created in 2008 to conduct research in support of the risk assessment and regulation of fish with novel traits, including genetically engineered fish. CABRR's main research objectives are to enable risk assessment science through the identification, development and evaluation of appropriate novel aquatic animal models; conduct studies in support of risk assessment methodology and the design and implementation of regulations; develop and evaluate the efficacy of mitigative measures to prevent interaction between wild and novel aquatic animal strains; and to assess potential ecosystem impacts of transgenic aquatic animals.</p>	X

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
the Pacific Biological Station	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Genetic improvement <input type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input checked="" type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>The Pacific Biological Station (PBS) is the oldest fisheries research center on the Pacific coast and forms part of a network of nine major scientific facilities operated by Fisheries and Oceans Canada. Located in Nanaimo, British Columbia, the Station was established in 1908 and is the principal center for fisheries research on the West Coast. The PBS maintains aquatic facilities used primarily for aquaculture research and molecular biology laboratories that are used for genetic and genomics research.</p>	X
Centre for Shellfish Research at Vancouver Island University	<input type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input type="checkbox"/> monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Genetic improvement <input checked="" type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input checked="" type="checkbox"/> Communication on aquatic genetic resources <input checked="" type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>The Deep Bay Marine Field Station supports both pure and applied coastal and marine research activities related to: sustainable shellfish aquaculture development; preservation of coastal ecosystems; and inter-disciplinary projects involving local communities. We also open up the Field Station to the public so that we can educate about important issues related to sustainability of coastal communities</p>	X

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
Fisheries and Oceans Canada's Freshwater Institute	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input type="checkbox"/> Genetic improvement <input type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>The Fisheries and Oceans Canada's Freshwater Institute in Winnipeg, Manitoba, has been exploring the population structure of marine mammals in the Canadian Arctic using a variety of techniques to analyze DNA tissue samples for genetic markers. Using genetic marker analysis enables scientists to identify individual marine mammals, populations and stocks, or species based on differences and similarities in their genetic code. Research is being completed on the impact of disease on lake sturgeon, in order to develop a lake sturgeon infectious disease management plan. Further research in Inuvik is developing a body of knowledge concerning the baseline prevalence of four viral pathogens in western Arctic populations of Dolly Varden (<i>Salvelinus malma</i>).</p>	X
Fisheries and Oceans Canada St. Andrew's Biological Station	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input checked="" type="checkbox"/> Genetic improvement <input type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input checked="" type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>In New Brunswick, research is conducted at the Fisheries and Oceans Canada St. Andrew's Biological Station on a range of topics such as aquaculture and biological interactions, population ecology, integrated multi-trophic aquaculture and climate change. In 2004, the first Atlantic Cod broodstock families in North America were produced. The St. Andrew's Biological Station has continued to be a significant partner in the Cod Genomics and Brookstock development program that is identifying and selecting elite broodstock through the application of selective breeding and genetic mapping. The station also has a biocontainment facility used for bioassay research on aquatic animal pathogens.</p>	X

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
Fisheries and Oceans Canada Gulf Fisheries Centre	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input type="checkbox"/> Genetic improvement <input type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>The Fisheries and Oceans Canada Gulf Fisheries Centre, in Moncton, New Brunswick, houses the lead laboratory for the National Aquatic Animal Health Program and Fisheries and Oceans Canada's National Aquatic Animal Health Research and Diagnostic laboratory system. This research centre is also responsible for aquatic animal health research related to exotic pathogens and pathogens of trade concern at the Charlottetown Aquatic Animal Pathogen Biocontainment Laboratory in Prince Edward Island. The Fisheries and Oceans Canada Gulf Fisheries Centre also supports fisheries in the Maritimes region through targeted research on shellfish and finfish species as well as studies on habitat and environmental issues.</p>	X
Bedford Institute of Oceanography	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input type="checkbox"/> Genetic improvement <input type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>At the DFO's Bedford Institute of Oceanography (BIO) in Dartmouth, Nova Scotia, research on the genetic variation and fitness, and population and genetic structure of Atlantic salmon is carried out along with research into the interaction of aquaculture fish and wild populations. BIO also hosts a regional node of the International Ocean Biographic Information System (OBIS). By bringing together marine biogeographic data from highly distributed sources, OBIS Canada documents where and when marine species have been observed or collected. In doing so, the OBIS Canada mission, to coordinate the development of Canada's understanding of national and regional biological resources, can be achieved.</p>	X

Main institutions, organizations, corporations and other entities	Area of research <i>Mark all that apply</i>	Comments <i>Please provide any additional information</i>	
The Maurice Lamontagne Institute	<input checked="" type="checkbox"/> Genetic resource management <input checked="" type="checkbox"/> Basic knowledge on aquatic genetic resources Characterization and <input checked="" type="checkbox"/> monitoring of aquatic genetic resources <input type="checkbox"/> Genetic improvement <input type="checkbox"/> Economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Conservation of aquatic genetic resources <input type="checkbox"/> Communication on aquatic genetic resources <input type="checkbox"/> Access and distribution of aquatic genetic resources <input type="checkbox"/> Other	<p>The Maurice Lamontagne Institute, located on the shores of the St. Lawrence Estuary, was inaugurated in 1987 and provides infrastructure for some 400 government employees, conducting research on the fishery, marine mammals, oceanography, and habitat for the Gulf of St. Lawrence. It collaborates heavily with academia, and is partnered with Genome Canada to conduct research on the genomics of commercially important marine organisms. The institute includes the Canadian Hydrographic Service which is responsible for approximately 75 nautical charts covering the navigable waters of the region.</p>	X

39. What capacity strengthening is needed to improve national research in support of the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives?

*Please rank the following in regard to capacity strengthening.*

Capacities	Rank 1=Very Important 10=No importance
Improve basic knowledge on aquatic genetic resources	2
Improve capacities for characterization and monitoring of aquatic genetic resources	2
Improve capacities for genetic improvement	4
Improve capacities for genetic resource management	2
Improve capacities for economic valuation of aquatic genetic resources	8
Improve capacities for conservation of aquatic genetic resources	2
Improve communication on aquatic genetic resources	5
Improve access to and distribution of aquatic genetic resources	5
Add other rows as appropriate and rank	
Add Row	Remove Row

*Please describe any other capacity building needs in regards to aquatic genetic resources*

**Education, training and extension**

40. Please indicate the extent that education, training and extension in your country covers the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives? List the main institutions involved and the types of courses offered.

Add Row

Institution	Thematic Area	Type of courses mark all that apply	Comments	
Memorial University of Newfoundland	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input checked="" type="checkbox"/> Training <input type="checkbox"/> Extension		

Dalhousie University	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Characterization and monitoring of aquatic genetic resources	<input type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
University of New Brunswick	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		

University of British Columbia	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
University of Guelph	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		

Vancouver Island University	Genetic resource management	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Characterization and monitoring of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Genetic improvement	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		X
	Economic valuation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		
	Conservation of aquatic genetic resources	<input checked="" type="checkbox"/> Undergraduate <input checked="" type="checkbox"/> Post-graduate <input type="checkbox"/> Training <input type="checkbox"/> Extension		



42. Please indicate how capacity strengthening can be improved in intersectoral coordination in support of the conservation, sustainable use and development of aquatic genetic resources.

*Please rank the following in regards to capacity strengthening.*

Capacities	Rank 1=Very Important 10=No importance
Increase awareness in institutions	3
Increase technical capacities of institutions	1
Increase information sharing between institutions	4
Add other rows as appropriate and rank <div data-bbox="211 779 833 936" style="border: 1px solid black; height: 75px; width: 100%;"></div> <div data-bbox="211 936 833 968" style="display: flex; justify-content: space-between; border: 1px solid black; padding: 2px;"> <span>Add Row</span> <span>Remove Row</span> </div>	<div data-bbox="990 810 1232 863" style="border: 1px solid black; height: 25px; width: 100%;"></div>

*Please specify in box below*

43. Please list any national networks in your country or any international networks your country belongs to that support the conservation, sustainable use and development of aquatic genetic resources.

Add Row

Network	Objectives of the network <i>Please mark all that apply</i> to your country	Comments	
Canadian IMTA Network	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input checked="" type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources <input checked="" type="checkbox"/> Improve access to and distribution of aquatic genetic resources	At present, the Canadian IMTA Network is a collaborative research network aimed at further developing IMTA approaches to strategically enhance economically sustainable production systems. This strategic network, funded by the Natural Sciences and Engineering Research Council of Canada, includes expertise and partners from academia, the aquaculture industry and federal and provincial government departments and agencies.	X
Ocean Networks Canada	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources <input type="checkbox"/> Improve access to and distribution of aquatic genetic resources	Ocean Networks Canada operates the world-leading NEPTUNE and VENUS cabled ocean observatories for the advancement of science and the benefit of Canada. These observatories collect data on physical, chemical, biological, and geological aspects of the ocean over long time periods, supporting research on complex Earth processes in ways not previously possible. Ocean Networks Canada was created in 2007 to manage the cabled observatory being constructed on the sea floor off the BC coast. A total of approximately \$200M has been invested to date to build and operate the Observatory, primarily with funding from the Canada Foundation for Innovation (CFI) and the Province of British Columbia. It is the first, largest and most advanced regional-scaled cabled observatory in the world.	X

Network	Objectives of the network <i>Please mark all that apply</i> to your country	Comments	
Standards Organizations Technical Committee on Fisheries and Aquaculture (ISO TC234)	<input type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input checked="" type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources <input type="checkbox"/> Improve access to and distribution of aquatic genetic resources	As of 2014, effort in developing international, voluntary aquaculture standards under the ISO TC234 is winding down. The future of the Canadian Advisory Committee to the ISO TC234 will depend upon the extent to which new aquaculture standards are developed.	X
International Council on the Exploration of the Sea (ICES)	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources <input type="checkbox"/> Improve access to and distribution of aquatic genetic resources	Provides a forum for the development and provision of international science advice.	X

Network	Objectives of the network <i>Please mark all that apply to your country</i>	Comments	
North Pacific Marine Science Organization (PICES),	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources <input type="checkbox"/> Improve access to and distribution of aquatic genetic resources	Provides a forum for the development and provision of international science advice.	X
North Atlantic Salmon Conservation Organization (NASCO)	<input checked="" type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources <input type="checkbox"/> Improve access to and distribution of aquatic genetic resources	Through NASCO, Canada engages with key stakeholders in the conservation of wild Atlantic salmon and with other salmon farming countries through NASCO meetings and related activities.	X

Network	Objectives of the network <i>Please mark all that apply to your country</i>	Comments	
FAO Committee on Fisheries	<input type="checkbox"/> Improve basic knowledge on aquatic genetic resources <input type="checkbox"/> Improve capacities for characterization and monitoring of aquatic genetic resources <input type="checkbox"/> Improve capacities for genetic improvement <input checked="" type="checkbox"/> Improve capacities for economic valuation of aquatic genetic resources <input checked="" type="checkbox"/> Improve capacities for conservation of aquatic genetic resources <input checked="" type="checkbox"/> Improve communication on aquatic genetic resources <input type="checkbox"/> Improve access to and distribution of aquatic genetic resources	With other members, Canada actively contributes to broad fisheries and aquaculture policy development.	X

### Information systems

44. Please list any information systems existing in your country for receiving, managing and communicating information about the conservation, sustainable use and development of aquatic genetic resources of farmed aquatic species and their wild relatives.

Add Row

Name of information system	Type of information stored <i>mark all that apply</i>	Main stakeholders <i>mark all that apply</i>	
	<input type="checkbox"/> DNA sequence <input type="checkbox"/> Genes and genotype <input type="checkbox"/> Breeds, strains or stocks <input type="checkbox"/> Species names <input type="checkbox"/> Production figures <input type="checkbox"/> Distribution <input type="checkbox"/> Level of endangerment <input type="checkbox"/> Other	<input type="checkbox"/> Fish farmers <input type="checkbox"/> Fishers in capture fisheries <input type="checkbox"/> Fish hatchery people <input type="checkbox"/> People involved in marketing <input type="checkbox"/> Government resource managers <input type="checkbox"/> Fishing or aquaculture associations <input type="checkbox"/> Aquatic protected area managers <input type="checkbox"/> University and academic people <input type="checkbox"/> Non-Governmental Organizations <input type="checkbox"/> Intergovernmental Organizations <input type="checkbox"/> Policy makers <input type="checkbox"/> Donors <input type="checkbox"/> Consumers <input type="checkbox"/> Politicians <p><b>Please list other stakeholders as necessary</b></p> <div data-bbox="1057 1551 1446 1711" style="border: 1px solid black; height: 76px; width: 240px;"></div>	X

45. What capacity strengthening is needed to improve national information systems to support the conservation, sustainable use and development of aquatic genetic resources?

*Please describe what capacities need to be strengthened*

*Please describe any other capacity building needs in regards to information systems for aquatic genetic resources*

## Chapter 8: International Collaboration on Aquatic Genetic Resources of Farmed Aquatic Species and Their Wild Relatives

The main objective of Chapter 8 is to review the mechanisms and instruments through which your country participates in international collaborations on aquatic genetic resources of farmed aquatic species and their wild relatives.

The specific objectives are:

- To identify your country's current participation in bilateral, sub-regional, regional, other international and global forms of collaboration on aquatic genetic resources. List national memberships, status as a Party and other forms of affiliation in agreements, conventions, treaties, international organizations, international networks and international programmes.
- To identify any other forms of international collaboration on aquatic genetic resources.
- To review the benefits from existing forms of international collaboration on aquatic genetic resources.
- To identify needs and priorities for future international collaboration on aquatic genetic resources

International collaboration includes bilateral arrangements and the sharing of particular waters and stocks of wild relatives of farmed aquatic species.

### International, regional or sub-regional agreements, conventions and treaties concerning aquatic genetic resources of farmed aquatic species and their wild relatives

46. Please list the international, regional or sub-regional agreements your country subscribes to that cover aquatic genetic resources of farmed species and their wild relatives, such as the Nagoya Protocol<sup>2</sup> the Convention on Biological Diversity and the Cartagena Protocol and how they have impacted aquatic genetic resources and stakeholders in your country. Examples could include:

<sup>2</sup> <http://www.cbd.int/abs/nagoya-protocol/signatories/>

- Establishment and management of shared or networked aquatic protected areas as far as wild relatives of farmed aquatic species are concerned
- Aquaculture and culture-based fisheries in transboundary or shared water bodies
- Sharing aquatic genetic material and related information
- Fishing rights, seasons and quotas as far as wild relatives of farmed aquatic species are concerned
- Conservation and sustainable use of shared water bodies and watercourses as far as wild relatives of farmed aquatic species are concerned
- Quarantine procedures for aquatic organisms and for control and notification of aquatic diseases

Add Row

International, Regional, bilateral or Sub-Regional agreement	Year your country ratified or subscribed to the agreement	Impact on aquatic genetic resources	Impact on stakeholders	Comments

International, Regional, bilateral or Sub-Regional agreement	Year your country ratified or subscribed to the agreement	Impact on aquatic genetic resources	Impact on stakeholders	Comments	
United Nations Convention on Biological Diversity	1992	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	The Government of Canada, with support from provincial and territorial governments, signed and ratified the United Nations Convention on Biological Diversity in 1992. Legislative and regulatory mechanisms reflect Canada's commitment to conservation and sustainable use of resources and towards meeting internationally agreed biodiversity targets. Canada also continues to consider accession to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.	X
Convention for the Conservation of Salmon in the North Atlantic Ocean		<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	<input type="radio"/> Strongly positive <input checked="" type="radio"/> Positive <input type="radio"/> Negative <input type="radio"/> Strongly negative <input type="radio"/> No effect	As a party to the Convention for the Conservation of Salmon in the North Atlantic Ocean and its associated North Atlantic Salmon Conservation Organization (NASCO), Canada engages with key stakeholders in the conservation of wild Atlantic salmon and with other salmon farming countries through NASCO meetings and related activities	X

47. Please list the priority needs regarding collaboration on conservation and sustainable use of aquatic genetic resources of farmed aquatic species and their wild relatives. Are they being addressed, i.e. are there any critical gaps?

Collaboration is needed in order to ...	Rank 1=Very Important 10=No importance	To what extent are the needs being met	Comments <i>For example any critical gaps</i>
Improve information technology and database management	3	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve basic knowledge on aquatic genetic resources	3	<input checked="" type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for characterization and monitoring of aquatic genetic resources	2	<input checked="" type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for genetic improvement	3	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for economic valuation of aquatic genetic resources	4	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve capacities for conservation of aquatic genetic resources	2	<input checked="" type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Improve communication on aquatic genetic resources	3	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	

Collaboration is needed in order to ...	Rank 1=Very Important 10=No importance	To what extent are the needs being met	Comments <i>For example any critical gaps</i>
To improve access to and distribution of aquatic genetic resources	4	<input type="radio"/> To a great extent <input checked="" type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Other		<input type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
<b>Continue adding row as necessary</b>			
		<input type="radio"/> To a great extent <input type="radio"/> To some extent <input type="radio"/> None <input type="radio"/> Unknown	
Add Row	Remove Row		

48. Please describe the types of collaboration that have been most beneficial for your country, and why?

Recognizing that regulatory standards, requirements and restrictions in one country may influence multinational industry decisions, international collaboration concerning aquaculture has gained importance. In 2008, an informal collaboration among the top four salmon producing countries of Canada, Norway, Scotland and Chile was established. This collaboration aims to support each country's efforts to effectively and efficiently respond to aquaculture priorities. Collaboration, achieved through discussions, meetings, and exchanges of expertise, fosters consistency amongst governments and through management decisions on a range of aquaculture industry, science and management issues, shared challenges and opportunities.

49. Is there a need for your country to expand its collaboration concerning the conservation, sustainable use and development of aquatic genetic resources? If yes, give details, including any requirements for capacity strengthening in box below

Yes

No

***If yes, please give details***

50. Describe important roles that your country performs within its region (and/or sub-region) and globally in terms of being a keeper, user and sharer of aquatic genetic resources.

The Government of Canada, with support from provincial and territorial governments, signed and ratified the United Nations Convention on Biological Diversity in 1992. Legislative and regulatory mechanisms reflect Canada's commitment to conservation and sustainable use of resources and towards meeting internationally agreed biodiversity targets. Canada also continues to consider accession to the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

As a party to the Convention for the Conservation of Salmon in the North Atlantic Ocean and its associated North Atlantic Salmon Conservation Organization (NASCO), Canada engages with key stakeholders in the conservation of wild Atlantic salmon and with other salmon farming countries through NASCO meetings and related activities. These are important engagements for work being carried out concerning east coast farmed-wild interaction issues. Canada participates in the FAO's Committee on Fisheries and its Sub-Committees; and with other members, actively contributes to broad fisheries and aquaculture policy development. International action can be recommended through the Committees' work identifying and discussing major issues and trends in global fisheries management and aquaculture.

Aquatic genetic resources are essential for improved global food security reliant on healthy, sustainable fisheries and aquaculture industries. In Canada, stable production from wild capture fisheries coupled with increasing population and market demand is driving innovation and a need for new species development in Canadian aquaculture. Beyond salmonids, the diversity of species reared in aquaculture and culture-based fisheries is expected to grow.

Biotechnology innovations in aquaculture and for commercialization are also likely to increase.

Canadian AqGRs are captured within conservation initiatives insofar as the genetic material constitutes components of species and ecosystems. At present, access to and sustainable use of genetic resources is managed through fisheries and aquaculture management processes including permitting, licencing, and leasing. Many genetic resources are available for scientific research. Genetic-based research, applied biotechnologies, and genomic tools inform Canadian fisheries and aquaculture management and contribute to the understanding of genetic diversity. As genetic diversity and the risks to genetic diversity are increasingly understood, it is likely governance capacity related to genetic resources will also evolve.

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