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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 18654.2-2026

Replacing GB/T 18654.2-2008

Inspection of germplasm for fishes - Part 2: Sampling methods

鱼类种质检验 第2部分：抽样方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 2 of GB/T 18654 "Fish Germplasm Inspection". GB/T 18654 has the following parts published.

- 1.Inspection Rules;
- 2.Sampling Methods;
- 3.Characteristic Determination;
- 4.Measurement of Age and Growth;
- 5.Dietary Analysis;
- 6.Determination of reproductive performance;
- 7.Ecological Characteristics Analysis;
- 8.Determination of Oxygen Consumption Rate and Critical Asphyxia Point;
- 9.Meat yield determination;
- 10.Determination of muscle nutrient composition;
- 12.Karyotype Analysis;
- 13.Isozyme Electrophoresis Analysis;

1 Scope

GB/T 18654.2-2026 is the Chinese national standard covering sampling a fish population for germplasm inspection - the numbers, the stratification by size and sex, and the handling of live fish that have to survive being examined. Germplasm inspection is what establishes that a broodstock population really is the species and strain it is sold as, and that it has not degenerated through generations of hatchery breeding. It replaces GB/T 18654.2-2008 and has been in force since 1 September 2026, one of the six parts of the GB/T 18654 series revised together. It was issued on 27 February 2026 and has been in force since 1 September 2026, replacing GB/T 18654.2-2008. The document is under the responsibility of the Ministry of Agriculture and Rural Affairs. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document describes the reagents and equipment, sampling rules, sampling procedures, sample size, and sample preservation for fish germplasm testing sampling. This document applies to the germplasm testing and identification of fish.

2 Sampling Methods Published on 2026-02-

27 Implemented on 2026-09-

01 State Administration for Market Regulation The State Administration for Standardization issued a statement.

4.1 Reagents and Materials

4.1.1 Water. GB/T 6682, Grade I.

4.1.2 Ethanol (C₂H₅OH).

4.1.3 Formaldehyde (CH₂O). 4.1.4 75% (volume fraction) ethanol solution. Take 75 mL of anhydrous ethanol and dilute it with water to 100 mL. 4.1.5 10% (volume fraction) formaldehyde solution. Take 10 mL of formaldehyde and dilute it with water to 100 mL.

4.1.7 Absorbent paper.

4.1.8 Sample tubes.

4.1.9 Scale bag or otolith bag.

4.1.10 Label paper.

4.1.11 Sampling record sheet (or card).

4.2 Equipment and Supplies

4.2.1 Fishing nets (fish fry nets, fingerling nets, broodstock nets, and landing nets, etc.).

4.2.2 Fish cage.

4.2.3 Fish clips.

4.2.4 Fish bucket.

5 Sampling Rules

5.1 General Provisions The sampling plan shall be determined according to the inspection items and characteristics of the inspected objects in GB/T 18654.1. The general principle of sampling is random sampling.

5.2 Sampling of large water bodies When collecting fish samples from water bodies such as rivers, seas, reservoirs, and lakes, random sampling should be conducted from different areas and fishing runs.

5.3 Pond Sampling Sampling ponds are randomly selected. The following methods are generally used depending on the object being tested.

---Brooders. Net the entire pond or half the pond to one corner, or use broodstock clips, landing nets, or manual capture without damage and transfer them to net cages for later catching. Take samples. The number of samples to be drawn should be more than twice the sample size for testing.

---Fish fry. Net the entire pond or half the pond to one corner, then use a landing net or hand-catch the fish without damaging them, placing them in a net cage or fish bucket for later catching. Take samples. The number of samples to be drawn should be more than 10 times the sample size for testing.

---Fish fry. Use a net to collect fish from multiple points in one corner of the fry pond, or use a dip net to collect samples from the hatching facility. Place the samples in a fish bucket as... Samples to be drawn. The number of samples to be drawn should be more than 10 times the sample size for testing.

5.4 Sampling of net cages At least three net cages should be randomly selected, with the same last digit drawn from each cage, and the samples combined as the final sample. If there are fewer than three net cages, each... The same last digits from the net cages are combined and used as the sample to be drawn. The number of samples to be drawn shall be in accordance with the provisions of Chapter 7.

5.5 Sampling of other aquaculture facilities Sampling in land-based circular ponds, enclosed tanks, containerized aquaculture facilities should randomly select no fewer than three facility units, and each unit should be sampled. If there are fewer than 3 facility units,

each unit should have the same last digit drawn and the resulting mixture should be used as the sample to be drawn. The number of samples to be drawn shall be in accordance with the provisions of Chapter 7.

5.6 Sampling of live fish products during transportation For sampling of packaged and transported live fish products, at least three boxes (bags) should be randomly selected, and the same number of fish samples should be taken from each box (bag) and mixed. For collaborative testing, when the quantity is less than 3 boxes (bags), the same number of fish samples are drawn from each box (bag) and mixed together as the testing sample; for unpackaged fish... Live fish products transported should be sampled randomly. The sample size for testing should be determined according to the testing requirements.

6 Sampling Procedure

6.1 Extraction Samples for testing are randomly selected from the samples to be tested; the number of samples selected should be greater than or equal to the sample size required for the corresponding test item. For the determination of physical condition, age and growth, ecological characteristics, and oxygen consumption rate and critical asphyxiation point, the samples taken should be free from harm and deformities. The fish should be intact, with complete scales. For reproductive performance testing, the sample should contain intact fish bodies and scales, and care should be taken to prevent egg cell loss during sampling. Dietary characteristics... Samples for analysis should be collected promptly, with foregut and stomach samples taken on-site for testing; temporary holding should be avoided. Determination of oxygen consumption rate and critical asphyxia point, chromosome analysis... For genotyping analysis, isozyme electrophoresis analysis, and other assays, the samples should be healthy, live fish with intact bodies, and the oxygen consumption rate should be similar to that of the target fish. The specifications for determining the critical asphyxiation point should be basically consistent, and individual differences in body weight should be controlled within $\pm 5\%$.

6.2 Records A sampling record form should be filled out on-site, recording the sample name, sampling time, location, site number, total production volume, sample size, specifications, and fish. Body condition and recorder, etc. When conducting on-site measurements of external characteristics, age and growth, and meat yield, as well as diet analysis, individual body condition and recorder information must be recorded simultaneously. The sample sequence number, corresponding specifications, original measurement results, and signature are required.

6.3 Transportation Samples used for trait determination, age and growth determination, meat yield determination, and reproductive performance determination should be transported under ice or frozen at 0°C or below. Samples for phenotypic and age/growth assays can also be transported in vivo. The foregut and stomach for dietary analysis are solidified using a 10% formaldehyde solution. For molecular genetic testing, samples can