Food and Agriculture Organization of the United Nations

COUNTRY REPORTS

# Georgia

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

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

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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.
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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; Matthias.Halwart@fao.org; and ruth.garciagomez@fao.org.
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8. A letter confirming official endorsement by relevant authorities should also be attached to the email.
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**Where can I get further assistance?**
If you have any questions regarding the dynamic guidelines, please contact
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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 31st 2015.**

www.algaebase.org
www.aquamaps.org
www.barcodeoflife.org
www.coml.org
www.fishbase.org
www.frozenark.org
www.genbank.org
www.gbif.org
www.iucn.org
http://discover.nci.nih.gov/
www.ornamental-fish-int.org
www.sealifebase.org
www.seaaroundus.org
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) immediatly.
- 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 | Georgia |
| Prepared By | Archil Phartsvania |
| Date | Aug 17, 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.***

The two vital challenges facing humanity in the XXI century. The first - to provide an ever-growing world population with food, "food security" of each country. The second - the conservation of biodiversity of our planet, that is necessary to maintain a steady state of the biosphere.
The problem of preservation of gene pools of agricultural species of domesticated animals is though private, but very important problem.
Aggro biodiversity includes all components of biological diversity of relevance to food production and agriculture, as well to the functioning of agro-ecosystems.
The breed are the main unit of the conservation of agro-biodiversity and the basis of bio-organic farming, as well for traditional and industrial agriculture. Due the breeds or combinations thereof get raw materials for the production of both industrial and organic food. The breeds closely associated with culture of the population of country, with development of agro and gastro tourism, agro-education.
Conservation and efficient management of national breeds of farm animals provides a solution to fundamental problems of food security and development domestic breeding. Availability of the breeds and intra-breed diversity in a gene pool of domestic or agricultural animals - the key to sustainable development of livestock, agricultural and food market of individual regions and the country as a whole. In its turn, high-quality food is the basis of the population's health.
The present country report summarizes the status of aquatic genetic resources in Georgia within the frame of the preparation of “The State of the World’s Aquatic Genetic Resources for Food and Agriculture”.
While the potential of aquaculture development in Georgia is well-known for many international experts, yet the per capita consumption of fish and seafood in Georgia remains is very low (aprox. 7.8 kg). And even in such a situation, the share of imported into the country of fish and fish products composes about 83% of the total consumed of the product.
In view of the consumer preferences, Georgian fisheries and aquaculture are focused on finfish. Accordingly, this report also deals only with finfish species.
Fisheries and aquaculture resources of Georgia could support a much higher fish production than the actual one. Fish production results of the distant and near past also indicate that there are huge potentials for quantitative and qualitative development of fish production in Georgia
Georgian fisheries laws and regulations applicable for inland waters are good and supportive. Still better enforcement of the observance of closed seasons, protection and maintenance of spawning conditions in general and spawning grounds in particulars, as well as the effective quantitative and qualitative monitoring of catches would considerably improve inland fisheries’ development.
In most of the natural and manmade inland water-bodies the owners and leaseholders proclaim to practice culture based fisheries.
Development potentials in aquaculture depend on the fish species and practised culture systems. Tank and cage cultures of trout and sturgeon, provided that reliable sources and easy purchase of good quality fingerling and commercial feeds are available, could be developed in Georgia at least up to the production level of self-sufficiency of the country. This would be three to four times higher than the current level of annual production. Available water resources could also support the production estimated above.
Fish hatchery operations have a distinct role among the fish culture activities because both culture based fishery and any of the fish production systems depend basically on them. When the production of the fish hatcheries decreases or even stops the entire sector of inland fisheries and aquaculture declines which is the case diagnosed in Georgia. Hence, the entire fisheries and fish production of approximately 45 000 ha of inland waters and at least 7000 ha of fish ponds depends on the success of hatchery operations.
Most of the fingerlings used by aquaculturists are produced in Georgia. Some aquaculturists are self-supporting with regard to fingerling production, while others have to purchase their fingerlings in nearby hatcheries.
Approximately 70 percent of the trout eggs, fry and fingerlings for trout farms are produced in Georgia while the remainder is imported. The fingerlings of carp, trout and other species produced domestically are generally considered to be of poor quality. The absence of research programmes for genetic improvement, fish health management and fish feeding is considered to be one of the main reasons.
All said indicates the importance of genetic resources managment.

## 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***

Georgia is situated in the central and western parts of the Caucasus surrounded by Armenia, Azerbaijan, Russia and Turkey (lengths of border lines are 164 km, 322 km, 723 km and 252 km respectively). The coastline of Georgia to the Black Sea is 310 km long, while maritime claims are in accordance with the United Nations Convention on the Law of the Sea (UNCLOS), namely 12 nm territorial sea and 200 nm exclusive economic zones (EEZ).

The large natural river supply of phosphorus and nitrogen, the essential nutrients for marine plants and algae has always made the Black Sea very fertile. The narrow continental shelf and the unique quality of the water of the Black Sea at Georgia provide fertile environment for pelagic fish species. Due to stabile vertical stratification of the Black Sea water, the high hydrosulphide concentration causes scarcity of 5 demersal fish species. The total Georgian territorial sea area is about 6 900 km2 , while the area of its EEZ is about 115 000 km2.

Georgia is rich in inland water resources. The yearly average precipitation is about 1 260 mm varying between 1 100 and 1 700 mm per year. This produced on an average 71.5 km3 water resources annually between 1961 and 1990. The total renewable water resources (TRWR) come to about 58.1 km3 per year.

Out of it 17.2 km3 per year groundwater and 56.9 km3 per year surface water are produced internally with a 16 km3 of overlap.

The country is divided into two main river basin systems. The Black Sea river basin system is located in the western area of the country. The total renewable surface water resources (RSWR) generated in this basin is about 42.5 km3 per year. The Caspian Sea river basin system is in the east side of the country, producing about 14.4 km3 annual RSWR.

According to different data sources there are about 25 000–26 000 rivers and streams in Georgia. It is believed that their total length may be as much as 54 000–59 000 km. However, only approximately 5 percent (1 250–1 300) of the rivers and streams are longer than 10 km. Because of the large number of water flows most of them have no name and can hardly be found in official lists.

Before independence only the bigger lakes, their total surface area of 8 800 ha were considered important for inland fisheries. Nevertheless, there are country summaries which mention about 860 lakes with a total area of almost 16 900 ha. All relevant documents agree that the total area of the most important 12 water reservoirs is around 10 700 ha.

Georgia is rich in ground water resources. The quality of the ground waters varies from pure freshwater to mineral and thermal waters.

The total capacity of fresh ground water resources is 560 m3 per second, out of which only about 18 percent (100 m3 per sec) is presently used. Over 80 percent of the geothermal resources are found in west Georgia. The capacity of thermal water resources are estimated varying between 960 000 and 1 000 000 m3 /day (11–11.5 m3 /sec). The temperature of these waters ranges between 30 o C and 108 o C. Out of the mentioned estimated quantity only one-third (about 329 500 m3 / day) is actually used.

Various data are available about the marine fish species in Georgia. According to FishBase there are 48 species, while national specialists list 75 species living in Georgian waters of the Black Sea. Interestingly enough, there are only 16 species that are included in both of the registers.

The most important species of Black Sea fishes are anchovy (3 species), sprats (2 species), whiting, spiny dogfish, scads, pickerel, red mullet and mullet.

The inland waters of Georgia are rich in fish species. Surveys conducted in some of the main inland waters prove that many different species occupy many different ecological niches of the rivers.

According to the FishBase, there are 76 freshwater fish species, while national specialists list less, only 68, species living in Georgian inland waters. Out of them 26 species are mentioned by both sources of information.

Without doubt, the most internationally and locally valued freshwater fish species are the sturgeons. Out of the listed seven sturgeons five are considered endangered (Acipenser guldenstaedtii Colchicus, Acipenser nudiventris, Acipenser stellatus, Acipenser sturio and Huso huso).

The next group of highly valued fish species is the salmonids which also includes the Black Sea salmon (Salmo labrax or Salmo trutta labrax) and some local and introduced species.

Although cyprinids, such as common carp, Chinese major carps (grass, silver and bighead carps) and khramuli (Varicorhinus capoeta) are less valued than the salmonids, still they are the species that could provide the major part of fish catches in most of the Georgian inland waters and fish ponds. Out of them khramuli is an important native species of the region. The role of this fish among the cyprinids could be increased because of its food spectrum and feeding habit.

The most important freshwater predator fish species in Georgia are the European catfish (Silurus oxglanis), pikeperch (Stizostedion lucioperca) and pike (Esox lucius). They are not only highly valued species, but also important constituents of fish stocks in natural waters and in the polyculture of fish farms.

here are about 735 fish farms operating in Georgia. Among them 440 were pond farms and 295 were trout farms with

concrete basins.
The total area of fish ponds in Georgia is 7790 ha. The operating fishpond area in 2015 was more 3,000 hectares. The total area of concrete basins in Georgia is 342525 square meters. The operating basins area in 2015 was more 225 000 square meters.
The volume produced in the pond farms in 2015 amounted to 3980 tons. In the basin farms the volume of produced was 1650 tonnes.
On the pond farms the main targets of cultivation were Carp, Silver and Bighead carp, grass carp, as well as additional fish, such as in western Georgia is Pike and in eastern Georgia the European catfish. For the basin-farms the main object of cultivation was rainbow trout.
In addition to these fish species in 2015 in Georgia were cultivated some sturgeon and salmonid species, as well African catfish in small quantity.

## 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***.

Most of the farmed species are named correctly. But the farmed fishes hybrids, crossbreeds, strains are not register in farms. In farms not register hybridization between some species, e.g. Hypophthalmichthys molitrix and H. nobilis, or crossbreeds of Carps and strains of Rainbow trout.
- Silver carp and bighead carp are present as hybrids in Georgian aquaculture. The silver carp phenotype represents a 75% share in the production of Asian carps.
- The farming professional community mostly not uses an accurate system of identification and naming.

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.***

Despite the fact that Georgia has a law "On the new breeds of animals and plants" genetic data on the cultivated aquatic organisms in aquaculture mostly are not available and not being used.

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.***

Common carp, bighead carp, silver carp and grass carp breeders are used exclusively from domesticated stocks of fish farms.
European catfish, pike, brown trout, are partly propagated from wild stock.

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** 0
- Percent managed by private sector**.** **Please Enter Percentage Here** 80
- Percent managed by private /public partnership. **Please Enter Percentage Here** 20

**Total** 100

***Please add any explanation here.***

No „real" breeding programmes are implemented in Georgian aquaculture.
With 2017 planned works for genetic improvement of farmed carps (crossbreeding, hybridisation, selection, etc.) using local wild stock of common carp.
A breeding programme has been developed for brown trout by a public/private partnership.

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 *mark all that apply* | | Developed By *mark all that apply* | |
|---|---|---|---|---|
| Cyprinus carpio | ☒ Traditional selective breeding | | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | X |
| | ☒ Hybrids | Specify parental species in the box below: Cyprinus carpio X Cyprinus carpio | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Triploids and other polyploids | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Mono-sex production | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Other | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| Hypophthalmichthys nobilis | ☒ Traditional selective breeding | | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | X |
| | ☒ Hybrids | Specify parental species in the box below: Hypophthalmichthys nobilis X Hypophthalmichthys molitrix | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Triploids and other polyploids | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Mono-sex production | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Other | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |

| | | | |
|---|---|---|---|
| | ☒ Traditional selective breeding | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Hybrids | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| Ctenopharyngodon idellus | ☐ Triploids and other polyploids | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | X |
| | ☐ Mono-sex production | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Other | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | | | |
| | ☒ Traditional selective breeding | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Hybrids | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| Oncorhynchus mykiss | ☐ Triploids and other polyploids | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | X |
| | ☐ Mono-sex production | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Other | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | | | |

| | | | | |
|---|---|---|---|---|
| | ☒ Traditional selective breeding | | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | |
| | ☒ Hybrids | Specify parental species in the box below<br>Oncorhynchus mykiss X Oncorhynchus mykiss | ☐ Private Sector<br>☒ Public Sector<br>☐ Private/Public partnership | |
| Acipenseridae | ☐ Triploids and other polyploids | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | X |
| | ☐ Mono-sex production | | ☐ Private Sector<br>☐ Public Sector<br>☐ Private/Public partnership | |
| | ☐ Other | | ☐ Private Sector<br>☐ Public Sector<br>☐ 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 | *Indicate all genetic types that apply to the species* | Are genetic data available for farmed populations? If yes, give summary details in comments | Over the last 10 years, production has been ***(mark one)*** | Expected trend over the next 10 years is that production will ***(mark one)*** | Which genetic technologies are currently being used on the species ***(mark all that apply)*** | ***mark all that apply*** | For example important traits improved, how data are used in management or name of breed, source of information, etc. | |
| ○ Native<br>◉ Introduced<br>Cyprinus carpio | ☐ Wild Type<br>☒ Selective bred type<br>☐ Hybrids<br>☒ Cross breeds<br>☒ Strains<br>☐ Varieties<br>☐ Polyploids | ○ Yes<br>○ No<br>◉ Not Known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☒ Marker assisted selection<br>☐ Other (specify in comment) | | X |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ◉ Native<br>○ Introduced<br>Hypophthalmichthys molitrix | ☐ Wild Type<br>☒ Selective bred type<br>☒ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ○ Yes<br>○ No<br>◉ Not Known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | | X |
| ◉ Native<br>○ Introduced<br>Ctenopharyngodon idellus | ☐ Wild Type<br>☒ Selective bred type<br>☐ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ○ Yes<br>○ No<br>◉ Not Known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | | X |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ◯ Native<br>◯ Introduced<br>Oncorhynchus mykiss | ☐ Wild Type<br>☒ Selective bred type<br>☒ Hybrids<br>☒ Cross breeds<br>☒ Strains<br>☒ Varieties<br>☒ Polyploids | ◯ Yes<br>◯ No<br>◉ Not Known | ◉ Increasing<br>◯ Stable<br>◯ Fluctuating<br>◯ Decreasing<br>◯ Stopped<br>◯ Not known | ◉ Increasing<br>◯ Stable<br>◯ Fluctuating<br>◯ Decreasing<br>◯ Stopped<br>◯ Not known | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☒ Marker assisted selection<br>☐ Other (specify in comment) | | X |
| ◉ Native<br>◯ Introduced<br>Ictalurus spp | ☒ Wild Type<br>☒ Selective bred type<br>☐ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ◯ Yes<br>◯ No<br>◉ Not Known | ◯ Increasing<br>◯ Stable<br>◉ Fluctuating<br>◯ Decreasing<br>◯ Stopped<br>◯ Not known | ◯ Increasing<br>◯ Stable<br>◉ Fluctuating<br>◯ Decreasing<br>◯ Stopped<br>◯ Not known | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | | X |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ○ Native<br>◉ Introduced<br>Acipenseridae | ☐ Wild Type<br>☒ Selective bred type<br>☒ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ○ Yes<br>○ No<br>◉ Not Known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☒ Marker assisted selection<br>☐ Other (specify in comment) | | X |
| ○ Native<br>◉ Introduced<br>Brook trout | ☐ Wild Type<br>☒ Selective bred type<br>☐ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ○ Yes<br>○ No<br>◉ Not Known | ○ Increasing<br>○ Stable<br>◉ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ○ Increasing<br>○ Stable<br>◉ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | | X |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ○ Native<br>○ Introduced<br>Arctic char | ☐ Wild Type<br>☒ Selective bred type<br>☐ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ○ Yes<br>○ No<br>◉ Not Known | ○ Increasing<br>○ Stable<br>◉ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ○ Increasing<br>○ Stable<br>◉ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | | X |
| ○ Native<br>○ Introduced<br>Hypophthalmichthys nobilis | ☐ Wild Type<br>☒ Selective bred type<br>☐ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ○ Yes<br>○ No<br>◉ Not Known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Stopped<br>○ Not known | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☒ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | | X |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ◯ Native<br>◯ Introduced<br>Clarias gariepinus | ☐ Wild Type<br>☒ Selective bred type<br>☐ Hybrids<br>☐ Cross breeds<br>☐ Strains<br>☐ Varieties<br>☐ Polyploids | ◯ Yes<br>◯ No<br>◉ Not Known | ◯ Increasing<br>◯ Stable<br>◯ Fluctuating<br>◉ Decreasing<br>◯ Stopped<br>◯ Not known | ◉ Increasing<br>◯ Stable<br>◯ Fluctuating<br>◯ Decreasing<br>◯ Stopped<br>◯ Not known | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | ☒ Selective breeding<br>☐ Hybridization<br>☐ Polyploidy (chromosome set manipulation)<br>☐ Monosex<br>☐ Marker assisted selection<br>☐ Other (specify in comment) | | X |

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

Add Row

| Species<br>***Type and select a species*** | Is the species native to your country? | Comments<br>***For example main sources of information*** | |
|---|---|---|---|
| Capoeta capoeta | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |
| Capoeta capoeta sevangi | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |
| Luciobarbus capito | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |

| | | | |
|---|---|---|---|
| Coregonus albula | ◯ Yes<br>◉ No<br>◯ Not Known | There is experience of breeding and rearing in the Soviet period | X |
| Coregonus lavaretus baeri | ◯ Yes<br>◉ No<br>◯ Not Known | There is experience of breeding and rearing in the Soviet period | X |
| Coregonus peled | ◯ Yes<br>◯ No<br>◯ Not Known | There is experience of breeding and rearing in the Soviet period | X |

| | | | |
|---|---|---|---|
| Esox lucius | (•) Yes<br>( ) No<br>( ) Not Known | There is experience of breeding and rearing in the Soviet period | X |
| Perca fluviatilis | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |
| Tinca tinca | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |

| | | | |
|---|---|---|---|
| Luciobarbus capito | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |
| Barbus mursa | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |
| Abramis brama | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |

| | | | |
|---|---|---|---|
| Silurus glanis | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |
| Sander lucioperca | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |
| Huso huso | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |

| | | | |
|---|---|---|---|
| Acipenser gueldenstaedtii | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |
| Acipenser stellatus | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |
| Acipenser stellatus | ( ) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |

| | | | |
|---|---|---|---|
| Mugilidae | (•) Yes<br>( ) No<br>( ) Not Known | In the Soviet period breeding techniques and cultivation have been developed. | X |
| Dicentrarchus labrax | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |
| Sparus aurata | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |

| | | | |
|---|---|---|---|
| Scophthalmus rhombus | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |
| Platichthys flesus | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | X |
| Solea spp | (•) Yes<br>( ) No<br>( ) Not Known | Known methods of breeding and rearing in aquaculture | 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<br>**Mark all that apply** | Details of transfer or exchange | Type of genetic material exchanged<br>**Mark all that apply** | Country or countries involved with exchange<br>**Hold CTRL button to select more than one country** | Comments<br>***Please add main purpose or objective of the exchange and main sources of information*** | |
|---|---|---|---|---|---|---|
| | ☐ No deliberate genetic alteration<br>☐ Traditional selective breeding<br>☐ Hybrids<br>☐ Triploids and other polyploids<br>☐ Mono-sex production<br>☐ Other | ☐ Import<br>☐ Export | ☐ DNA<br>☐ Genes<br>☐ Gametes<br>☐ Tissues<br>☐ Embryos<br>☐ Living specimens<br>☐ Other | Afghanistan<br>Albania<br>Algeria<br>Andorra<br>Angola<br>Antigua and Barbuda<br>Argentina<br>Armenia<br>Australia<br>Austria<br>Azerbaijan<br>Bahamas<br>Bahrain<br>Bangladesh<br>Barbados<br>Belarus<br>Belgium | | X |

**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.

Add Row

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.

| Species | Use *(mark all that apply)* | Comments | |
|---|---|---|---|
| Huso huso | ☐ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☒ Research and develpment<br>☐ Other (specify in comments) | | X |
| Acipenser stellatus | ☐ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☒ Research and develpment<br>☐ Other (specify in comments) | | X |
| Solea spp | ☐ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |

| | | | |
|---|---|---|---|
| Abramis brama | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Rutilus rutilus | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Tinca tinca | ☐ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Esox lucius | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |

| | | | |
|---|---|---|---|
| Coregonus albula | ☒ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Coregonus lavaretus | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Dicentrarchus labrax | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Perca fluviatilis | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |

| | | | |
|---|---|---|---|
| Sander lucioperca | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Sparus aurata | ☐ Capture fisheries<br>☒ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Liza aurata | ☒ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Mugil cephalus | ☒ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |

| | | | |
|---|---|---|---|
| Liza saliens | ☒ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |
| Psetta maxima | ☒ Capture fisheries<br>☐ Recreational fishery<br>☐ Aquaria<br>☐ Biological control<br>☐ Research and develpment<br>☐ Other (specify in comments) | | X |

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<br>***mark all that apply*** | Type of genetic material exchanged | Country<br>**Hold CTRL button to select more than one country** | Comments<br>***main sources of information, if the transfer was legal or not*** | |
|---|---|---|---|---|---|
| | ☐ Import<br>☐ Export | ☐ Tissues<br>☐ Gametes<br>☐ DNA<br>☐ Genes<br>☐ Embryos<br>☐ Living specimens<br>☐ Other | Afghanistan<br>Albania<br>Algeria<br>Andorra<br>Angola<br>Antigua and Barbuda<br>Argentina<br>Armenia<br>Australia<br>Austria<br>Azerbaijan<br>Bahamas<br>Bahrain<br>Bangladesh<br>Barbados<br>Belarus | | X |

14. Please fill in table 1.2

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

Add Row

| 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 ***(mark as appropriate):*** | 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 (***mark all that apply)*** | The habitat or range is | What are likely reasons for changes? (***mark all that apply)*** | |
| Cyprinus carpio | ☐ Straddling<br>☐ Transboundary<br>☐ Introduced<br>☒ Native | ◉ Yes<br>○ No<br>○ Not Known | ◉ Yes<br>○ No<br>○ Not Known | ○ Yes<br>○ No<br>◉ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Increasing<br>○ Stable<br>◉ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ○ Increasing<br>◉ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ☐ Intertital<br>☐ Coastal in EEZ<br>☐ High seas<br>☒ Lake<br>☒ Reservoir<br>☒ River<br>☐ Swamp<br>☐ Other **(specify)** | ○ Increasing<br>◉ Stable<br>○ Decreasing<br>○ Not known | ☐ Habitat<br>☐ Climate<br>☐ Invasive species<br>☐ Pollution<br>☐ Rehabilitation of habitat<br>☐ Others<br>☐ 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hypophthalmichthys molitrix | ☐ Straddling<br>☐ Transboundary<br>☒ Introduced<br>☐ Native | ◉ Yes<br>○ No<br>○ Not Known | ◉ Yes<br>○ No<br>○ Not Known | ○ Yes<br>○ No<br>◉ Not Known | ○ Yes<br>○ No<br>◉ Not Known | ○ Increasing<br>○ Stable<br>◉ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ○ Increasing<br>◉ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ☐ Intertital<br>☐ Coastal in EEZ<br>☐ High seas<br>☒ Lake<br>☒ Reservoir<br>☒ River<br>☐ Swamp<br>☐ Other **(specify)** | ○ Increasing<br>◉ Stable<br>○ Decreasing<br>○ Not known | ☐ Habitat<br>☐ Climate<br>☐ Invasive species<br>☐ Pollution<br>☐ Rehabilitation of habitat<br>☐ Others<br>☐ Not known | X |
| Ctenopharyngodon idellus | ☐ Straddling<br>☐ Transboundary<br>☒ Introduced<br>☐ Native | ○ Yes<br>○ No<br>○ Not Known | ○ Yes<br>○ No<br>○ Not Known | ○ Yes<br>○ No<br>○ Not Known | ○ Yes<br>○ No<br>○ Not Known | ○ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ○ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ☐ Intertital<br>☐ Coastal in EEZ<br>☐ High seas<br>☐ Lake<br>☐ Reservoir<br>☐ River<br>☐ Swamp<br>☐ Other **(specify)** | ○ Increasing<br>○ Stable<br>○ Decreasing<br>○ Not known | ☐ Habitat<br>☐ Climate<br>☐ Invasive species<br>☐ Pollution<br>☐ Rehabilitation of habitat<br>☐ Others<br>☐ 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Carassius carassius | ☐ Straddling<br>☐ Transboundary<br>☒ Introduced<br>☐ Native | ◉ Yes<br>○ No<br>○ Not Known | ◉ Yes<br>○ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ◉ Increasing<br>○ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ○ Increasing<br>◉ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ☐ Intertital<br>☐ Coastal in EEZ<br>☐ High seas<br>☒ Lake<br>☒ Reservoir<br>☒ River<br>☐ Swamp<br>☐ Other **(specify)** | ◉ Increasing<br>○ Stable<br>○ Decreasing<br>○ Not known | ☐ Habitat<br>☒ Climate<br>☐ Invasive species<br>☒ Pollution<br>☐ Rehabilitation of habitat<br>☐ Others<br>☐ Not known | X |
| Carassius auratus | ☐ Straddling<br>☐ Transboundary<br>☒ Introduced<br>☐ Native | ◉ Yes<br>○ No<br>○ Not Known | ◉ Yes<br>○ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Increasing<br>◉ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ○ Increasing<br>◉ Stable<br>○ Fluctuating<br>○ Decreasing<br>○ Depleted<br>○ Not known | ☐ Intertital<br>☐ Coastal in EEZ<br>☐ High seas<br>☒ Lake<br>☒ Reservoir<br>☒ River<br>☐ Swamp<br>☐ Other **(specify)** | ○ Increasing<br>◉ Stable<br>○ Decreasing<br>○ Not known | ☐ Habitat<br>☐ Climate<br>☐ Invasive species<br>☐ Pollution<br>☐ Rehabilitation of habitat<br>☐ Others<br>☐ 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 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Silurus glanis | ☐ Straddling<br>☐ Transboundary<br>☐ Introduced<br>☒ Native | ◉ Yes<br>○ No<br>○ Not Known | ◉ Yes<br>○ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Increasing<br>○ Stable<br>○ Fluctuating<br>◉ Decreasing<br>○ Depleted<br>○ Not known | ○ Increasing<br>○ Stable<br>○ Fluctuating<br>◉ Decreasing<br>○ Depleted<br>○ Not known | ☐ Intertital<br>☐ Coastal in EEZ<br>☐ High seas<br>☒ Lake<br>☐ Reservoir<br>☒ River<br>☐ Swamp<br>☐ Other **(specify)** | ○ Increasing<br>○ Stable<br>◉ Decreasing<br>○ Not known | ☒ Habitat<br>☐ Climate<br>☐ Invasive species<br>☒ Pollution<br>☐ Rehabilitation of habitat<br>☒ Others<br>☐ Not known | X |
| Salmo trutta | ☒ Straddling<br>☐ Transboundary<br>☐ Introduced<br>☐ Native | ◉ Yes<br>○ No<br>○ Not Known | ◉ Yes<br>○ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Yes<br>◉ No<br>○ Not Known | ○ Increasing<br>○ Stable<br>○ Fluctuating<br>◉ Decreasing<br>○ Depleted<br>○ Not known | ○ Increasing<br>○ Stable<br>○ Fluctuating<br>◉ Decreasing<br>○ Depleted<br>○ Not known | ☐ Intertital<br>☐ Coastal in EEZ<br>☒ High seas<br>☒ Lake<br>☐ Reservoir<br>☒ River<br>☐ Swamp<br>☐ Other **(specify)** | ○ Increasing<br>○ Stable<br>◉ Decreasing<br>○ Not known | ☒ Habitat<br>☒ Climate<br>☐ Invasive species<br>☒ Pollution<br>☐ Rehabilitation of habitat<br>☒ Others<br>☐ 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<br>***Mark appropriate box*** | Comments<br>***List examples or other relevant information*** |
|---|---|---|
| Human population increase | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | The population of country has decreased |
| Increased wealth and demand for fish | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | Reliable statistics are not available |
| Governance (ability of government, industry and the public to work together in managing resources) | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◉ No effect<br>◯ Unknown | Poor cooperation in resource management |
| Climate change | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | Not available science-based evidence |
| Competition for resources, especially freshwater | ◯ Strongly positive<br>◯ Positive<br>◉ Negative<br>◯ Strongly negative<br>◯ No effect<br>◯ Unknown | The strong influence of impacts on resources has hydropower development |

| Driver impacting aquaculture | Effect on AqGR<br>***Mark appropriate box*** | Comments<br>***List examples or other relevant information*** |
|---|---|---|
| Changes in values and ethics of consumers | ○ Strongly positive<br>◉ Positive<br>○ Negative<br>○ Strongly negative<br>○ No effect<br>○ Unknown | In a society is enhanced understanding of the need to protect aquatic genetic resources. |
| Other<br>***Add other drivers as necessary***<br><br>Add Row / Remove Row | ○ Strongly positive<br>○ Positive<br>○ Negative<br>○ Strongly negative<br>○ No effect<br>○ Unknown | |

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<br>***Mark appropriate box*** | Comments<br>***List examples or other relevant information*** |
|---|---|---|
| Human population increase | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | The population of country has decreased |
| Increased wealth and demand for fish | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | Reliable statistics are not available |
| Governance (ability of government, industry and the public to work together in managing resources) | ◯ Strongly positive<br>◯ Positive<br>◉ Negative<br>◯ Strongly negative<br>◯ No effect<br>◯ Unknown | Poor cooperation in resource management |
| Climate change | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | Not available science-based evidence |
| Competition for resources, especially freshwater | ◯ Strongly positive<br>◯ Positive<br>◉ Negative<br>◯ Strongly negative<br>◯ No effect<br>◯ Unknown | The strong influence of impacts on resources has hydropower development |

| Driver impacting aquaculture | Effect on AqGR<br>***Mark appropriate box*** | Comments<br>***List examples or other relevant information*** |
|---|---|---|
| Changes in values and ethics of consumers | ◯ Strongly positive<br>◉ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◯ Unknown | In a society is enhanced understanding of the need to protect aquatic genetic resources. |
| Other<br>***Add other drivers as necessary***<br><br>Add Row / Remove Row | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◯ Unknown | |

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***

The most important tool for ensuring the prevention and mitigation of threats for aquatic genetic resources is the effective legal support for conservation of genetic resources in the planning of hydropower projects. The main task is to implement the principles of conservation biodiversity in the policy development of the Georgian energy sector.
- Ensure legislative consolidation of the powers and functions for enforcement authorities for of control and supervision in the field of genetic safety.
- Include to the State environmental monitoring system one of the subsystems "Monitoring of genetic resources of biotic components of the environment."
- To develop "A Strategy of public accounting, inventory and monitoring of objects of wildlife".
-To develop work on the preparation and approval of a new list of objects of fauna, listed in the Red Book of Georgia
- Ensure effective legal support to the sustainable development of aquaculture in Georgia, as one of the important sectors of the business for food security of the country, improving the welfare of the population (especially in rural areas), conservation of biodiversity and the improvement of environmental quality.

***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<br>***main sources of information, important species for which the biotechnology is applied*** |
|---|---|---|
| Selective breeding | ◯ Not at all<br>◯ To a minor extent<br>◉ To some extent<br>◯ To a great extent | |
| Hybridization | ◯ Not at all<br>◯ To a minor extent<br>◉ To some extent<br>◯ To a great extent | |
| Polyploidy (chromosome set manipulation) | ◉ Not at all<br>◯ To a minor extent<br>◯ To some extent<br>◯ To a great extent | |
| Monosex production | ◉ Not at all<br>◯ To a minor extent<br>◯ To some extent<br>◯ To a great extent | |
| Marker assisted selection | ◉ Not at all<br>◯ To a minor extent<br>◯ To some extent<br>◯ To a great extent | |
| Gynogenesis/androgenesis | ◉ Not at all<br>◯ To a minor extent<br>◯ To some extent<br>◯ To a great extent | |
| Other<br>**Continue adding row as necessary**<br><br>Add Row \| Remove Row | ◯ Not at all<br>◯ To a minor extent<br>◯ To some extent<br>◯ To a great extent | |

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<br>***mark appropriate box*** | Countermeasures and effects |
|---|---|---|
| Habitat loss and degradation | ○ Strongly positive<br>○ Positive<br>◉ Negative<br>○ Strongly negative<br>○ No effect<br>○ Unknown | The most important tool for ensuring the prevention and mitigation of threats for aquatic genetic resources is the effective legal support for conservation of genetic resources in the planning of hydropower projects. The main task is to implement the principles of conservation biodiversity in the policy development of the Georgian energy sector. |
| Pollution of waters | ○ Strongly positive<br>○ Positive<br>◉ Negative<br>○ Strongly negative<br>○ No effect<br>○ Unknown | Include to the State environmental monitoring system one of the subsystems "Monitoring of genetic resources of biotic components of the environment." |
| Increased frequency of extreme climatic events and long-term climate change | ○ Strongly positive<br>○ Positive<br>○ Negative<br>○ Strongly negative<br>○ No effect<br>◉ Unknown | It is not known due to insufficient information |
| Establishment of invasive species | ○ Strongly positive<br>○ Positive<br>○ Negative<br>○ Strongly negative<br>○ No effect<br>◉ Unknown | It is not known due to insufficient information |
| Introductions of parasites and pathogens | ○ Strongly positive<br>○ Positive<br>○ Negative<br>○ Strongly negative<br>○ No effect<br>◉ Unknown | It is not known due to insufficient information |

| Drivers that are changing aquatic ecosystems | Effect on AqGR<br>***mark appropriate box*** | Countermeasures and effects |
|---|---|---|
| Impacts of purposeful stocking and escapes from aquaculture | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | It is not known due to insufficient information |
| Capture fisheries | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◉ Unknown | It is not known due to insufficient information |
| Other<br>***Continue listing other driverst***<br><br>Add Row Remove Row | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◯ No effect<br>◯ Unknown | |

## 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 sit*u 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 fisher*ies* 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***

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***

The main activity of the administrations of protected areas is to prevent illegal fishing, that not sufficient for in situ conservation of aquatic genetic resources of wild relatives of cultivated aquatic organisms

22. Please provide ex*amples* 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***

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 *in situ* conservation | Rank<br>1=Very Important<br>10=No importance |
|---|---|
| Preservation of aquatic genetic diversity | 1 |
| Maintain good strains for aquaculture production | 1 |
| Meet consumer and market demands | 1 |
| To help adapt to impacts of climate change | 4 |
| Future breed improvement in aquaculture | 1 |
| ***Please continue listing any other objectives as needed*** | |
| | |
| Add Row / Remove 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***

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***

If we consider that in the background of deteriorating habitat a collectors of broodstock for aquaculture and culture-based fisheries concentrated their resources in the controlled conditions of fish farms, this can be described as promoting the conservation of aquatic genetic resources to a limited extent

**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

Acquainted with "National Biodiversity Strategy and Action Plan of Georgia 2014 - 2020"

**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<br>***provide any additional information*** | |
|---|---|---|---|
| Kolkheti National Park | ( ) Very effective<br>( ) Somewhat effective<br>( ) Not effective<br>(•) Unknown | Kolkheti National Park is located in western Georgia. It includes east coast line of Black Sea and Lake Paliastomi basin. National Park is created in order to protect and maintain Kolkheti wetland ecosystems of International importance. | X |
| Borjomi-Kharagauli National Park | ( ) Very effective<br>( ) Somewhat effective<br>( ) Not effective<br>(•) Unknown | Borjomi-Kharagauli National Park is located in central part of Georgia and creates eastern part of lesser Caucasus Mountains. The total area amounts to 85,083 ha, which is more than 1% of the territory of Georgia. | X |
| Tusheti Nature Reserve and National Park | ( ) Very effective<br>( ) Somewhat effective<br>( ) Not effective<br>(•) Unknown | | X |

| Aquatic protected area | Effectiveness of conserving Aquatic Genetic Resources | Comments<br>***provide any additional information*** | |
|---|---|---|---|
| Mtirala National Park | ◯ Very effective<br>◯ Somewhat effective<br>◯ Not effective<br>◉ Unknown | Mtirala National Park is located in south-western part of Caucasus, Lesser Caucasus, in particular extreme western part of Achara-Imereti range, on Kobuleti-Chaqvi range, near Black Sea. Its total area is 15698.8 ha. | X |
| Machakhela National Park | ◯ Very effective<br>◯ Somewhat effective<br>◯ Not effective<br>◉ Unknown | | X |
| Javakheti Protected Areas | ◯ Very effective<br>◯ Somewhat effective<br>◯ Not effective<br>◉ Unknown | Javakheti Protected Areas was established in 2011. It includes Javakheti National Park, Kartsakhi Managed Reserve, Sulda Managed Reserve, Khanchali Managed Reserve, Bugdasheni Managed Reserve and Madatapa Managed Reserve. Javakheti Protected Areas include Municipalities of Akhalqalaqi and Ninotsminda. There are lots of lakes on Javakheti Plateau, including the biggest one – Lake Paravani. | X |

## 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 ***Please mark all that apply*** | Is the species (or subspecies) threatened or endangered for example in the IUCN Red List, CITES Appendices or national lists? ***Please mark appropriate box*** | Comments ***Please list any additional information*** | |
|---|---|---|---|---|
| Salmo Trutta | ☒ Direct human consumption<br>☐ Live feed organism<br>☐ Other | ◉ Yes<br>○ No<br>○ Unknown | | X |
| Acipenser gueldenstaedtii | ☒ Direct human consumption<br>☐ Live feed organism<br>☐ Other | ◉ Yes<br>○ No<br>○ Unknown | | X |
| Acipenser stellatus | ☒ Direct human consumption<br>☐ Live feed organism<br>☐ Other | ◉ Yes<br>○ No<br>○ Unknown | | X |

| Species (*include information on subspecies or strain in comments if available*) | Type of use<br>***Please mark all that apply*** | Is the species (or subspecies) threatened or endangered for example in the IUCN Red List, CITES Appendices or national lists?<br>***Please mark appropriate box*** | Comments<br>***Please list any additional information*** | |
|---|---|---|---|---|
| Acipenser baerii | ☒ Direct human consumption<br>☐ Live feed organism<br>☐ Other | ◉ Yes<br>○ No<br>○ Unknown | | X |
| Acipenser ruthenus | ☒ Direct human consumption<br>☐ Live feed organism<br>☐ Other | ◉ Yes<br>○ No<br>○ Unknown | | 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 ***List all that apply*** | Type of *ex-situ* conservation collection *in vitro* ***mark all that apply*** | Facilities where collection is located ***mark all that apply*** | Comments ***list all breeds, subspecies of the species and any additional information*** | |
|---|---|---|---|---|---|
| | | ☐ In vitro collection of gametes<br>☐ In vitro collextion of embryos<br>☐ In vitro collection of tissues<br>☐ Spores<br>☐ Other | ☐ Aquaculture facilities<br>☐ Research facilities<br>☐ Universities<br>☐ Zoos and aquaria<br>☐ 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 *ex situ* conservation | Rank<br>1=Very Important<br>10=No importance |
|---|---|
| Preservation of aquatic genetic diversity | 3 |
| Maintain good strains for aquaculture production | 1 |
| Meet consumer and market demands | 4 |
| To help adapt to impacts of climate change | 5 |
| Future breed improvement in aquaculture | 2 |
| Other<br>***Continue adding row as necessary*** | |
| | |
| 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<br>***mark all that apply*** | Genetic resource of main interest<br>***mark all that apply*** | Comments<br>***Please provide any information or explanation of stakeholders' role*** |
|---|---|---|---|
| Fish Farmers | ☒ Conservation<br>☒ Production<br>☐ Feed manufactoring<br>☒ Breeding<br>☐ Research<br>☐ Marketing<br>☐ Processing<br>☐ Advocacy<br>☐ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☒ Stock, breed or variety<br>☒ Species<br>☐ Other | |
| Fishers | ☒ Conservation<br>☐ Production<br>☐ Feed manufactoring<br>☐ Breeding<br>☐ Research<br>☐ Marketing<br>☐ Processing<br>☐ Advocacy<br>☐ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☐ Stock, breed or variety<br>☒ Species<br>☐ Other | |

| Stakeholders | Role of stakeholder in regards og AqGR<br>***mark all that apply*** | Genetic resource of main interest<br>***mark all that apply*** | Comments<br>***Please provide any information or explanation of stakeholders' role*** |
|---|---|---|---|
| Fish hatchery people | ☒ Conservation<br>☒ Production<br>☐ Feed manufactoring<br>☒ Breeding<br>☐ Research<br>☒ Marketing<br>☐ Processing<br>☐ Advocacy<br>☐ Outreach/Extension<br>☐ Other (**specify**) | ☒ DNA<br>☒ Stock, breed or variety<br>☒ Species<br>☐ Other | |
| People involved in marketing | ☐ Conservation<br>☐ Production<br>☐ Feed manufactoring<br>☐ Breeding<br>☐ Research<br>☒ Marketing<br>☐ Processing<br>☐ Advocacy<br>☐ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☐ Stock, breed or variety<br>☒ Species<br>☐ Other | |
| Government resource managers | ☒ Conservation<br>☐ Production<br>☐ Feed manufactoring<br>☐ Breeding<br>☒ Research<br>☐ Marketing<br>☐ Processing<br>☒ Advocacy<br>☒ Outreach/Extension<br>☐ Other (**specify**) | ☒ DNA<br>☒ Stock, breed or variety<br>☒ Species<br>☐ Other | |

| Stakeholders | Role of stakeholder in regards og AqGR<br>***mark all that apply*** | Genetic resource of main interest<br>***mark all that apply*** | Comments<br>***Please provide any information or explanation of stakeholders' role*** |
|---|---|---|---|
| Fishing or aquaculture associations | ☒ Conservation<br>☒ Production<br>☐ Feed manufactoring<br>☒ Breeding<br>☐ Research<br>☒ Marketing<br>☒ Processing<br>☐ Advocacy<br>☐ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☒ Stock, breed or variety<br>☒ Species<br>☐ Other | |
| Aquatic protected area managers | ☒ Conservation<br>☐ Production<br>☐ Feed manufactoring<br>☒ Breeding<br>☒ Research<br>☐ Marketing<br>☐ Processing<br>☒ Advocacy<br>☒ Outreach/Extension<br>☐ Other (**specify**) | ☒ DNA<br>☒ Stock, breed or variety<br>☒ Species<br>☐ Other | |
| Policy Makers | ☒ Conservation<br>☐ Production<br>☐ Feed manufactoring<br>☐ Breeding<br>☐ Research<br>☐ Marketing<br>☐ Processing<br>☒ Advocacy<br>☒ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☐ Stock, breed or variety<br>☒ Species<br>☐ Other | |

| Stakeholders | Role of stakeholder in regards og AqGR<br>***mark all that apply*** | Genetic resource of main interest<br>***mark all that apply*** | Comments<br>***Please provide any information or explanation of stakeholders' role*** |
|---|---|---|---|
| Non-Governmental Organizations | ☒ Conservation<br>☒ Production<br>☐ Feed manufactoring<br>☐ Breeding<br>☐ Research<br>☒ Marketing<br>☐ Processing<br>☒ Advocacy<br>☒ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☐ Stock, breed or variety<br>☒ Species<br>☐ Other | |
| Intergovernmental Organizations | ☒ Conservation<br>☒ Production<br>☐ Feed manufactoring<br>☒ Breeding<br>☒ Research<br>☐ Marketing<br>☐ Processing<br>☒ Advocacy<br>☒ Outreach/Extension<br>☐ Other (**specify**) | ☒ DNA<br>☒ Stock, breed or variety<br>☒ Species<br>☐ Other | |
| Donors | ☒ Conservation<br>☒ Production<br>☐ Feed manufactoring<br>☒ Breeding<br>☒ Research<br>☒ Marketing<br>☒ Processing<br>☐ Advocacy<br>☐ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☒ Stock, breed or variety<br>☒ Species<br>☐ Other | |

| Stakeholders | Role of stakeholder in regards og AqGR<br>***mark all that apply*** | Genetic resource of main interest<br>***mark all that apply*** | Comments<br>***Please provide any information or explanation of stakeholders' role*** |
|---|---|---|---|
| Consumers | ☐ Conservation<br>☒ Production<br>☐ Feed manufactoring<br>☐ Breeding<br>☐ Research<br>☒ Marketing<br>☒ Processing<br>☐ Advocacy<br>☐ Outreach/Extension<br>☐ Other (**specify**) | ☐ DNA<br>☐ Stock, breed or variety<br>☒ Species<br>☐ Other | |

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

-Fish processing
-Fish marketing
-Hatcheries
-Reserches
- Administrative work
-NGO, Associations, Unions

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

Some local communities are actively involved in the protection of aqua biological resources at the local level

**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<br>***Select all that apply*** | Comments<br>***Please provide any additional information for example whether it has been effective or not; and main sources of information*** | |
|---|---|---|---|---|
| The Georgian Constitution | 8/24/95 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☒ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☒ Access and benefit sharing<br>☒ Other | | X |
| The Law on the Protection of the Environment | 12/10/96 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☒ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |

| National legislation, policy and/or mechanism | Date established | Scope<br>***Select all that apply*** | Comments<br>***Please provide any additional information for example whether it has been effective or not; and main sources of information*** | |
|---|---|---|---|---|
| The Law on Wildlife | 12/25/96 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☒ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| The Law on Environmental Permit | 12/14/07 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| The Law on Water | 10/16/17 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| Law on Environmental Impact Assessment | 12/14/07 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |

| National legislation, policy and/or mechanism | Date established | Scope<br>***Select all that apply*** | Comments<br>***Please provide any additional information for example whether it has been effective or not; and main sources of information*** | |
|---|---|---|---|---|
| The Law on Maritime Areas | 12/24/98 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| The Marine Code | 6/14/97 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| Food / Feed Safety, Veterinary and Plant Protection Code | 5/8/12 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| The Law "On the new breeds of animals and plants" | 12/15/10 | ☒ Genes or molecules only<br>☒ Aquaculture<br>☐ Capture fisheries<br>☒ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |

| National legislation, policy and/or mechanism | Date established | Scope<br>***Select all that apply*** | Comments<br>***Please provide any additional information for example whether it has been effective or not; and main sources of information*** | |
|---|---|---|---|---|
| Regulations on fishing and protection of fish stock | 12/31/13 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☒ Capture fisheries<br>☒ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| Regulation on the conditions for issuing permits and licenses for the use of wildlife | 8/11/05 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☒ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☒ Access and benefit sharing<br>☐ Other | | X |
| Regulation on the conditions and procedure for the issuance of fishing licenses | 8/11/05 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☒ Capture fisheries<br>☒ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☒ Access and benefit sharing<br>☐ Other | | X |
| Order of the Minister of Environment and Natural Resources About the approval of a single form of the register of genetically modified living organisms. | 5/25/15 | ☒ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☒ Conservation<br>☐ Intellectual property protection<br>☒ Importation<br>☒ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |

| National legislation, policy and/or mechanism | Date established | Scope<br>***Select all that apply*** | Comments<br>***Please provide any additional information for example whether it has been effective or not; and main sources of information*** | |
|---|---|---|---|---|
| Order of the Minister of Environment and Natural Resources On approval of the list of species of living genetically modified organisms admitted on the territory of Georgia. | 4/24/15 | ☐ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☐ Importation<br>☐ Trade and commerce<br>☐ Access and benefit sharing<br>☐ Other | | X |
| Code of Product Safety and Free Movement | 5/8/12 | ☒ Genes or molecules only<br>☐ Aquaculture<br>☐ Capture fisheries<br>☐ Conservation<br>☐ Intellectual property protection<br>☒ Importation<br>☒ Trade and commerce<br>☒ Access and benefit sharing<br>☐ Other | | 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.

In spite of the development trends of fisheries in the world, the Georgian legislation still focuses on aquatic biological resources as an integral part of biodiversity, that can be used for fishery.
The country lacks a legislative and regulatory framework for the sustainable development of aquaculture.

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<br>***Please, provide verifiable main sources of information, effectiveness of the restriction, description of type of restriction and for whom does the restriction apply*** |
|---|---|
| DNA | Act on new breeds of animals and plants<br>-The law prohibits the use of genetic engineering methods in animal breeding. |
| Stock, breed or variety | Act on new breeds of animals and plants<br>- The law regulates the legal protection of new species of animals and their use of agricultural and applies to all new genera and species of the agricultural animals. |
| Species | The Red Book of Georgia<br>Sturgeon and Salmonid fishes<br><br>Regulations on fishing and protection of fish stock<br>This Regulation regulates the fishing rules, the timing of fishing and allowable fishing gear. |
| Other<br>**Continue adding row as necessary**<br>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<br>***Mark all that apply*** | Comment<br>***for example other types of genetic resources*** | |
|---|---|---|---|
| | ☐ DNA<br>☐ Genes<br>☐ Gametes<br>☐ Tissues<br>☐ Embryos<br>☐ 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<br>***mark all that apply*** | Comments<br>***please include additional information as needed*** |
|---|---|---|
| Intellectual property protection | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |
| National laws of your country | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |
| National laws of donor country | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |
| Internationl laws or protocols | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |
| Too expensive | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |
| Material transfer agreements required | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |
| Knowledge gaps | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |
| Public perception | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |

| Obstacles to accessing aquatic genetic resources | Please describe type of genetic resource<br>***mark all that apply*** | Comments<br>***please include additional information as needed*** |
|---|---|---|
| Other<br>**Continue adding row as necessary**<br><br>Add Row \| Remove Row | ☐ DNA<br>☐ Stock, breed or variety<br>☐ Species<br>☐ Other | |

**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***

Only in 2017 will begin to operate a state program of scientific research on the sustainable use and development of aquatic genetic resources of carp and salmon species

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<br>***Mark all that apply*** | Comments<br>***Please provide any additional information*** | |
|---|---|---|---|
| Scentific-research center of agriculture | ☒ Genetic resource management<br>☒ Basic knowledge on aquatic genetic resources<br>☐ Characterization and monitoring of aquatic genetic resources<br>☒ Genetic improvement<br>☒ Economic valuation of aquatic genetic resources<br>☐ Conservation of aquatic genetic resources<br>☒ Communication on aquatic genetic resources<br>☒ Access and distribution of aquatic genetic resources<br>☐ Other | | X |
| National Environmental Agency | ☐ Genetic resource management<br>☐ Basic knowledge on aquatic genetic resources<br>☒ Characterization and monitoring of aquatic genetic resources<br>☐ Genetic improvement<br>☒ Economic valuation of aquatic genetic resources<br>☐ Conservation of aquatic genetic resources<br>☐ Communication on aquatic genetic resources<br>☒ Access and distribution of aquatic genetic resources<br>☐ Other | | 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<br>1=Very Important<br>10=No importance |
|---|---|
| Improve basic knowledge on aquatic genetic resources | 1 |
| Improve capacities for characterization and monitoring of aquatic genetic resources | 1 |
| Improve capacities for genetic improvement | 1 |
| Improve capacities for genetic resource management | 1 |
| Improve capacities for economic valuation of aquatic genetic resources | 1 |
| Improve capacities for conservation of aquatic genetic resources | 1 |
| Improve communication on aquatic genetic resources | 1 |
| Improve access to and distribution of aquatic genetic resources | 1 |
| Add other rows as appropriate and rank<br>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 | |
|---|---|---|---|---|
| | Genetic resource management | ☐ Undergraduate<br>☐ Post-graduate<br>☐ Training<br>☐ Extension | | |
| | Characterization and monitoring of aquatic genetic resources | ☐ Undergraduate<br>☐ Post-graduate<br>☐ Training<br>☐ Extension | | |
| | Genetic improvement | ☐ Undergraduate<br>☐ Post-graduate<br>☐ Training<br>☐ Extension | | X |
| | Economic valuation of aquatic genetic resources | ☐ Undergraduate<br>☐ Post-graduate<br>☐ Training<br>☐ Extension | | |
| | Conservation of aquatic genetic resources | ☐ Undergraduate<br>☐ Post-graduate<br>☐ Training<br>☐ Extension | | |

**Coordination and networking**

41. Please list any mechanisms within your country responsible for coordinating the aquaculture, culture-based fisheries and capture fisheries subsectors with the other sectors that use watersheds and coastal ecosystems and have impacts on aquatic genetic resources of wild relatives of farmed aquatic species (e.g., agriculture, forestry, mining, tourism, waste management and water resources).

If no mechanism exists check here: ☐

Add Row

| Name of mechanism | Description of how mechanism operates | |
|---|---|---|
| | | X |

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<br>1=Very Important<br>10=No importance |
|---|---|
| Increase awareness in institutions | 1 |
| Increase technical capacities of institutions | 3 |
| Increase information sharing between institutions | 2 |
| Add other rows as appropriate and rank<br>Add Row Remove Row | |

***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<br>***Please mark all that apply*** to your country | Comments | |
|---|---|---|---|
| | ☐ Improve basic knowledge on aquatic genetic resources<br>☐ Improve capacities for characterization and monitoring of aquatic genetic resources<br>☐ Improve capacities for genetic improvement<br>☐ Improve capacities for economic valuation of aquatic genetic resources<br>☐ Improve capacities for conservation of aquatic genetic resources<br>☐ Improve communication on aquatic genetic resources<br>☐ Improve access to and distribution of aquatic genetic resources | | 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<br>***mark all that apply*** | Main stakeholders<br>***mark all that apply*** | |
|---|---|---|---|
| | ☐ DNA sequence<br>☐ Genes and genotype<br>☐ Breeds, strains or stocks<br>☐ Species names<br>☐ Production figures<br>☐ Distribution<br>☐ Level of endangerment<br>☐ Other | ☐ Fish farmers<br>☐ Fishers in capture fisheries<br>☐ Fish hatchery people<br>☐ People involved in marketing<br>☐ Government resource managers<br>☐ Fishing or aquaculture associations<br>☐ Aquatic protected area managers<br>☐ University and academic people<br>☐ Non-Governmental Organizations<br>☐ Intergovernmental Organizations<br>☐ Policy makers<br>☐ Donors<br>☐ Consumers<br>☐ Politicians<br>**Please list other stakeholders as necessary** | 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***

It is necessary start work to create them

***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[2] 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:

[2] 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 | |
|---|---|---|---|---|---|
| Convention on Biological Diversity | 21 Apr. 1994 | ○ Strongly positive<br>○ Positive<br>○ Negative<br>○ Strongly negative<br>◉ No effect | ○ Strongly positive<br>○ Positive<br>○ Negative<br>○ Strongly negative<br>◉ No effect | | X |

| 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 | |
|---|---|---|---|---|---|
| Cartagena Protocol | 26 Sept. 2008 | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◉ No effect | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◉ No effect | | X |
| The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (the Ramsar Convention) | 1996 | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◉ No effect | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◉ No effect | | X |
| CITES | 1996 | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◉ No effect | ◯ Strongly positive<br>◯ Positive<br>◯ Negative<br>◯ Strongly negative<br>◉ No effect | | 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<br>1=Very Important<br>10=No importance | To what extent are the needs being met | Comments<br>***For example any critical gaps*** |
|---|---|---|---|
| Improve information technology and database management | 3 | ○ To a great extent<br>○ To some extent<br>◉ None<br>○ Unknown | |
| Improve basic knowledge on aquatic genetic resources | 1 | ○ To a great extent<br>○ To some extent<br>◉ None<br>○ Unknown | |
| Improve capacities for characterization and monitoring of aquatic genetic resources | 2 | ○ To a great extent<br>◉ To some extent<br>○ None<br>○ Unknown | |
| Improve capacities for genetic improvement | 1 | ○ To a great extent<br>◉ To some extent<br>○ None<br>○ Unknown | |
| Improve capacities for economic valuation of aquatic genetic resources | 2 | ○ To a great extent<br>○ To some extent<br>◉ None<br>○ Unknown | |
| Improve capacities for conservation of aquatic genetic resources | 3 | ○ To a great extent<br>◉ To some extent<br>○ None<br>○ Unknown | |
| Improve communication on aquatic genetic resources | 2 | ○ To a great extent<br>◉ To some extent<br>○ None<br>○ Unknown | |

| Collaboration is needed in order to ... | Rank<br>1=Very Important<br>10=No importance | To what extent are the needs being met | Comments<br>***For example any critical gaps*** |
|---|---|---|---|
| To improve access to and distribution of aquatic genetic resources | 3 | ◯ To a great extent<br>◉ To some extent<br>◯ None<br>◯ Unknown | |
| Other<br>**Continue adding row as necessary**<br>Add Row Remove Row | | ◯ To a great extent<br>◯ To some extent<br>◯ None<br>◯ Unknown | |

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

Cooperation is necessary for introduce the governance and the protection of aquatic genetic resources in Georgia.

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***

Exchange of genetic material of farmed fish with cooperating countries;
Exchange of information and expertise with partners from neighboring countries;
Joint research projects with partners from neighboring countries;

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.

Georgia, as a part of the Caucasus, included to 200 Global Ecoregion of WWF, at the same time, this biodiversity is under threat the degradation and destruction, which is why the Caucasus included among the world's 34 biodiversity hot spots.
In fresh waters of Georgia 84 common fish species. In the Caspian Sea basin inhabits 29 species, 17 of which are found in the Caspian Sea basin and the Black Sea basin. In the Kura River basin there are 12 native species, of which 9 are endemic to the Kura River and its tributaries. There are several economically important species among them.
In the basin of the Black Sea inhabited by 66 species of fish. Here dwell 6 endemic fish species. Among them are 2 economically important species.
Two fish species: The Black Sea salmon (Salmo trutta labrax) and Atlantic sturgeon (Acipenser sturio) are included in the IUCN Red List.

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