ICS 65.150
CCS B 50

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18654.3-2026

Replacing GB/T 18654.3-2008

Inspection of germplasm for fishes - Part 3: Measurement of characters

鱼类种质检验 第3部分：性状测定

Issued on: February 27, 2026 **Implemented on: September 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

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 3 of GB/T 18654 "Fish Germplasm Inspection". GB/T 18654 has already published the following parts.

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 Percentage Determination;

10.Determination of muscle nutrient composition;

12.Karyotype Analysis;

13.Isozyme Electrophoresis Analysis;

1 Scope

GB/T 18654.3-2026 is the Chinese national standard covering the morphological characters measured on a fish - the body proportions, the fin ray and scale counts and the meristic characters that identify a species and distinguish one stock from another. 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 18654.3-2008 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 18654.3-2008. 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 defines the terminology and definitions for fish trait determination, and describes the reagents and materials, instruments and equipment, sample preparation, and other aspects involved in trait determination. Experimental procedures and data processing. This document applies to the determination of traits in fish germplasm testing.

4.Reagents and Materials Unless otherwise specified, all reagents were of analytical grade. The water used in the tests was Grade I water conforming to GB/T 6682.

3 Characteristic Determination 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

4.1.1 Ethanol (CH3CH2OH), concentration (volume fraction) 95%. 4.1.2 75% (volume fraction) ethanol solution. Take 400 mL of 95% ethanol (4.1.1), add 106.67 mL of deionized water or distilled water, Mix well.

4.2 Materials

4.2.1 White porcelain plate.

4.2.2 Magnifying glass.

4.2.3 Dissection instruments.

5.1 Length measuring instruments

5.1.1 Fish measuring plate. accuracy 1mm.

5.1.2 Ruler. accuracy 1mm.

5.1.3 Triangle ruler. accuracy 1mm.

5.1.4 Vernier caliper. accuracy 0.02mm.

5.2 Weighing instruments Select electronic balances with different ranges and accuracies according to the sample size (see Table 1).

5.3 Other Equipment

5.3.1 Dissecting microscope.

5.3.2 Refrigerators and freezers.

6 Sample preparation and testing procedures

6.1 Sampling Perform in accordance with the provisions of GB/T 18654.2.

6.2 External Morphology Observation Take fresh, healthy samples with intact bodies and place them on a white porcelain plate (4.2.1). Observe the fish's shape, color, and markings with the naked eye under natural light. Accurately describe and record the external features such as patches.

6.3 Weight Measurement Use a towel to absorb the water adhering to the surface of the fish, and weigh it using a measuring tool with an appropriate range (5.2) according to the size of the fish. For fish with strong stress response... Before measurement, the fish should be subjected to an ice bath (5.3.2) or other methods to reduce their vitality.

6.4 Determination of Measurable Properties

6.4.1 Place the measuring plate (5.1.1) on a stable platform. Place the weighed fish flat on the measuring plate, with its mouth closed and fins extended. However, when the snout is extended, it touches the front vertical baffle of the measuring plate. Based on the measurable traits and size indicators required by the genetic standards of the fish being tested, [further details are needed]. Small, measured using a measuring plate (5.1.1), ruler (5.1.2), set square (5.1.3), or vernier caliper (5.1.4).

6.4.2 During measurement, the movements should be swift and accurate, and each measured value should be read aloud. Data should be retained to 1 to 3 decimal places according to the germplasm standards for the tested fish species. Record the measurements to one decimal place. See Figure 2 for a schematic diagram of the fish's

external shape measurement.

6.5 Determination of Countable Traits

6.5.1 Fins The procedure was performed according to the germplasm standards for the tested fish species. The number of fin rays (branched fin rays, unbranched fin rays, spines, and fin spikes) of each fin was counted, and the result was expressed using a fin formula. (As specified in Appendix A, section A.1).

6.5.2 Lateral line scales The number of scales along the lateral line, the number of scales above the lateral line, and the number of scales below the lateral line (as shown in Figures 2.1, 2, and 3) are counted and expressed in scale form (according to the provisions of A.2). (Okay). For fish with special lateral line scales, the provisions of the fish germplasm standard shall apply.

6.5.3 Bone Plates Place the fish flat on the measuring board and count the number of dorsal, left, right, left, and right ventral sacs (as shown in Figure 2). (As shown in 4, 5, and 6).

6.6 Internal Structure Measurement

6.6.1 Peritoneum After dissection, the peritoneum color was accurately described by visual observation.

6.6.2 Stomach After dissection of the sample, the morphology of the stomach was described by visual observation.

6.6.3 Pyloric sac After sample dissection, the pyloric cecum was removed and treated with water at 70°C~80°C for 0.5min~2min to remove any attached material. The pylorus was then described. Determine the morphology of the blind sacs and count their number.

6.6.4 Swim Bladder After dissecting the sample, the internal organs are removed, the morphology of the swim bladder is observed and described, the number of swim bladder chambers is counted, and sometimes the size of the swim bladder chambers also needs to be measured.

6.6.5 Gill rakers Remove the first gill stalk on the left side near the operculum and observe it with the naked eye, a dissecting microscope (5.3.1), or a magnifying glass (4.2.2). Count the gill rakers on the outer side of the gill arch. Count; for fish without gill rakers on the outer side, count the number of gill rakers on the inner side. For small fish or fish with many gill rakers, use a 75% ethanol solution (4.2). It is better to observe and count after soaking.

6.6.6 Otoliths Remove the otoliths from the head, clean them, describe their shape, and count their number.

6.6.7 Hypopharyngeal teeth After the sample is boiled, the pharyngeal teeth are removed, brushed clean, and observed with the naked eye, a dissecting microscope (5.3.1), or a