PART 4 – Policies, Procedures and Requirements for the Inspection of Fisheries Products on a Lot by Lot Basis (Rev 9/2024)

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Chapter 1 – Introduction

Lot inspection and sampling services are performed by the USDC Seafood Inspection Program on a voluntary, fee-for-service basis. Product inspection services can be provided to determine adherence to:

- Grade A, Processed Under Federal Inspection (PUFI), and/or other official statements and/or marks, as approved by SIP.
- USDC Accepted Per Specifications, as approved by SIP: Buyer Specifications (i.e., Net weight, size, count and/or other product attributes as defined by the buyer),
- Officially Sampled

These services conform to global activities to harmonize inspection protocols. These services are designed to enhance the safety, wholesomeness, economic integrity, and quality of seafood available to consumers. If there are no Buyer Specifications from the applicant, the minimum inspection effort applied to every lot inspection will be adherence to the minimum acceptable Quality and Condition, Flavor, Odor, and Texture.

Chapter 2 – Scope

The purpose of product inspections is to facilitate the distribution of fish and fishery products that are safe, wholesome, properly labeled, and of desired uniform quality. Any individual, processor, retail operation, warehouse operation, or import/export dealer, foreign or domestic, may use the services of this program.

Chapter 3 – Definitions (Rev. 9/30/2024)

1. **Acceptance Number:** The number in a sampling plan that indicates the maximum number of nonconformities permitted in a sample of a lot that meets a specific requirement, e.g. the maximum number of non-conforming units allowed in the sample if the lot is to be accepted.
2. **Accuracy Check:** The daily or routine verification of a measuring device against a known standard.
3. **Applicant:** Any interested party who requests inspection service under the regulations in this part.
4. **Belly Burn:** An enzymatic action on the flesh of fish causing a burned or discolored appearance, i.e., yellowish to brownish spots in the flesh of the belly cavity.
5. **Block:** A rectangular or other uniformly-shaped mass of cohering whole fish, fillets, minced fish flesh, or shrimp, or combinations of these products, frozen together into a solid mass and not readily separable into individual pieces.
6. **Blood spots:** Red, brownish red, or dark spots in the flesh.
7. **Bruises:** localized, darkened (reddish-brown) blood-filled areas in the flesh.
8. **Calibration:** The process of checking, correcting, adjusting, or standardizing a measuring instrument, usually by comparing it with a verified standard.
9. **Case:** The number of containers (cased or uncased) which, by the particular industry, are ordinarily packed in a shipping container.
10. **Certificate of Sampling:** An official certificate or document that makes a statement pursuant to the regulations in this part, identifying officially drawn samples and may include a description of

the condition of containers and the condition under which the fish or fishery product or other marine ingredient is stored. (**NOAA Form 89-805**)

11. **Chalky:** The abnormal condition wherein a fish product has an atypical flesh condition that is partly or wholly characterized by a dry, chalky, granular appearance and fiber-less structure.
12. **Clump:** A cluster of two or more shrimp or pieces of shrimp frozen together, and which cannot be readily separated.
13. **Condition:** The degree of soundness of the product that may affect its merchantability and includes but is not limited to those factors that are subject to change due to age, improper preparation and processing, improper packaging, improper storage, or improper handling.
14. **Damaged Shrimp:** Any individual shrimp that is crushed or mutilated so as to materially affect its appearance or usability.
15. **Damaged Fillets:** crushed or mangled which materially affects its usability, including but not limited to, distortion, honeycombing, and holes.
16. **Decomposition:** The deterioration of fish, shellfish and their products, including texture breakdown, and causing a persistent and distinct objectionable odor or flavor.
17. **Defect:** A departure of a quality characteristic from its intended level or state that occurs with a severity sufficient to cause an associated product not to satisfy intended normal, or foreseeable, usage requirements.
18. **Dehydration:** The loss of moisture from frozen products through evaporation. This may occur if the products are not properly glazed, packaged or stored. Deep dehydration adversely affects the appearance and surface texture of the product and is commonly known as “freezer burn”. Moderate to Excessive: Dehydrated flesh areas present in the frozen state and present in the thawed state. Slight: Dehydrated flesh areas present in the frozen state, but not present in the thawed state.
19. **Deterioration:** Any detectable change from the normal good quality of freshly caught seafood. It is evaluated by noting in the thawed product deviations from the normal odor and appearance of freshly caught product.
20. **Drained Weight:** The weight of the product of a sampled unit after the sample unit has been completely thawed and drained, per AOAC methods.
21. **Establishment:** The premises, buildings, structures, facilities, and equipment (including machines, utensils, fixtures and transit vehicles) used with respect to the receipt, processing and transport of fish and fishery products and other marine ingredients.
22. **Evisceration:** The cleaning of the belly cavities of fish. All spawn, viscera, and belly strings should be removed.
23. **Extraneous Material:** Any non-edible material such as sticks, seaweed, shrimp thorax, shell pieces, viscera, sand, grit, or other objects that may be accidentally present in the packaging.
24. **Flat:** A can with both ends concave, and remaining in this condition even when the can is brought down sharply on its end on a solid, flat surface.
25. **Flipper:** A can that normally appears flat, but when brought down sharply on its end on a solid flat surface, one end flips out. When pressure is applied to this end, it flips in again and can appear flat.
26. **Girdle:** The inedible bony and cartilaginous structures at the base of the pectoral and pelvic fins, or other inedible or unusable material from filets, which have been inadvertently left on fish steaks.
27. **Glaze:** A layer (coating) of ice applied to a product’s surface to serve as a barrier to air to retard dehydration of the product. It must be removed to determine accurately a packaged product’s net weight.
28. **Glazed Weight:** The weight of the entire package contents (including loose ice, but excluding the weight of packaging material) of a sample unit that has been covered (coated) with a protective layer of ice.

29. **Gross Weight:** The weight of the entire packaged sample unit, including its packaging material.
30. **Hard Swell:** A can bulged at both ends, and so tightly that no indentation can be made with thumb pressure.
31. **Headed:** The condition of fish after the head, gills and pectoral fins have been removed. No gills, gill bones, gill covers, collar bones, or pectoral fins should remain after the fish have been headed.
32. **Holes:** perforations in the flesh.
33. **Honeycombing:** The visible appearance of discrete holes or openings of varying size on the surface of flesh that results in an overall sponge-like or honeycombed appearance.
34. **Individually Quick Frozen (IQF):** The freezing of each piece of product separately and apart from other pieces of product, i.e., not frozen together in a block or clump. Products frozen in this manner are generally glazed before packaging to delay the onset of dehydration.
35. **Inspection Certificate:** A statement, either written or printed, issued pursuant to the regulations in this part, setting forth the quality and condition of the product, or any part thereof, in addition to appropriate descriptive information relative to a fish, fishery product, or other marine ingredient, and the container thereof. It may also include a description of the conditions under which the product is stored. (NOAA Form 89-802)
36. **Inspector:** Any employee of the Department authorized by the Secretary or any other person licensed by the Secretary to investigate, sample, inspect, and certify in accordance with the regulations in this part to any interested party the class, quality and condition of processed products covered in this part and to perform related duties in connection with the inspection service.
37. **Jellied:** The abnormal condition wherein a fish product is partly or wholly characterized by a gelatinous, glossy, slimy, translucent appearance.
38. **Licensed Sampler:** Any person who is authorized by the Secretary to draw samples of fish and fishery products or other marine ingredients for inspection service, to confirm the identification and condition of containers in a lot, and may, when authorized by the Secretary, perform other related services under the act and the regulations in this part.
39. **Lot:** A defined quantity of product accumulated under conditions considered uniform for sampling purposes.

    (1) For processors who manufacture fish and fishery products or other marine ingredients, a lot is a production unit as defined by mutual agreement between the processor and SIP, consisting of fish or fishery products or other marine ingredients of the same type, style, form and size, which have been marked or labeled as such and produced under conditions as nearly uniform as possible, during a single 8 hour shift (or as defined and approved) on an individual processing line.

    (2) For establishments that receive fish or fishery products or other marine ingredients, and perform no additional processing, such as distribution warehouses and foodservice distributors, a lot is defined by mutual agreement between the establishment and SIP and must consist of fish or fishery products or other marine ingredients located in a discrete grouping, which consist of fish or fishery products or other marine ingredients of the same type, style and size and are marked or labeled as such. Except that:

    Fish or fishery products or other marine ingredients located in separate groups that differ from each other as to grade or other factors may be deemed as separate lots in some cases, for example:

    (i) Fish or fishery products or other marine ingredients located in the same group bearing an identification mark different from other containers in that group may be deemed as separate lots;

    (ii) Containers of fish or fishery products or other marine ingredients in a group bearing an identification mark different from other containers in that group, if determined to be of lower

grade or deficient in other factors, may be deemed as separate lots; or

(iii) If the applicant requests more than one inspection certificate covering different portions of a lot, the quantity of the product covered by each certificate shall be deemed a separate lot. *Note: This is applied at the stage of certification, NOT at the sampling stage. For example: **if** an request is made for a single inspection of a quantity of a fish or fishery products or other marine ingredients of the same type, style and size and are marked or labeled as such to be issued on 3 separate certificates **then** the sampling would be of the entire quantity to be inspected rather than the quantity listed on the 3 separate certificate requests.*

40. **Lot Inspection (Contract):** Lot inspection(s), where the user contracts with the USDC SIP for a specified number of contract hours of lot inspection over a specified period of time.
41. **Lot Inspection (Non-contract):** The inspection performed on a specific lot of processed product, not during processing, and the conditions under which the product was produced are not attested to.
42. **Milky:** The abnormal condition wherein a fish product is partly or wholly characterized by a milky-white, excessively mushy, pasty, or fluidized appearance.
43. **Net Contents or Net Weight:** The weight of product in a sample unit which remains after all deductions for tare weight and/or glaze have been made.
44. **Nonconformance:** Any specifically defined variation from a particular requirement. (Formerly defined as “deviation.”)
45. **Nonconformity**: A sample unit affected by a departure of a quality characteristic from its intended level or state that occurs with severity sufficient to cause an associated product not to meet a specification requirement. (Formerly defined as a “deviant.”)
46. **Official Establishment:** Any establishment which has been approved by the USDC SIP, and utilizes inspection service on a contract basis.
47. **Officially Drawn Sample:** A sample that has been selected from a particular lot by an inspector, licensed sampler, or by any other person authorized by the Secretary pursuant to the regulations in this part.
48. **Processing:** In regards to fish and fishery products and other marine ingredients, activities that an establishment engages in including handling, storing, preparing, heading, eviscerating, shucking, freezing, changing into different market forms, manufacturing, preserving, packing, labeling, dockside unloading, or holding.
49. **Quality:** The inherent properties of any processed product that determine the relative degree of excellence of such product, includes the effects of preparation and processing, and may or may not include the effects of packing media, or added ingredients.
50. **Rejection Number:** The smallest number of nonconformities, defectives (or defects) in the sample or samples under consideration that will require rejection of the lot.
51. **Sample:** The number of sample units drawn from a lot for purposes of inspection to reach a decision regarding acceptance of the lot, and for purposes of quality to reach a conclusion regarding conformity of the lot.
52. **Sample Size:** The number of sample units prescribed by the sampling plan to be used for the inspection .
53. **Sample Unit:** A “unit of product”, a primary container and its contents, that makes up the sample that is inspected to determine whether the unit of product complies or does not comply with regulatory criteria and that is quality assessed to determine whether the unit of product conforms or does not conform to quality criteria.
54. **Sampling:** The process of selecting sample units that comprise the sample for the purpose of inspection and quality assessment under the regulations of this part.
55. **Sampling Plan:** A specific plan that states the sample size or sizes to be used and the associated acceptance criteria.

56. **Sensory Evaluation:** The method by which evaluation of product attributes (i.e., color, appearance, odor, flavor and texture) is performed.
57. **Shipping Container:** An individual container designed for shipping a number of packages or cans ordinarily packed in a container for shipping or designed for packing unpackaged fish or fishery products or other marine ingredients for shipping.
58. **Sieve:** A utensil of wire mesh or closely perforated metal, used for draining or separating particles of different sizes (wet or dry) from impurities.
59. **Soft Swell:** A can bulged at both ends, but not so tightly that the ends cannot be pushed in somewhat with thumb pressure.
60. **Springer:** A can with one end permanently bulged. When sufficient pressure is applied to this end, it will flip in, but the other end will flip out.
61. **Tare (Tare Weight):** The weight of the container, wrapper, or other packaging material of a sample unit that is deducted from the gross weight to obtain the net weight.
62. **Unofficially Drawn Sample:** A sample that has been selected by any person other than an inspector or licensed sampler, or by any other person not authorized by the Director pursuant to the regulations in this part.
63. **Whole Shrimp:** For shrimp under 70 count per pound, any individual shrimp consisting of at least 5 segments of un-mutilated shrimp flesh; or, for shrimp over 70 count per pound, any individual shrimp consisting of at least 4 segments of un-mutilated shrimp flesh.
64. **Wholesome:** The minimum basis of acceptability for human food purposes, of any fish or fishery product or other marine ingredient as defined in section 402 of the Federal Food, Drug, and Cosmetic Act, as amended.

Chapter 4 – Application for Services

Inspection Services

(1) Seafood inspection services supports seafood safety, includes sanitation inspection, system and process audits, grading and inspection, and product laboratory analyses. Inspection service may include one or more of the following: The performance of sampling pursuant to the regulations in this part;
(2) The determination pursuant to the regulations and requirements in this part:
    (i) Assessing compliance with statutory and regulatory requirements pertaining to the interstate commerce of fish and fishery products or other marine ingredients for human or animal food;
    (ii) Identifying the essential characteristics such as style, type, size, or identity of any fish or fishery product or other marine ingredient;
    (iii) Assessing the class, quality, and condition of any fish or fishery product or other marine ingredient, including the condition of the container thereof by the examination of appropriate samples;
(3) The issuance of any certificates of sampling, inspection certificates, or certificates of loading of a fish or fishery product or other marine ingredient, or any report relative to any of the foregoing; or
(4) The performance by an inspector of any related services, such as:
    (i) Observing the preparation of the product from its raw state through each step in the entire process;
    (ii) Observing the conditions under which the product is being harvested, prepared, handled, stored, processed, packed, preserved, transported, or held;

(iii) Observing the sanitation conditions as a prerequisite to the inspection of the processed product, either on a contract basis or periodic basis;

(iv) Check-loading the inspected processed product in connection with the marketing of the product; or

(5) (v) Conducting any other type of service of a consultative or advisory nature related herewith as outlined in the NMFS Fishery Products Inspection Manual.

Application for Services

Beginning in October 1, 2024, USDC SIP stakeholders will be required to make lot inspection requests via the online Seafood Inspection Services Portal (SISP). All requests for inspection services must be submitted through the SISP IP's Online Request System https://seafoodinspection.nmfs.noaa.gov/customer/customerlogin.html. First-time users will be directed to create a customer profile and will be contacted to complete a SF-3881 to activate and complete their account setup. Stakeholders should allow time for processing and activation of their account. Inspection requests shall be submitted to the appropriate regional inspection branch or lot inspection office. Inspection service requests should be completed accurately to ensure prompt inspection services. Requesters shall request the appropriate type of inspection such as net weights, quality and condition, counts, check loading, and U.S. Grade A, as well as the disposition of the samples following completion of the inspection. It is the responsibility of the requestor to ensure the product is available and released for inspection. Also, see Chapter 6 Lot Identification instructions.

For more information and a user guide, please visit our website:
https://www.fisheries.noaa.gov/s3/2024-05/Inspection-Request-Customer-User-Guide.pdf

Chapter 5 – Lot Identification

In the Inspection Request function of SISP the applicant will clearly identify the lot to be inspected, including the lot number, brand, product name, number of cartons/cases and size, and the total pounds. Any additional codes and/or identification marks on the containers should also be noted. The application will also indicate where the product is physically located, and the applicant is responsible for making sure that the product is available for inspection.

Chapter 6 – Reworked or Reconditioned Product

Reworked and reconditioned product requests must not include products that are decomposed, or adulterated products, or if the product is part of an appeal inspection. Non-safety related requests for reworked and reconditioned product inspections will be considered by the Regional Office.

Non-government agency requests:

Non-governmental agency customers who request inspection or certification for reworked and reconditioned products, the requester must submit a written description of the issue, plus the rework and reconditioning procedures on how the product will be brought into compliance. These procedures must be submitted to the regional office for review and approval before re-inspection occurs.

Government agency requests:

USDC SIP inspectors and licensed samplers will neither inspect nor certify products which have been reworked or reconditioned for subsequent delivery to other Federal agencies, i.e., Defense Personnel Support Center or U.S. Department of Agriculture, without first having written confirmation from the purchasing agency that reworking or reconditioning of the lot is acceptable. In each request for rework and reconditioning, the requester must submit the rework and reconditioning procedures on how the product will be brought back to compliance. These procedures must be submitted to the regional inspection office for review and approval before re-inspection occurs. The fact that the lot is derived in whole or in part from reworked or reconditioned product shall be noted on the certificate. USDC SIP inspectors and licensed samplers will neither inspect nor certify products which have been reworked or reconditioned for subsequent delivery to other Federal agencies (i.e., Defense Personnel Support Center or U.S. Department of Agriculture) without a prior written acceptance from the government purchaser.

Chapter 7 – Equipment Checklist

For the accurate and efficient performance of product inspections, each regional office shall have the appropriate and necessary equipment available to perform such audits. Equipment that is required is specific to each Standard or product evaluation, and could include the following:

- Appropriate inspection forms and score sheets
- Balance accurate to 0.01 gram
- Boilable bags
- Box cutter
- Can press
- Candling table/light
- Deep fryer with wire basket
- Digital camera
- Drill – high speed, ¼" bit
- Forceps with blunt points
- Knife
- Magnifying glass with 6X or greater power
- Microwave oven
- Nut pick
- Nylon mesh bags (other materials may be used, as appropriate)
- Packing tape
- Paper towels
- Plastic or glass bowls, various sizes
- Roe tub opener
- Sanitary can opener
- Seam micrometer
- Seam nippers
- Shallow baking pan
- Sieves – U.S. No. 8 (8" and 12"), U.S. No. 20, and U.S. No. 4 (12")
- Sink with cold water and stand pipe
- Shrimp Debreader
- Spatula, 4" blade with rounded tip
- Stop watch or timer, readable to the second
- Thermometer – dial or digital probe
- Thermometer – immersion type, accurate to ±2°F
- Tongs
- Vacuum gauge
- Water bath
- Wire whip

- Plastic grid marked in ¼", ½", and 1" squares for measuring defects

Chapter 8 – Accuracy Checks and Calibration of Equipment

All thermometers, scales, and balances shall be verified according to USDC SIP official accuracy check[1] and calibration procedures, which include equipment calibration at least twice per year, or more frequently depending on storage and usage conditions. Accuracy check and calibration records shall be maintained on file at the local inspection office.

If an off-site inspection is required, accuracy and calibration documentation of thermometers, scales, and balances must be available at the location.

[1]See Part 4 Appendix, Chapter 8, Measurement Standards and Test Equipment Guidelines – April 2020

Chapter 9 – Eligibility Requirements for Use of NOAA SIP Official Insignia

Introduction

NOAA Seafood Inspection Program (SIP) has the authority to grant use of two quality insignia, known as NOAA SIP Official Insignia: the **US Grade A Shield** and the **Processed Under Federal Inspection (PUFI) Mark**, and associated statements for eligible fish and fishery products.

Scope

The policy governing the Eligibility Requirements for Use of NOAA SIP Official Insignia pertains to fish and fishery products originating from establishments approved by NOAA SIP (Approved Establishments).

The subsequent sections delineate the criteria for eligibility, the protocols for submitting requests and obtaining approvals, and the procedures for revocation in connection with the utilization of distinct NOAA SIP Official Insignia.

Eligibility Criteria for Utilizing Grade A, Processed Under Federal Inspection Marks, and Associated Statements

In order to qualify for the use of the NOAA SIP Official Insignia, **Approved Establishments** are required to:

- Maintain a reliable system rating as an Approved Establishment.
- Fulfill the Process and Production stipulations detailed in 50 CFR Parts 260 and 261, as well as meet all NOAA Seafood Inspection Program requirements.
- Engage in either the **Onsite Finished Product Inspection** or the **Audit-based Product Inspection.**
- Meet all eligibility requirements for use of the applicable Official Insignia.

To attain eligibility for employing the NOAA SIP Insignia on a lot-by-lot basis, fish and fishery products must meet processing and production requirements, and must:

- Meet the requirements for regulatory compliance.
- Conform to the quality standards and specifications established by NOAA SIP that are in accordance with the eligibility requirements of the NOAA SIP Insignia.
- Fulfill, when applicable, the additional specifications and prerequisites as specified by NOAA SIP and customer requirements.

Procedures to Request use of NOAA SIP Official Insignia.

To initiate a request for use of NOAA SIP Official Insignia, Approved Establishments will contact the NOAA SIP Approval Officer via email at NMFS.SIP.Approval.Officer@noaa.gov.

A. Onsite Finished Product Inspection

To meet eligibility requirements for use of NOAA SIP Insignia, the NOAA SIP inspector is present during all hours of operation for lots submitted for grading and certification. On a lot-by-lot basis, the NOAA SIP inspector determines whether each submitted lot has met:

NOAA SIP Program Requirements

- Processing and Production Requirements
- Traceability Requirements

Finished Product Requirements:

- Regulatory and Program Compliance Requirements
- Grade Standard Quality Conformance Requirements (including production requirements)
- When applicable, Additional Purchase Program Requirements (e.g. USDA AMS FPP, USDA CN, US DOD/DLA, etc.)

Lots that meet the above requirements are eligible to bear the applicable US Grade A Shield or PUFI Mark on a lot by lot basis, as conferred by the NOAA SIP inspector.

B. Audit-based Finished Product Inspection

USDC SIP Approved Establishments that plan to produce Grade A or PUFI shielded product lots over a long period of time may petition to participate in USDC SIP Audit-Based Inspection. To meet eligibility requirements for this audit-based program, Approved Establishments must develop and implement a Product Management Plan (PMP) to substantiate, on a lot-by-lot basis, that finished products meet the criteria to bear the corresponding mark. Under the audit-based system, firms are authorized to use the

USDC SIP mark for all eligible lots covered by a PMP without an inspector being present. A PMP should identify the specific criteria the firm will use to process the product, all production steps where quality controls are implemented, a method to verify the reliability of the PMP, and a corrective action plan in place to address non-conformities.

Participation in Audit Based Inspection requires a USDC SIP accepted PMP for each process used that bears a Grade A or PUFI Mark and a defined procedure to trace product back to harvest. All production must occur within a USDC SIP Approved Establishment post-harvest. Petitions for audit-based approvals may be submitted for future production runs only. For products that are already produced and/or ready for shipment, onsite finished product inspection may be permitted by the region as a one-time exception.

Petitions for Approval of Audit-Based Inspection may be submitted to: (NOAA SIP Audit Based PMP Submission link). Please feel free to contact the Approval Officer at nmfs.sip.approval.officer@noaa.gov or your Regional Inspection Office for further questions or concerns.

Revocation of Eligibility to Use Grade A, Processed Under Federal Inspection Marks and associated statements for AE and AE with Quality Management Program participants.

Approval for use of *Official Insignia* may be revoked when the establishment fails to meet NOAA SIP requirements.

For more information on advertising see 50 CFR Part 260.

Chapter 10 – Minimum Inspection Effort for Lot Inspection

The minimum inspection effort applied for lot inspection of fishery products will be Quality and Condition, which may include flavor, odor and texture, unless an inspection document requires further investigation of the fishery product, such as a buyer specification, foreign country requirements or an applicant's request. However, should obvious label violations be noted during the lot inspection, they will be reported on the lot inspection certificate along with the results of the quality and condition. Quality and Condition are defined in 50 CFR 260 as follows:

Quality refers to the wholesomeness of the product, or the minimum basis of acceptability for human food purposes. "Quality" means the inherent properties of any processed product that determine the relative degree of excellence of such product, includes the effects of preparation and processing, and may or may not include the effects of packing media or added ingredients.

Condition refers to the packaging and the product. "'Condition' means the degree of soundness of the product which may affect its merchantability and includes, but is not limited to those factors which are subject to change as a result of age, improper preparation and processing, improper packaging, improper storage, or improper handling."

On completion of the inspection, the Lot Inspection Certificate will attest to the factors of Quality and Condition found. If weights and counts were not requested as part of the lot inspection, a statement to the effect will be placed on the certificate, "Vendor weights and counts used, but not verified."

Chapter 11 – Methodology

A. **Sample Selection**

Once the lot has been identified, the sample size is determined using the sampling plans found in **Chapter 19**. The entire lot must be staged to be readily accessible for sampling. Samples shall be randomly drawn from throughout the entire lot. Representative cases should be selected from random pallets available and from different levels in each pallet, and from among outside and inside positions on the pallets. Individual samples shall be selected from varying locations within the individual cases, with only one sample drawn from any one case whenever possible. If the lot consists of more than one production date code, the inspector should sample as many different codes as possible. To avoid leaving multiple partially filled cases, back-fill each case with product from the first case(s) sampled. When sampling is completed, there should be no more than one partially filled case remaining. Cases from which a sample has been removed are either marked "sampled" or double-stamped, and then resealed with packing tape. 100% of the outward facing of palletized cases (top and four sides) shall be stamped as "Officially Sampled" unless otherwise authorized by the SIP Regional Inspection Branch management.

Once all samples have been collected, complete the Certificate of Sampling, NOAA Form 89-805. Company and/or warehouse receipts may also be used to identify samples or sample units drawn by the inspector. If samples for inspection are provided by any means other than a USDC SIP inspector, cross-licensed inspector or licensed sampler, they shall be accompanied by a Report of Fishery Product Inspection for Unofficial Samples, NOAA Form 89-806.

B. **Container Integrity**

Examine the shipping containers for signs of damage or abuse. Look specifically for evidence of:

- Improper handling – damaged or torn cartons
- Contamination - rodent or insect filth/excreta, foreign material
- Temperature abuse – signs of freeze/thaw damage
- Leakage – water stains, wet packaging, spoilage odors, opened containers

Take photographs of all labels and identifying marks on the outside of the shipping containers to keep with the inspection report. Record any comments on the applicable document(s) and or sampling certificate.

C. **Label Review Procedures**

Labels of all products intended for domestic commerce shall be checked for compliance to the regulations in 21 CFR Part 101, Food Labeling. Check to ensure the product name, market name, packer, country of origin, weight, count, and size declarations are accurate. For product intended for export, ensure that the labeling meets the minimal requirements for the country to which it is being exported. Take photographs of the product label(s) to keep with the inspection report. Make sure that the information on the product label(s) and the information on the shipping container are in agreement.

D. **Net or Drained Weight Determination**

Use the official methods contained in the most current edition of the publication Official Methods of Analysis of AOAC International to determine a product's net weight or drained weight. The procedures and the products to which they apply are as follows:

References for the following procedures are from the Association of Official Agricultural Chemists (AOAC) International:

Dr. Latimer, George W, Jr. (ed.), 'Official Methods of Analysis: 22nd Edition (2023)', in Dr. George W Latimer, Jr. (ed.), Official Methods of Analysis of AOAC INTERNATIONAL, 22 (New York, 2023; online edn, AOAC Publications, 4 Jan. 2023), https://doi.org/10.1093/9780197610145.002.001, accessed 23 Feb. 2024.

AOAC 963.26B (a) – Net Contents of Frozen Food Containers – Unglazed Frozen Foods (**Net Contents Method**) This method is used to determine the net weight of packaged, **unglazed** shrimp and seafood products. Results are reported as net weight.

442.3.01 AOAC Official Method 963.26
Net Contents of Frozen Food Containers

A. Apparatus
    a. *For packages up to 5 lbs. (2268g)*—Use scale of adequate capacity with readability of 0.01 oz (0.284g).
    b. *For packages over 5 lbs*—Use scale of adequate capacity with readability of 0.025 oz (0.71g).
B. Procedure
    Set scale on firm support and level. Adjust 0 load indicator or rest point and check sensitivity.
    a. *Unglazed frozen foods*—Remove package from low temperature storage, remove frost and ice from outside of package, and weight immediately (***W***). Open package; remove contents, including any product particles and frost crystals. Air-dry empty package at room temperature and weigh (***E***). Weight contents = ***W – E***.
    b. *Glazed frozen foods—See* **963.18(a) (see 35.1.02)**.

Reference:
JOAOC 46, 30(1963)

AOAC 963.18 (a) – Net Contents of Frozen Seafoods – Drained Weight– Glazed Seafoods (Spray – Deglazed Method)

This method is used to determine the net weight of packaged, glazed, IQF shrimp and seafood products that can be deglazed without thawing or partially thawing some or all of the product. This method **is not used** for block-frozen shrimp, nor for shrimp that are of such small size that glaze cannot be removed practically without thawing, or partially thawing, some of the shrimp. This method also **is not used** for IQF products that contain clumps or clusters in excess of 15% by weight of the glazed weight. Results of this method are reported as net weight, regardless of the designation "Drained Weight" in the paragraph heading. The product is not thawed before draining; hence **it is not a drained weight**.

Note: Exception to method 963.18(a): For large packages, cases, or containers of shrimp, a representative subsample is removed from the total contents to facilitate deglazing and for purposes of grading the product to the standard.

35.1.02 AOAC Official Method 963.18
Net Contents of Frozen Seafoods Drained Weight Procedure

Codex-Adopted-AOAC Method*

Set scale, 963.26A (*see* 42.3.01) on firm support and level. Adjust 0 load indicator or rest point and check sensitivity.

a. *Glazed seafoods*—Remove package from low temperature storage, open immediately, and place contents under gentle spray of cold H2O. Agitate carefully so product is not broken. Spray until all ice glaze that can be seen or felt is removed. Transfer product to circular No. 8 sieve, 8 in. (20cm) diameter for 0.9 kg (2lb) and 12 in. (30cm) for >0.9kg (2lb). Without shifting product, incline sieve at angle of 17-20° to facilitate drainage and drain exactly 2 min (stop watch). Immediately transfer product to tared pan (***B***) and weigh (***A***). Weight product = ***A – B***.

b. *Unglazed seafoods*—See **963.26B** (*see* 42.3.01).

Reference:
JAOAC 46, 31(1963)
Revised: March 1997
*Adopted as a Codez Defining Method (Type I) of weighing of net contents of products covered by glaze in quick frozen fish sticks (fish fingers) and fish portions – breaded or in batter.

AOAC 967.13 and 970.60
Drained Weight of Frozen Shrimp and Crabmeat (**Immersion-Thaw Method**)

This method is used to determine the net weight of shrimp or other seafood frozen together in a block. The individual pieces are not readily separable in the frozen state. This method is also used for IQF shrimp of such small size that the glaze cannot be removed practically without thawing or partially thawing at least some of the shrimp. It is also used for IQF products which contain clumps or clusters in excess of 15% by weight of the glazed weight. Results of this method are reported as drained weight.

Note: Exception to methods 967.13 and 970.60: Nylon mesh bags are used in lieu of a wire mesh basket.

35.1.08 AOAC Official Method 967.13
Drained Weight of Frozen Shrimp and Crabmeat

A. Apparatus
   a. *Container*—Wire mesh basket large enough to hold contents of one package and with openings small enough to retain all pieces. Expanded metal test-tube basket or equivalent, fully lined with standard 16 mesh per linear inch insect screen is satisfactory.
   b. *Balance*—Readability to 0.25g or 0.01 oz.
   c. *Sieves*—U.S. No. 8, 8 in. (20cm) and 12 in. (30cm) diameter.

B. Determination

Place contents of individual package in wire mesh basket and immerse in ≥ 15L (4 gal.) container of fresh H2O at 26± 3°C (80± 5°F) so that top of basket extends above H2O level. Introduce water of same temperature at bottom of container at flow rate of 4-11 L (1-3 gal.)/min. As soon as product thaws, as determined by loss of rigidity, transfer all material to 12 in. ([30 cm; for

package >450 g (1 lb.)] or 8 in. (20 cm; for package ≤ 1 lb) No. 8 sieve, distributing evenly. Without shifting material on sieve, incline sieve to ca 30° from horizontal to facilitate drainage. Two minutes from time placed on sieve, transfer product to previously weighed pan, and weigh. Weight so found minus weight of pan is drained weight of product.

Reference:
JAOAC 50, 275(1967); 52, 692(1969); 53, 9(1970); 56, 886(1973)

35.1.09 AOAC Official Method 970.60
Drained Weight of Frozen Crabmeat

A. Apparatus
   a. *Balance*—Readability to 1 g or 0.01 lb.
   b. *Thermometer*—Accurate in 0-30°C (30-80°F) range.
   c. *Plastic bowls*—Marked at 48 oz (1420 mL), 64 oz (1893 mL), or 1 gal. (3785 mL) level for 6 oz, 8 oz, or 1 lb packages, respectively.

B. Determination

Weigh bare block free of all wrappings and record weight. Place block in bowl containing amount of fresh potable water at 27°C (80°F) equal to 8 × declared weight. Leave block in H_2O until all ice is melted. Turn block over several times during thawing. The point at which thawing is complete can be determined by probing block apart.

Pour entire thawed test portion into tared 8 in. (20cm) No. 8 sieve. Incline screen to aid drainage, drain exactly 2 min, and weigh. Subtract tare weight of sieve for thawed drained weight of test portion.

$$\text{Drained weight, \%} = \frac{\text{thawed drained weight} \times 100}{\text{declared net weight}}$$

Reference:
JAOAC 53, 9(1970); 56, 886(1973)

Note: Drained weight can be determined whenever requested, however net weight cannot be determined and certified on all lots. When net weight and drained weight can both be determined and the applicant has requested both, the inspector **must draw two separate sets of samples**, one set for determining the net weight, and one set for determining the drained weight. The applicant must be advised before sampling that two separate sets of samples will be drawn.

The inspector may refuse to perform the spray-deglaze method of determining net weight on shrimp of such small size that the glaze cannot be removed practically without at least partially thawing some of the shrimp. This is a judgment call to be made by the inspector's supervisor, if necessary. If the applicant has requested a net weight determination (**not** a drained weight determination), and the inspector believes it cannot be performed accurately, the applicant must be so advised, and permission received to perform a drained weight determination in lieu thereof.

It is important that the certificate state exactly what "weight" was determined, i.e., net weight, drained weight, or both. Further, the inspector must include the AOAC method(s) used (by identifying the section number) on the certification along with the number of the edition of the AOAC manual used.

C. Procedures for Cooking Samples

Use the official methods contained in the most current edition of the publication Official Methods of Analysis of AOAC International for sensory evaluation of a product in the cooked state, a sample unit is cooked by the following procedures.

References for the following procedures are from the Association of Official Agricultural Chemists (AOAC) International:

Dr. Latimer, George W, Jr. (ed.), 'Official Methods of Analysis: 22nd Edition (2023)', in Dr. George W Latimer, Jr. (ed.), Official Methods of Analysis of AOAC INTERNATIONAL, 22 (New York, 2023; online edn, AOAC Publications, 4 Jan. 2023), https://doi.org/10.1093/9780197610145.002.001, accessed 23 Feb. 2024.

35.1.04 AOAC Official Method 976.16
Cooking Seafood Products: Procedure

For fish blocks or other unbreaded test samples, cut three test portions, each 4 × 3 × 0.5 in. (ca 10 × 7.5 × 1.2 cm) from test sample.

Cooking procedure is based on heating product to internal temperature 160°F (70°C). Cooking times vary according to size of product and equipment used. To determine cooking time, cook extra test sample same way using temperature measuring device with probe of known length to determine internal temperature. Cooking equipment, including cooking oil for deep fat frying, shall be free from substances that interfere with sensory evaluation of cooked product.

Methods of heating product include, but are not limited to, baking, bake-in-foil, broiling, boil-in-bag, shallow pan frying, deep fat frying, oven frying, grilling, poaching, steaming, and microwave heating.

Reference:
JAOAC 59, 225(1976); 66, 813(1983)

Note:

- **Bake procedure** – Wrap the samples in aluminum foil and distribute evenly on a flat cookie sheet or shallow flat-bottomed pan. Heat in a ventilated oven, preheated to 400° F (240° C), until the internal temperature of the product reaches at least 160° F (70° C).
- **Boil-in-Bag procedure** – Place the thawed sample in a boilable film-type pouch and seal. Immerse the pouch and contents in boiling water and heat until the internal temperature of the product reaches at least 160° F (70° C).
- **Steam procedure** – Wrap samples in aluminum foil and place on a wire rack over boiling water in a covered container. Heat until the internal temperature of the product reaches at least 160° F (70° C).
- **Microwave procedure** – Wrap samples in plastic wrap or microwave food bags with uniform thickness. Some plastic bags impart odors to the product. Check prior to the inspection to ensure no odor is added from the plastic bag. Place on a food-grade paper plate. Rotate plate ¼ turn, halfway through the cook cycle. Heat until the internal temperature of the product reaches at least 160° F (70° C).
- **Fry procedure (for breaded shrimp)** – Place frozen breaded shrimp into a wire mesh deep-fry basket sufficiently large to hold the shrimp in a single layer without touching one another.

Lower the basket into a suitable liquid oil or hydrogenated vegetable oil at 350° – 375° F. Cook for 3 minutes or until the shrimp attain a pleasing golden brown color. Remove the basket from the oil and allow the shrimp to drain for 15 seconds. Place the cooked shrimp on a paper towel or napkin to absorb the excess oil.

- **Other procedures** – Other cooking procedures may be used if they provide thermal conditions that are acceptable in heating samples to an internal temperature of at least 160° F (70° C) without scorching; and no substances (other than liquid or vegetable oil for frying) are used which alter the natural flavor and odor of the cooked sample. Only breaded samples should be fried.

D. **Rounding Rules/Dropping and Retention of Numbers**

The Rounding Off and Retention procedure is designed to ensure national uniformity and should be applied to all lot inspection and auditing activities that involve calculations. These calculations are not limited to net weights, fish flesh percentages, product sizes, or glaze percentages.

In all inspection functions the dropping or rounding of numbers will be done **after** computations are completed to minimize the possibility of computation errors in the final results.

When dropping or rounding numbers **only the first two digits immediately following the digit to be retained shall be considered**. In the following examples, the digits in parentheses are to be dropped.

A. If the first digit to be dropped is less than 5, the last digit retained shall be left unchanged.

EXAMPLES:

Observed value	To be rounded to nearest	Rounded value
379.(46) g	1 g	379 g
60.5(37) oz	0.1 oz	60.5 oz
6.2(25) lb	0.1 lb	6.2 lb
91.2(49) %	0.1 %	91.2 %

B. If the first digit to be dropped is more than 5 or is a 5 followed by a digit greater than 0, the last digit retained shall be increased by 1.

EXAMPLES:

Observed value	To be rounded to nearest	Rounded value
379.(56) g	1 g	380 g
60.5(67) oz	0.1 oz	60.6 oz
6.2(69) lb	0.1 lb	6.3 lb
91.2(59) %	0.1 %	91.3 %

C. If the first digit to be dropped is a 5 alone or a 5 followed immediately by a 0 and the last digit to be retained is odd (1, 3, 5, 7, 9), then the last digit to be retained shall be increased by 1.

EXAMPLES:

Observed value	To be rounded to nearest	Rounded value
379.(5) g	1 g	380 g

60.5(50) oz	0.1 oz	60.6 oz
6.3(50) lb	0.1 lb	6.4 lb
91.3(50) %	0.1 %	91.4 %

D. If the first digit to be dropped is a 5 alone or a 5 followed immediately, by a 0 and the last digit to be retained is even (0, 2, 4, 6, 8), then the last digit to be retained shall be left unchanged.

EXAMPLES:

Observed value	To be rounded to nearest	Rounded value
378.(5) g	1 g	378 g
60.4(50) oz	0.1 oz	60.4 oz
6.6(50) lb	0.1 lb	6.6 lb
91.6(50) %	0.1 %	91.6 %

Chapter 12 – Product (Lot) Inspection Procedures

Products without Grade Standards

If no grade standard is listed for a product in NOAA Handbook Part 5 the product can be inspected to specifications or label declarations, quality, condition and texture.

Canned/Pouched Tuna and Salmon (reference CID, FPPS)

USDA purchases canned salmon using the Federal Purchases Program Specification (FPPS), instead of the Commercial Item Description (CID). Commercial Item Descriptions (CIDs, typically for tuna) are documents that describe the most important characteristics of a commercial product, such as the types and styles of products available. CIDs may also include information about analytical tests and requirements for food safety and quality for the product. CIDs are used by purchasers during the procurement process to specify the product they want to buy. For guidance on product inspections, please consult the state's or federal's agencies CID requirements for each form of product and follow the instructions.

Formulated Seafood Products

Products such as analog surimi, or minced/mixed seafood items in reformed presentation may be inspected per available specifications or label declarations, quality, condition and texture.

Live Molluscan Shellfish

Jurisdictions such as the EU, China and other countries have review requirements for export health certificates. Products for inspection may include a label or a state's fish ticket to review. The US Interstate Shellfish Sanitation Conference, National Shellfish Sanitation Program required shellfish harvester tags or dealer tags are required to accompany the product. These may be required to verify the shellfish are harvested from approved or partially approved harvest locations that meet the NSSP seafood safety requirements. See NOAA Handbook, Part 7 Certification.

Inspection of Endangered Species

When certifying Antarctic Marine Living Resources for export, it is the responsibility of the stakeholder to obtain the proper permits before the inspection and certification process is initiated.

https://www.fisheries.noaa.gov/national/international-affairs/importing-and-exporting-antarctic-marine-living-resources-and

Convention on International Trade in Endangered Species of Wild Fauna and Flora https://cites.org/eng

Scallop Moisture Determination

To establish uniform inspection procedures when certifying scallops for total moisture content. This policy will only affect scallops for domestic use and will also not be required for lots less than 200 pounds unless other conditions warrant it (e.g., compliance history, buyer's requirements). Product intended for export will be inspected and certified relative to the importing country's requirements.

Policy

Due to concerns over improper labeling, NOAA SIP will continue to require that all lots of scallops over 200 pounds destined for domestic use be tested for total moisture using the ***AOAC Official Method 950.46-Loss on Drying (Mositure) in Meat**** (AOAC Method) or other valid methods and equipment that provide results statistically equivalent to those of the AOAC Method for total moisture. The results of the analysis will be noted on the certificate, score sheet or memorandum. If the inspector has definitive knowledge that the product has been treated in some way to add water to the product, the label must reflect that. Also if the product tests over 83.0 % for total moisture, the SIP will assume that the product has been treated and must be properly labeled. This assumption is based on studies and data collected by various governmental agencies, academia, and other organizations that have demonstrated that the total moisture content of scallops is consistently less than 83%.

At this time there is no upper limit for moisture content.

*Reference:
39.1.02 AOAC Official Method 950.46, Loss on Drying (Moisture) in Meat
JAOAC 33, 749(1950); 36, 279(1953)
(Dr. Latimer, George W, Jr. (ed.), 'Official Methods of Analysis: 22nd Edition (2023)', in Dr. George W Latimer, Jr. (ed.), Official Methods of Analysis of AOAC INTERNATIONAL, 22 (New York, 2023; online edn, AOAC Publications, 4 Jan. 2023), https://doi.org/10.1093/9780197610145.002.001, accessed 23 Feb. 2024.)

Chapter 13 – Lot Acceptance/Rejection

The lot is accepted if the number of non-conforming units is less than or equal to the acceptance number for that sample size. Note: There is no allowable acceptance number for decomposition. If the number of non-conforming units exceeds the acceptance number for that sample size, the lot is rendered nonconforming, or Grade Not Certified. The applicant shall be notified immediately in the case a lot is deemed nonconforming. After the inspection, samples are returned, destroyed, or given to

charity, based on the disposition instructions provided on the SISP Requesting System. See Chapter 5 Application for Services.

Lot Retention

Lot(s) of processed products that may be considered to be mislabeled and/or unwholesome by reason of contaminants, adulteration, decomposition, non-compliance, or which may otherwise be in such condition as to require further evaluation or testing to determine that the product is properly labeled and/or wholesome, will be identified by the inspector in an appropriate and conspicuous manner with the word ‘‘RETAINED.’’ Such lot(s) of product shall be held for re-inspection or testing. Final disposition of the lot(s) shall be determined by SIP Regional Inspection Branch management. The removal of the ‘‘RETAINED’’ identification shall be performed by the inspector.

Lot Rejection

Any lot of product, raw material or ingredient, which the inspector has determined to be unwholesome due to contamination or decomposition, and is determined unfit for trade and is not suitable for certification by SIP, will be rejected by the inspector who will notify the plant/stakeholder and SIP Regional Inspection Branch management. Retention (Red) Tags may be placed on the product until the FDA referral process is completed and or the disposition of the product determined.

There are four results, or dispositions, of unfit products: destroy, rework by the processor, appeal, or return to the supplier. It is unlawful for this product to be released into commerce. The inspector will create a Lot Inspection Certificate with the findings of his/her inspection, generate the certificate, and provide the customer with a copy.

- The customer will provide in writing to the inspector the disposition (i.e., corrective action), which may include the option for an appeal. (Instructions for an appeal request are located in NOAA Handbook Part 1, Chapter 14 Appeal and Suspension Procedures.)
- If the product is to be destroyed, and an inspector presence not required, products will be denatured with colored ink/liquid with clear and concise photos of the destruction forwarded to the inspector the same day.
- If the customers’ notification is not received of the disposition to be taken within seven days of the inspector’s notification receipt, an FDA Referral process may be initiated.

Chapter 14 – Certificates

Certificates are issued according to the type of sampling and inspection performed, i.e., Lot Inspection Certificate, Export Health Certificate, Certificate of Origin, Certificate of Sampling. All certificates must be filled out completely by the inspector performing the services or his/her designee, with their signature in blue ink. The inspector must stamp the lot inspection certificates reflecting the type of stamp used on the shipping containers. Beginning in October 1, 2024, USDC SIP stakeholders will be required to make lot inspection requests, including certificates, via the online Seafood Inspection Services Portal (SISP).

All requests for inspection services must be submitted through the SISP IP’s Online Request System *The SISP Online Request System: https://seafoodinspection.nmfs.noaa.gov/customer/customerlogin.html.

Certificates will attest to the inspection results. If weights and counts were not requested as part of the lot inspection, a statement to the effect will be placed on the certificate, “Vendor weights and counts used, but not verified”. If, however, the inspector suspects short weights and/or counts, they are obligated to evaluate and report the results.

The Lot Inspection Certificate will be issued regardless of whether the product is accepted or deemed nonconforming, since it is an official record of the inspection findings. Lot Inspection Certificates shall be completed and distributed as described in the Instructions for Completing Lot Inspection Certificate, Part 7, Chapter 6, of this Handbook.

Chapter 15 – Appeal Procedures

An application for an appeal may be made by any interested party who has cause to disagree with the results of a product inspection or audit finding. Interested parties can request an appeal by completing a submission form at Sip Appeal Inquiry . Additional documentation supporting the appeal can be emailed to SIP.Appeals@noaa.gov.

Please refer to NOAA Handbook Part 1 Chapter 14 for details of the Appeals process.

Chapter 16 – Fees and Charges

The applicant is responsible for all fees and charges associated with the sampling and inspection of the product. The inspector will complete a Daily Record of Charges, which includes time spent sampling, inspecting, and completing certificates, as well as any travel expenses incurred such as drive time and mileage.

In the event of an appeal inspection, if the applicant for both the initial and appeal inspections is the same, or the applicant is only requesting the appeal inspection, and the results of the appeal inspection are in favor of the applicant, there will be no charge to the applicant for the appeal inspection. If, however, the results of the appeal are not in favor of the applicant, the applicant will be charged for all fees and charges for the appeal inspection and all related travel expenses.

Chapter 17 – Sampling Plans

The Single Sampling Plans found in Tables I-V below, are to be used by SIP inspectors unless an inspection type, or a customer requests otherwise. Other validated and internationally recognized sampling plans, such as **Military Standard 1916**, ANSI/ASQ Z1.4 “Sampling Procedures and Tables for Inspection by Attributes,” or **Codex Sampling Plans for Prepackaged Foods**, may also be used. When using the sampling plans below, select the appropriate Table, depending on the product type, and then identify the sample size depending on the lot size (number of primary containers). Use the footnotes provided with each Table to determine whether to examine the entire contents of each container or only a portion thereof.

Example: A lot of frozen shrimp (41/50 count) weighing a total of 9,500 pounds, consists of 950 cases. Each case contains 4 2.5-pound bags of shrimp.

- Use **Table II** for **Frozen** or Similarly Processed Fishery Products, and Products Thereof Containing Units of Such Size and Character as to be **Readily Separable**.
- The product falls into **Group 2** - Any type of container over 1 pound but not over 4 pounds net weight.
- The lot size is **3,800 containers**, which falls in the second column of between 1,801 – 8,400 containers: 950cs × 4 bags/cs = 3,800 containers
- The sample size is **6 sample units**, or 6 2.5-pound bags of shrimp. Examine the entire contents of each bag.

A. Samples shall be selected from each lot in the exact number of sample units indicated for the lot size in the applicable sampling plan, unless, at the discretion of the inspection service, the number of sample units selected is increased to the number of sample units indicated for any one of the larger sample sizes provided for in the appropriate plans.

B. Under the single sampling plans, with respect to any specified requirement:

(1) If the number of non-conformities (as defined in connection with the specific requirement) in the sample does not exceed the acceptance number prescribed for the sample size, the lot meets the requirement;

(2) If the number of non-conformities (as defined in connection with the specific requirement) in the sample exceeds the acceptance number prescribed for the sample size, the lot fails the requirement.

Note: There is no allowable acceptance number for decomposition.

C. During the conduct of any type of in-plant inspection where the sample is examined before the complete lot size is known, and where the number of sample units examined exceeds the prescribed sample size for such lot, the lot may be deemed to meet or fail a specific requirement in accordance with the following procedure:

(1) If the number of non-conformities (as defined in connection with the specific requirement) in the non-prescribed sample does not exceed the acceptance number of the next smaller sample size, the lot meets the requirements;

(2) If the number of non-conformities (as defined in connection with the specific requirement) in the non-prescribed sample equals the acceptance number prescribed for the next larger sample size, additional sample units shall be selected to increase the sample to the next larger prescribed sample size;

(3) If the number of non-conformities (as defined in connection with the specific requirement) in the non-prescribed sample exceeds the acceptance number prescribed for the next larger sample size, the lot fails the requirement.

D. Sampling plans referred to in this section are those contained in Tables I, II, III, IV, and V, which follow, or any other plans which are applicable. For processed products not included in these tables, the minimum sample size shall be the exact number of sample units prescribed in the table, container group, and lot size that, as determined by the inspector, most closely resembles the product, type, container size and amount of product to be samples.

E. Subsample Size (Revised Sub-Sampling Policy for Container Size Group 3 (Table II) Single Sampling Plan)

The single sampling plans were created to balance the need for accurate results with the desire to minimize the costs associated with destructive sampling. These single sampling plans permit sub-sampling for Table II - Container Size Groups 4 (over 10 lbs but not over 100 lbs) and 5 (over 100 lbs), but currently do not allow sub-sampling for Table II - Container Size Groups 3 (over 4 lbs but not over 10 lbs).

During a review of the single sampling plans, it was determined that the USDC could decrease destructive sampling associated with Table II - Container Group Size 3 by allowing for sub-sampling without affecting the performance of the single sampling plan. Effective September 22, 2011, it is now allowed to use 3 pound sub-sampling units from container sizes in Group 3 (over 4 lbs but not over 10 lbs) when using the above single sampling plan Table II to perform product inspection, grading or other evaluations. All products subject to Container Size Group 3 may be sub-sampled per the instructions for Container Groups 4 and 5, which allows for a three-pound sub sample.

F. Single Sampling Plans and Acceptance Levels

TABLE I—CANNED OR SIMILARLY PROCESSED FISHERY PRODUCTS, AND PRODUCTS THEREOF CONTAINING UNITS OF SUCH SIZE AND CHARACTER AS TO BE READILY SEPARABLE

Container size group	Lot size (number of containers)								
GROUP 1 Any type of container of less volume than that of a No. 300 size can (300x407)	3,600 or less	3,601–14,400	14,401–48,000	48,001–96,000	96,001-156,000	156,001-228,000	228,001–300,000	300,001–420,000	Over 420,000
GROUP 2 Any type of container of a volume equal to or exceeding that of a No. 300 size can, but not exceeding that of a No. 3 cylinder size can (404x700)	2,400 or less	2,401–12,000	12,001–24,000	24,001–48,000	48,001–72,000	72,001–108,000	108,001–168,000	168,001–240,000	Over 240,000
GROUP 3 Any type of container of a volume exceeding that of a No. 3 cylinder size can, but not exceeding that of a No. 12 size can (603x812)	1,200 or less	1,201–7,200	7,201–15,000	15,001–24,000	24,001–36,000	36,001–60,000	60,001–84,000	84,001–120,000	Over 120,000
GROUP 4 Any type of container of a volume exceeding that of a No. 12 size can, but not exceeding that of a 5-gallon container	200 or less	201–800	801–1,600	1,601–2,400	2,401–3,600	3,601–8,000	8,001–16,000	16,001–28,000	Over 28,000
GROUP 5 Any type of container of a volume exceeding that of a 5-gallon container	25 or less	26–80	81–200	201–400	401–800	801–1,200	1,201–2,000	2,001–3,200	Over 3,200
Sample size (number of sample units)[2]	3	6	13	21	29	38	48	60	72
Acceptance number	0	1	2	3	4	5	6	7	8

[1] For extension of the single sample sizes beyond 72 sample units, refer to table V of this section. [2]The sample units for the various container size groups are as follows: Groups 1, 2, and 3—1 container and its entire contents. Groups 4 and 5—approximately 2 pounds of product. When determined by the inspector that a 2-pound sample unit is inadequate, a larger sample unit may be substituted

TABLE II—FROZEN OR SIMILARLY PROCESSED FISHERY PRODUCTS, AND PRODUCTS THEREOF CONTAINING UNITS OF SUCH SIZE AND CHARACTER AS TO BE READILY SEPARABLE

Container size group	Lot size (number of containers)								
GROUP 1									
Any type of container of 1 pound or less net weight	2.400 or less	2,401–12,000	12,001–24,000	24,001–48,000	48,001–72,000	72,001–108,000	108,001–168,000	168,001–240,000	Over 240,000
GROUP 2									
Any type of container over 1 pound but not over 4 pounds net weight	1,800 or less	1,801–8,400	8,401–18,000	18,001–36,000	36,001–60,000	60,001–96,000	96,001–132,000	132,001–168,000	Over 168,000
GROUP 3									
Any type of container over 4 pounds but not over 10 pounds net weight	900 or less	901–3,600	3,601–10,800	10,801–18,000	18,001–36,000	36,001–60,000	60,001–84,000	84,001–120,000	Over 120,000
GROUP 4									
Any type of container over 10 pounds but not over 100 pounds net weight	200 or less	201–800	801–1,600	1,601–2,400	2,401–3,600	3,601–8,000	8,001–16,000	16,001–28,000	Over 28,000
GROUP 5									
Any type of container over 100 pounds net weight	25 or less	26–80	81–200	201–400	401–800	801–1,200	1,201–2,000	2,001–3,200	Over 3,200
Sample size (number of sample units)[2]	3	6	13	21	29	38	48	60	72
Acceptance number	0	1	2	3	4	5	6	7	8

[1] For extension of the single sample sizes beyond 72 sample units, refer to table V of this section, [2] The sample units for the various container size groups are as follows: Groups 1 and 2—1 container and its entire contents. Groups 3, 4 and 5—approximately 3 pounds of product.

TABLE III—CANNED, FROZEN, OR OTHERWISE PROCESSED FISHERY AND RELATED PRODUCTS, AND PRODUCTS THEREOF OF A COMMINUTED, FLUID, OR HOMOGENEOUS STATE

Container size group [1]	Lot size (number of containers)								
GROUP 1 Any type of container of 12 ounces or less	5,400 or less	5,401–21,600	21,601–62,400	62,401–112,000	112,001–174,000	174,001–240,000	240,001–360,000	360,001–480,000	Over 480,000
GROUP 2 Any type of container over 12 ounces but not over 60 ounces	3,600 or less	3,601–14,400	14,401–48,000	48,001–96,000	96,001–156,000	156,001–228,000	228,001–300,000	300,001–420,000	Over 420,000
GROUP 3 Any type of container over 60 ounces but not over 160 ounces	1,800 or less	1,801–8,400	8,401–18,000	18,001–60,000	36,001–60,000	60,001–96,000	96,001–132,000	132,001–168,000	Over 168,000
GROUP 4 Any type of container over 160 ounces but not over 10 gallons or 100 pounds whichever is applicable	200 or less	201–800	801–1,600	1,601–3,200	3,201–8,000	8,001–16,000	16,001–24,000	24,001–32,000	Over 32,000
GROUP 5 Any type of container over 10 gallons or 100 pounds whichever is applicable	25 or less	26–80	81–200	201–400	401–800	801–1,200	1,201–2,000	2,001–3,200	Over 3,200
Sample size (number of sample units) [3]	3	6	13	21	29	38	48	60	72
Acceptance number	0	1	2	3	4	5	6	7	8

[1] Ounces pertain to either fluid ounces of volume or avoirdupois ounces of net weight whichever is applicable for the product involved. [2] For extension of the single sample sizes beyond 72 sample units, refer to table V of this section. [3] The sample units for the various container size groups are as follows: Groups 1, 2, and 3—1 container and its entire contents. A smaller sample unit may be substituted in group 3 at the inspector's discretion. Groups 4, 5, and 6—approximately 16 ounces of product. When determined by the inspector that a 16-ounce sample unit is inadequate, a larger sample unit may be substituted.

TABLE IV-DEHYDRATED FISHERY AND RELATED PRODUCTS

Container size group	Lot size (number of containers)								
GROUP 1 Any type of container of 1 pound or less net weight	1,800 or less	1,801–8,400	8,401–18,000	18,001–36,000	36,001–60,000	60,001–96,000	96,001–132,000	132,001–168,000	Over 168,000
GROUP 2 Any type of container over 1 pound but not over 6 pounds net weight	900 or less	901–3,600	3,601–10,800	10,801–18,000	18,001–36,000	36,001–60,000	60,001–84,000	84,001–120,000	Over 120,000
GROUP 3 Any type of container over 6 pounds but not over 20 pounds net weight	200 or less	201–800	801–1,600	1,601–3,200	3,201–8,000	8,001–16,000	16,001–24,000	24,001–32,000	Over 32,000
GROUP 4 Any type of container over 20 pounds but not over 100 pounds net weight	48 or less	49–400	401–1,200	1,201–2,000	2,001–2,800	2,801–6,000	6,001–9,600	9,601–15,000	Over 15,000
GROUP 5 Any type of container over 100 pounds net weight	16 or less	16-80	81-200	201-400	401-800	801-1,200	1,201-2,000	2,001-3,200	Over 3,200
Sample size (number of sample units)[2]	3	6	13	21	29	38	48	60	72
Acceptance number	0	1	2	3	4	5	6	7	8

For extension of the single sample sizes beyond 72 sample units, refer to table V of this section [2] The sample units for the various container size groups are as follows: Group 1—1 container and its entire contents. Groups 2, 3, 4, and 5—1 container and its entire contents or a smaller sample unit when determined by the inspector to be adequate

TABLE V—SINGLE SAMPLING PLANS FOR USE IN INCREASING SAMPLE SIZE BEYOND 72 SAMPLE UNITS

Sample size (number of sample units), n.	84	96	108	120	132	144	156	168	180	192	204	216	230	244	258	272	286	300	314	328	342	356	370	384	400
Acceptance numbers, c	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33

Chapter 18 – Fishery-based Dietary Supplements

SIP offers export certification for fishery-based dietary supplements, which are characterized as fishery products, including those with other ingredients. The product is eligible for certification once the labels and formulas have been reviewed and approved through the process outlined below:

- The name of the product on the label's primary display panel must prominently identify the contents as a fishery product. One or more fishery-based product(s) must be the characterizing component.
- Labels and formulas must be pre-approved prior to certification. To gain label approval please send an electronic copy of both the label and the formulation of the product to sip.fishoil@noaa.gov.
- Once the label is approved, it will be logged into our system and a notice will be sent back to the applicant indicating the label is approved for certification, whether any changes are necessary, and the details of the approval.
- The applicant will then need to contact their servicing SIP Region for the certificate. The SIP Region will consult our system to verify approval and will then issue the certificate. See NOAA Handbook Part 7 Certification.
- All species of fishery-based ingredients must be declared on the certificate.
- All fishery ingredients must be traceable to the harvest event. Firms requesting certification will be required to maintain documentation which demonstrates this traceability, and will be required to provide that documentation to SIP immediately upon request during routine audits.
- Product inspection is not required for fishery-based dietary supplements. These products are highly processed, shelf stable, and generally recognized as safe (GRAS). All other specific export requirements set forth by the destination country requirements apply.
- For product going to the EU, all facilities involved in the process, including encapsulators, must be on the EU Approved Establishments List.

Chapter 19 – Sensory Quality Assessment Guidelines (Rev 9/18/24)

Introduction

The ***NOAA Seafood Inspection Program*** (***NOAA SIP***) ***Sensory Assessment Guidelines*** (***Sensory Guidelines***) provide step-by-step instructions for assessing the odor/flavor and texture of fish and fishery products. Before beginning any sensory quality assessment, review this document in its entirety as odor/flavor and texture are evaluated simultaneously.

Scope

The ***Sensory Guidelines*** apply to fish and fishery products product evaluations utilizing (1) the Compliance Standard (2) a US Grade/Grading Standard, (3) an USDC Approved Specification, and (4) a Buyer Specification.

For ease of use, these step-by-step instructions are divided into the following bookmarked sections.

Section 1 - Overview

US Grade Standards and USDC Approved Specifications require product inspection for compliance with regulatory requirements, product inspection for conformance to NOAA SIP requirements, and assessment of workmanship and sensory attributes.

This guidance document addresses the procedures to follow when performing Sensory Assessments.

Section 2 – Selection and Preparation of Sensory Subsamples

§ 2.1 - Sensory Subsample Size and Selection

The quantity of fish to be evaluated is dependent upon the Sample Unit weight.

2.1.1 - Sample Units 8 ounces or less

For sample units less than or equal to (≤) 8 ounces, the sensory subsample is the entire sample unit, or as otherwise directed by the US Grade Standard or USDC Specification.

2.1.2 - Sample Units Greater than 8 ounces

For sample units greater than (>) 8 ounces, the sensory subsample must be approximately 8 ounces.

2.1.2.1 - Selection of Subsample, for Sample Units Greater than 8 ounces

Selective sampling, a sampling technique to select the fish and fishery products most likely to possess off-odors and/or off-flavors, will be used to select the subsample.

For example, for a 16-ounce sample unit of raw shrimp, an 8-ounce subsample must be selected for sensory assessment. The Inspector will evaluate the shrimp that make up the 16 ounces and select those shrimp that either present off-odors in the raw state or possess discoloration or other attributes that may indicate suboptimal quality.

§ 2.2 - Preparation of Sensory Subsamples for Evaluation

To accurately assess odor/flavor and texture, the majority of fish and fishery products are evaluated in the cooked, reheated, or warmed state. Live fish, for which raw odor is assessed to determine the presence of taint, are evaluated in the live state.

Before evaluating sensory subsamples, preliminary trials on test units of fish and fishery products may be necessary to establish the optimal cooking, reheating, or warming temperatures and times. This is to ensure that the temperature limits or ranges outlined in each cooking method are met.

Because microwave ovens have various features and wattages, special attention should be given to establishing uniform cooking or reheating procedures for the microwave method.

- **Subsamples that are to be cooked**: fish and fishery products that are raw/uncooked, including stuffed and parfried.
- **Subsamples that are to be reheated:** fish and fishery products that are fully cooked.
- **Subsamples that are to be warmed:** fish and fishery products that are preserved or prepared, including dried, fermented, acidified, pickled, canned, pasteurized, smoked (cold or hot smoked), salads (e.g., tuna salad), sandwiches, dips, and cocktails (e.g., shrimp cocktail).
- **Subsamples that are not cooked, reheated, or warmed:** fish that are sold in the live state will be evaluated exclusively for the presence of taint.

2.2.1 - Sensory Subsamples that are to be Cooked

When provided, use the preparation instructions on the label;
or,
When preparation instructions are not provided, use the methods listed in Appendix A - NOAA SIP Cooking Methods.

2.2.2 - Sensory Subsamples that are to be Reheated

When provided, use the preparation instructions on the label;
or,
When package instructions indicate that a product should not be reheated, use the methods listed in Appendix C - NOAA SIP Warming Methods;
or,
When preparation instructions are not provided, use the methods listed in Appendix B - NOAA SIP Reheating Methods.

2.2.3 - Sensory Subsamples that are to be Warmed

Equilibrate to room temperature;
or,
When time or other factors inhibit this, use the methods listed in Appendix C - NOAA SIP Warming Methods.

Section 3 – Assessment of Sensory Attributes

§ 3.1 – General Instructions

Sensory Assessment of odor/flavor and texture is evaluated in the cooked, reheated, or warmed state per the step-by-step instructions below.

§ 3.2 – Odor/Flavor and Texture Evaluation

Step 1 - Prepare the fish or fishery product for evaluation by cooking, reheating, or warming.

Step 2 - Break open the fish or fishery product to release volatile organic compounds.

Step 3 - Use “bunny sniffs” to evaluate and identify the odor attributes.

Step 4 - Place a bite-size amount of the subsample in your mouth; chew for 10 seconds to evaluate and identify the odor/flavor attributes; continue to chew to evaluate and identify the textural attributes.

Step 5- Expectorate the subsample after completing the assessment; before evaluating the next subsample, cleanse your palate to avoid carry-over flavors.

Section 4 – Documenting Results on the NOAA SIP Inspection Forms (E-Worksheets and Official Score Sheets)

§ 4.1 - Sample Unit Assessment

For *Sensory Attribute Assessment*, each sample unit shall be evaluated for Odor/Flavor and Texture. The *Sample Unit Quality Assessment for Sensory Quality Attributes* is designated (1) *High or Acceptable* based on the lowest quality category for the sample unit or (2) *Unacceptable* based on the presence of decomposition and/or taint (adulteration).

Step 1 - Use the ***NOAA SIP Odor/Flavor Guide*** (*Appendix D*) to classify the Sample Unit Quality as either High, Acceptable, or Unacceptable based on the lowest odor/flavor descriptors noted during sensory evaluation.

In the example below, the odor/flavor attributes noted for a shrimp subsample are briny and fishy. The Sample Unit Quality is classified as *Acceptable*.

NOAA SIP Odor/Flavor Guide – Shrimp
Sensory Quality Assessment

High	Acceptable	Unacceptable
Odor/Flavor Attributes	**Odor/Flavor Attributes**	**Odor/Flavor Attributes**
Ocean Air	Cardboardy / Stale	Sour Aromatic
Briny	Fishy	Rancid / Painty
Brothy	Oxidized	Persistent Ammonia
Seaweed, Clean	Feedy, Fish	Mothball-like
Iodine-like (Gulf Shrimp)	Gamey, Fish	Soured Milk
Grassy	Bluegreen	Cheesy
Brackish Water	STP / Soapy (flavor only)	Yeasty
Oil, Fresh	Slight Sulfur	Fermented Fruit
Hay-like		Sulfide, Hydrogen
Metallic		Moderate/Strong Sulfury
Sweet Aromatic		Fermented Vegetables
		Sickly Sweet
Rice-like+		Putrid
Corn-like, Cooked+		Fecal
Buttery+		
Umami (flavor only)		Bitter (flavor)
Sweet (flavor)		Sour (flavor)
		**Taint
Neutral (boundary)		** **Taint** is defined as “a taste or odor foreign to the product” (ISO and ASTM).

+Cooked refers to cooked, reheated or warmed.

Step 2 - Record the Odor/Flavor results on the *Official Scoresheet.*

Step 3 - Use the NOAA SIP Texture Guide (*Appendix E*) to classify the Sample Unit Quality as either High or Acceptable based on the lowest texture descriptors noted during sensory evaluation.

In the example below, the attribute noted for a shrimp subsample is firm. The Sample Unit Quality is classified as *High*.

NOAA SIP Texture Guide - Fish and Fishery Products Sensory Quality Assessment	
High	**Acceptable**
Texture Attributes	**Texture Attributes**
Firm, but tender and moist	Slightly tough, dry
Slightly resilient but not tough or rubbery	Slightly fibrous, mushy or rubbery
Moist but not mushy	Moderately tough, rubbery, has noticeable tendency to form a fibrous mass in the mouth
	Abnormal texture characteristics (eg gelatinous) or dramatically changed properties

Step 4 - Record the texture results on the *Official Scoresheet.*

§ 4.2 - Lot Quality Assessment

The Lot Quality Assessment for *Sensory Attributes* is either (1) the lowest quality category assigned to a sample unit or (2) Unacceptable due to the presence of decomposition and/or taint (adulteration).

Appendix A – NOAA SIP Cooking Methods	
Method	**Cooking Procedures**
Bake	**Step 1** - Wrap each subsample in aluminum foil and distribute the subsamples evenly on a flat tray or shallow bottom pan without overlapping. **Step 2** - Place the tray or pan in a 350°F (177°C) preheated oven. **Step 3** - Cook subsamples to an internal temperature range of 145-160°F (62.8-71.1°C). **Step 4** - Remove from the oven and allow subsamples to stand for a minimum of one minute in the aluminum foil. **Step 5** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.
Boil-in-Bag	**Step 1** - Fill a cooking vessel (pot) halfway with water and bring water to a rolling boil. **Step 2** - Place each subsample in an impermeable boilable bag or pouch. Seal the bag or pouch and immerse it in boiling water. **Step 3** - Cook subsamples to an internal temperature range of 145-160°F (62.8-71.1°C). **Step 4** - Remove from boiling water and allow subsamples to stand for a minimum of one minute in the bag. **Step 5** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.
Steam	**Step 1** - Fill a cooking vessel (pot) with water 1-2 inches below a wire rack and bring water to a rolling boil. **Step 2** - Wrap each subsample in aluminum foil. Place each wrapped subsample onto a wire rack and cover the cooking vessel with a tight lid. **Step 3** - Cook subsamples to an internal temperature range of 145-160°F (62.8-71.1°C). **Step 4** - Remove from the wire rack and allow subsamples to stand for a minimum of one minute in the aluminum foil. **Step 5** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.

Appendix A – NOAA SIP Cooking Methods *(continued)*	
Method	**Cooking Procedures**
Microwave	**Step 1** - Place each subsample in a glass container with a tight-fitting lid or in a microwaveable food bag free of odors, which is placed on a food-grade paper or glass plate. **Step 2** - Cook the subsample to an internal temperature range of 145-160°F (62.8-71.1°C). **Step 3** - Remove from the microwave and allow the subsample to stand for a minimum of one minute in the glass container or bag. **Step 4** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.
Deep-Fry	**Step 1** - Place each subsample in a single layer into a separate wire mesh fry basket and immerse the basket in 350-375°F (176.7-190.5°C) preheated food-grade oil. **Step 2** - Cook subsamples to an internal temperature range of 145-160°F (62.8-71.1°C). **Step 3** - Remove the basket from the oil and allow subsamples to drain for a minimum of 15 seconds. **Step 4** - Transfer each subsample to a paper towel to absorb excess oil and allow the subsample to stand for a minimum of one minute. **Step 5** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.

Appendix B – NOAA SIP Reheating Methods	
Method	**Reheating Procedures**
Bake	**Step 1** - Wrap each subsample in aluminum foil and distribute the subsamples evenly on a flat tray or shallow bottom pan without overlapping. **Step 2** - Place the tray or pan in a 275-300°F (135-148.9°C) preheated oven. **Step 3** - Reheat subsamples to an internal temperature range of 135-145°F (57.2- 62.8°C). **Step 4** - Remove from the oven and allow subsamples to stand for a minimum of one minute in the aluminum foil. **Step 5** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.
Steam	**Step 1** - Fill a cooking vessel (pot) with water 1-2 inches below a wire rack and bring water to a rolling boil. **Step 2** - Wrap each subsample in aluminum foil. Place each wrapped subsample onto a wire rack and cover the cooking vessel with a tight lid. **Step 3** - Reheat subsamples to an internal temperature range of 135-145°F (57.2-62.8°C) **Step 4** - Remove from the wire rack and allow subsamples to stand for a minimum of one minute in the aluminum foil. **Step 5** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.
Boil-in-Bag	**Step 1** - Fill a cooking vessel (pot) halfway with water and bring water to a rolling boil. **Step 2** - Place each subsample in an impermeable boilable bag or pouch. Seal the bag or pouch and immerse it in boiling water. **Step 3** - Reheat subsamples to an internal temperature range of 135-145°F (57.2-62.8°C) **Step 4** - Remove from boiling water and allow subsamples to stand for a minimum of one minute in the bag. **Step 5** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.

Appendix B – NOAA SIP Reheating Methods *(continued)*	
Microwave	**Step 1** - Place each subsample in a glass container with a tight-fitting lid or in a microwaveable food bag free of odors, which is placed on a food-grade paper or glass plate. **Step 2** - Reheat the subsample to an internal temperature range of 135-145°F (57.2-62.8°C)., **Step 3** - Remove from the microwave and allow the subsample to stand for a minimum of one minute in the glass container or bag. **Step 4** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.

Appendix C – NOAA SIP Warming Methods	
Method	**Warming Procedures**
Equilibrate to Room Temperature	**Step 1** - Place each subsample on a tray and cover with plastic wrap or enclose it in a food bag free of odors. Ensure that subsamples are not intermingled, preserving subsample integrity. **Step 2** - Verify the internal temperature equilibrates to room temperature of 68-75°F (20-23.9°C). **Step 3** - Remove from the plastic wrap or bags. **Step 4** - Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.
Water Bath	**Step 1** - Fill a vessel (sink or large container) with water ranging in temperature from 68-75°F (20-23.9°C). **Step 2** - Place each subsample in an impermeable, plastic bag or pouch. Seal the bag or pouch, removing as much air as possible, and place it in the vessel. **Step 3** - Immerse the subsample in the water bath until the internal temperature of the subsample equilibrates to the water temperature range of 68-75°F (20-23.9°C). **Step 4** - Remove from the water bath. **Step 5**- Perform sensory evaluation on one subsample at a time, noting the odor, flavor, and texture.

Appendix D – NOAA SIP Odor/Flavor Guides

NOAA SIP Odor-Flavor Guides (Odor/Flavor Guides) are used to classify the subsample sensory assessment based on the perceived odor/flavor attributes. There are five *Odor/Flavor Guides*, each addressing the unique odor/flavor characteristics of a group of species. The following *Odor/Flavor Guides* provide instructions on uniform classification of odor/flavor attributes.

Issue Date: 10-03-2022

NOAA SIP Odor/Flavor Guide – Finfish, Low Oily (Fresh or Marine Water) Sensory Quality Assessment		
High	**Acceptable**	**Unacceptable**
[Referred to as Good Flavor and Odor in US Grading Standards]	[Referred to as Reasonably Good Flavor and Odor and Substandard Flavor and Odor in US Grading Standards]	--
Odor/Flavor Attributes	**Odor/Flavor Attributes**	**Odor/Flavor Attributes**
Ocean Air Briny Brothy Buttery Seaweed, Clean Cucumber Melon Grassy Sweet Sweet Aromatic Brackish Water Oil, Fresh Hay-like Metallic Chicken, Cooked+ Corn-like, Cooked+ Potato, Cooked+ Meaty, Cooked+ Pork, Cooked+ Turkey, Cooked+ Sweet (flavor)	Cardboardy / Stale Fishy Oxidized Feedy, Fish Gamey, Fish Bluegreen STP / Soapy	Sour Aromatic Rancid / Painty Persistent Ammonia Soured Milk Cheesy Yeasty Fermented Fruit Sulfide, Hydrogen Sulfury / Fermented Vegetables Sickly Sweet Putrid Fecal Bitter (flavor only) Sour (flavor) *Taints
Neutral (boundary)		* **Taint** is defined as "a taste or odor foreign to the product" (ISO and ASTM)

+Cooked refers to cooked, reheated or warmed.

Issue Date: 10-03-2022

NOAA SIP Odor/Flavor Guide – Oily Fish and Scombroid Fish Sensory Quality Assessment		
High	**Acceptable**	**Unacceptable** Product adulterated per FD&C Act
[Referred to as Good Flavor and Odor in US Grading Standards]	[Referred to as Reasonably Good Flavor and Odor and Substandard Flavor and Odor in US Grading Standards]	--
Odor/Flavor Attributes	**Odor/Flavor Attributes**	**Odor/Flavor Attributes**
Ocean Air Briny Brothy Buttery Seaweed, Clean Cucumber Melon Grassy Brackish Water Oil, Fresh Hay-like Metallic Sweet Aromatic Mackerel-like Chicken, Cooked[+] Corn-like, Cooked[+] Potato, Cooked[+] Meaty, Cooked[+] Pork, Cooked[+] Turkey, Cooked[+] Tangy (Flavor)	Cardboardy / Stale Oxidized Fishy Feedy, Fish Gamey, Fish	Sour Aromatic Rancid / Painty Persistent Ammonia Soured Milk Cheesy Yeasty Fermented Fruit Sulfide, Hydrogen Sulfury / Fermented Vegetables Sickly Sweet Putrid Fecal Bitter (flavor only) Sour (flavor only) *Taints
Neutral (boundary)		* **Taint** is defined as "a taste or odor foreign to the product" (ISO and ASTM)

[+]Cooked refers to cooked, reheated or warmed.

Issue Date: 10-03-2022

NOAA SIP Odor/Flavor Guide – Shrimp and Other Crustaceans Sensory Quality Assessment		
High	**Acceptable**	**Unacceptable**
[Referred to as Good Flavor and Odor in US Grading Standards]	[Referred to as Reasonably Good Flavor and Odor and Substandard Flavor and Odor in US Grading Standards]	--
Odor/Flavor Attributes	**Odor/Flavor Attributes**	**Odor/Flavor Attributes**
Ocean Air Briny Brothy Seaweed, Clean Iodine-like (Gulf Shrimp) Grassy Brackish Water Oil, Fresh Hay-like Metallic Sweet Aromatic Rice-like+ Corn-like, Cooked+ Buttery+ Umami (flavor only) Sweet (flavor)	Cardboardy / Stale Fishy Oxidized Feedy, Fish Gamey, Fish Bluegreen STP / Soapy (flavor only) Slight Sulfur	Sour Aromatic Rancid / Painty Persistent Ammonia Mothball-like Soured Milk Cheesy Yeasty Fermented Fruit Sulfide, Hydrogen Moderate/Strong Sulfury Fermented Vegetables Sickly Sweet Putrid Fecal Bitter (flavor) Sour (flavor) **Taint
Neutral (boundary)		** **Taint** is defined as "a taste or odor foreign to the product" (ISO and ASTM).

+Cooked refers to cooked, reheated or warmed.

Issue Date: 10-03-2022

NOAA SIP Odor/Flavor Guide – Salmonid Sensory Quality Assessment		
High	**Acceptable**	**Unacceptable** Product adulterated per FD&C Act
[Referred to as Good Flavor and Odor in US Grading Standards]	[Referred to as Reasonably Good Flavor and Odor and Substandard Flavor and Odor in US Grading Standards]	--
Odor/Flavor Attributes	**Odor/Flavor Attributes**	**Odor/Flavor Attributes**
Ocean Air Briny Brothy Seaweed, Clean Cucumber Melon Grassy Brackish Water Oil, Fresh Hay-like Metallic Sweet Aromatic Meaty, Raw-Beef Buttery+ Corn-like+ Chicken, Cooked+ Potato, Cooked+ Meaty, Cooked+ Pork, Cooked+ Turkey, Cooked+ Sweet (flavor)	Cardboardy / Stale Fishy Oxidized Feedy, Fish Gamey, Fish Bluegreen STP / Soapy	Sour Aromatic Rancid / Painty Persistent Ammonia Soured Milk Cheesy Yeasty Fermented Fruit Sulfide, Hydrogen Sulfury / Fermented Vegetables Sickly Sweet Putrid Fecal Bitter (flavor only) Sour (flavor) *Taints
Neutral (boundary)		* **Taint** is defined as "a taste or odor foreign to the product" (ISO and ASTM)

+Cooked refers to cooked, reheated or warmed.

Issue Date: 10-03-2022

NOAA SIP Odor/Flavor Guide – Mollusk, Scallop Sensory Quality Assessment		
High	**Acceptable**	**Unacceptable**
[Referred to as Good Flavor and Odor in US Grading Standards]	[Referred to as Reasonably Good Flavor and Odor and Substandard Flavor and Odor in US Grading Standards]	--
Odor/Flavor Attributes	**Odor/Flavor Attributes**	**Odor/Flavor Attributes**
Ocean Air Briny Brothy Seaweed, Clean Grassy Metallic Sweet Aromatic Sweet Shellfish Sweet Characteristic - Scallop Corn-like, Cooked[+] Umami (flavor only) Sweet (flavor) Salty (flavor)	Cardboardy / Stale Fishy Oxidized STP/Soapy Sulfury*	Sour Aromatic Rancid / Painty Soured Milk Cheesy Yeasty Persistent Ammonia Fermented Fruit Sulfide, Hydrogen Sulfury / Fermented Vegetables* Sickly Sweet Putrid Fecal Bitter (flavor only) Sour (flavor) *Taints
Neutral (boundary)	* Relative to Sulfur, MOD or STR intensity defined Sulfury/Sulfide odors-flavors indicate Unacceptable Quality	* **Taint** is defined as "a taste or odor foreign to the product" (ISO and ASTM)

[+]Cooked refers to cooked, reheated or warmed.

Appendix E - NOAA SIP Texture Guide

The *NOAA SIP Texture Guide (Texture Guide)* is used to classify the subsample texture quality based on the perceived textural attributes. The *Texture Guide* provides instructions on the uniform quality classification of texture attributes.

NOAA SIP Texture Guide - Fish and Fishery Products Sensory Quality Assessment	
High	**Acceptable**
Texture Attributes	**Texture Attributes**
Firm, but tender and moist	Slightly tough, dry
Slightly resilient but not tough or rubbery	Slightly fibrous, mushy or rubbery
Moist but not mushy	Moderately tough, rubbery, has noticeable tendency to form a fibrous mass in the mouth
	Abnormal texture characteristics (eg gelatinous) or dramatically changed properties

Appendix

A. **Measurement Standards and Test Equipment Guidelines – April 2020**
B. **Inspection Requests for Lionfish and Safe Handling Procedures**
C. **Scallop Moisture Determination**

Appendix A. Measurement Standards and Test Equipment Guidelines – April 2020

Background

USDC/NOAA Seafood Inspection (SI) provides fishery product inspections and grade assessment services, which require Product Auditors and NOAA SI Approved Establishments to verify specific criteria including but not limited to net weight, weight range, count per pound, percent fish flesh, percent moisture and percent defect (grade standards). NOAA SI utilizes these results to determine lot compliance; therefore, the accuracy of weight measurements is of paramount importance.

In order to improve harmonization among Federal Agencies and States, NOAA SI references the National Institute of Standards and Technology (NIST) Handbook 133 "Checking the Net Content of Packaged Goods", NIST Handbook 44 "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices", and NIST Handbook 105 "Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures".

The purpose of the aforementioned NIST technical requirements is to "eliminate from use, weights and measures and weighing and measuring devices that give readings that are false, that are of such construction that they are faulty (that is, that are not reasonably permanent in their adjustment or will not repeat their indications correctly), or that facilitate the perpetration of fraud, without prejudice to apparatus that conforms as closely as practicable to the official standards."[1]

Since these three NIST Handbooks are extensive documents pertaining to various consumer products and test procedures, NOAA SI extracted the applicable information needed for Product Auditors and NOAA SI Approved Establishments to conduct uniform fishery product inspections and grade assessment services. Lot compliance for label regulations and declarations include but not limited to net weight, weight range, count per pound, count per package, percent fish flesh and percent moisture, are directly dependent on proper use of measurement standards (mass standards – test weights) and test equipment (balances and scales).

Mass standards (test weights) and balances and scales have inherent limitations. Mass standard (test weight) values can be impacted by factors such as scratches, fingerprints, abrasion and corrosion. Balances and scales can drift from their original calibration due to factors such as mechanical component deterioration, usage level and environmental conditions.

Therefore, in order to ensure accurate weight measurements and to nationally standardize the proper use of mass standards and balances and scales, the following guidelines and best practices are recommended for adoption by NOAA SI and NOAA SI Approved Establishments.

Mass Standards (Test Weights): General

All mass standards used by NOAA SI shall:

- Be calibrated by a NIST Traceable Laboratory quadrennial or more frequently if accuracy checks indicate drift.
- Comply with NIST Handbook 105 "Specifications and Tolerances for Reference Standards and Field Standard Weights and Measures".
- Be made of a stainless steel construction if newly purchased.
- Bear a "Report of Traceability" if newly purchased.
- Have purchase and traceability records on file at location where mass standards are used or stored.

[1] NIST Handbook 44 (2019). Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices, *Chapter 1 (Introduction)*, page 1.

Mass Standards (Test Weights): Daily Use Procedures

Prior to use, mass standards shall be:

- Stored in proper storage containers in close proximity to applicable scale(s).
- Handled with clean, powderless latex or cotton gloves.
- Inspected visually for foreign material, (especially the bottom) prior to use.
- Subjected to recommended "daily cleaning" or "periodic cleaning" when necessary.
- Lifted straight up and not dragged when removed from scale load receiving element.
- Discontinued from service if visual evidence of abrasion or corrosion exists.
- Discontinued from service if accuracy check results indicate incorrect weight measurements.

Balances and Scales: General

All balances and scales used by NOAA SI shall:

- Be calibrated by a technician with mass standards traceable to NIST prior to being placed in service, including newly purchased.
- Be calibrated by a technician with mass standards traceable to NIST annually or more frequently if accuracy checks indicate drift.
- Display a visible calibration sticker, indicating the licensed company's name, calibration date and due date.
- Have a security seal (a uniquely identifiable physical seal, such as a lead-and-wire seal or other type of locking seal, a pressure-sensitive seal sufficiently permanent) to reveal its removal, or similar apparatus attached to a weighing or measuring device for protection against or indication of access to adjustment.
- Have the required readability (smallest number a balance or scale can display) or scale division (smallest increment of weight that the digital display resolves) suitable for applicable product inspection and grade assessment.
- Have the balance's or scale's manual and purchase, maintenance, repair and calibration records on file at location where balance or scale is used or stored.

Balances and Scales: Daily Use Procedures

Prior to use, balances and scales used by NOAA SI shall be:

- Plugged in for the time specified by manufacturer; and if there is no recommendation, a minimum of 1 hour (or preferably left plugged in at all times);
- Placed on solid surface away from sunlight (doors and windows); drafts (extreme air currents, air conditioning vents and fans); and heat sources (dishwashers, stoves and radiators).
- Subjected to a "warm-up" session according to manufacturer's recommendation, once turned on; and if there is no recommendation, a minimum of 30 minutes.
- Leveled using level indicator and adjustable legs;
- Selected based on NIST Handbook 133 "Checking the Net Contents of Packaged Goods - 2.2.1. Scale Requirements; 2.2.2. Scale Accuracy; 2.2.3. Scale Tolerance; and 2.2.4. Scale Verification."
- Verified for accuracy based on NIST Handbook 133 "Checking the Net Contents of Packaged Goods - 2.2.4. Scale Verification" prior to daily use, at a new location, or when there is any indication of abnormal equipment performance, i.e. erratic indications. This includes conducting the (1) Increasing-Load Test; (2) Decreasing-Load Test; (3) Shift Test and (4) Return to Zero Test.
- Recheck scale accuracy if a lot is not accepted for product inspection, i.e. net weight determination or count per pound determination, and/or grade assessment so there is confidence that the scale is properly weighing.
- Discontinued from service if scale is malfunctioning and needs repairs or maintenance in accordance to NIST Handbook 44 "Section 1.10. General Code G-UR. 4. Maintenance Requirements".

Appendix B. Inspection Requests for Lionfish and Safe Handling Procedures:

Background - Lionfish (*Pterois volitans*) are species of fish which originate from the Pacific Ocean. Lionfish are an invasive species in the Western Atlantic Ocean. Though not completely substantiated, it appears that lionfish were brought into Florida as an aquarium fish and were unintentionally introduced. Lionfish are present in the Western Atlantic all the way up to Long Island, NY.[1]

Not only are lionfish permitted to be harvested, many States encourage the harvest and consumption of these non-native species in order to decrease their negative environmental impact on harvest and reef areas.

Lionfish possess venomous spines that must be handled carefully by divers, harvesters, seafood processors and retailers. Typically spines are removed using gloves to protect the food handler from the venom which can cause severe localized pain, swelling and, in some instances, blistering and infection if not treated properly. [2]

Question #1: Lionfish is not listed in the current Fish and Fishery Products, Hazards and Controls guidance (4th edition). Are there any potential species-related hazards associated with lionfish?

> **Response:** Yes; lionfish are affected by the potential species related food safety hazard of Ciguatera Fish poisoning (CFP). The FDA has issued guidance to primary processors regarding lionfish (here); depending upon the harvest area, they are species that can bioaccumulate CFP. Primary processors would be responsible for addressing CFP as a potential species-related hazard.

Question #2: Does the FDA provide any guidance relative to the non-edible parts of lionfish that contain venom?

> **Response:** Yes. Lionfish are venomous; venom is located in glands and can be transmitted to humans via injury from the pectoral, dorsal and anal spines. Processors are advised to review the venomous fish section of the FDA Bad Bug Book to look at other factors that may increase risk (e.g., processing in such a fashion where cross-contact occurs between venom sacs and meat.) FDA's Bad Bug Book indicates that *"[c]urrently FDA has no specific guidance for seafood*

[1] NOAA Ocean Service Education, last updated July 2017.

[2] National Institutes of Health - US National Library - Denaturing the Lionfish May 23, 2016

processors as to the control of hazards from fish venom. As noted, the potential for harm from consuming this and any of the other known venom-producing fish species has not been adequately investigated." [3]

It is therefore NOAA IATC policy that processors must control the potential for venomous cross contact through a GMP and an adequate sanitation control program. As always, in addition to potential species-related hazards, processors need to also consider potential process related hazards, per 21 CFR Part 123, the FDA Seafood HACCP Regulation. Processors who may have additional specific questions may want to direct them to the FDA.

Question #3: Can lionfish be inspected by the USDC/NOAA IATC?

Response: Yes. There is no prohibition relative to the harvest and distribution of lionfish; it may be harvested and sold by US seafood processors. Depending upon the contract type, USDC/NOAA IATC may provide grading and/or inspection services to processors of live or processed lionfish.

USDC/NOAA IATC is permitted to:

- Perform product inspection of lionfish in any form (whole, filleted)
- Perform product export certification of lionfish in any form (whole, filleted)
    (a) Export certification to include the following statement: "Lionfish (*Pterois volitans)* sold with spines intact could present a handling hazard and must be further processed or handled to avoid cross-contact of the venom with the fish flesh."

USDC/NOAA SI Policy regarding - Personal Protection Equipment

When handling fish with venomous spines, it is important to prevent puncture wounds. According to the American Fisheries Society Fisheries Safety Handbook, individuals who handle fish can take precautions by wearing gloves.[4] Either nylon or kevlar gloves may be used. In some cases, biologists and other fish handlers such as NOAA SI field staff, may also wear a pair of latex gloves underneath the outer gloves. In addition, when evaluating fish with the spines intact, individuals should use hand held tools when selecting the fish for evaluation, to minimize the potential for "spining": puncture wounds caused by spines.

Recommendation for Gloves:

- HexArmor, Sharps Master II $41.99/pair, or similar gloves that are puncture resistant.

Recommendation for Hand Held Tools:

- Hooked picking tool to select fish

[3] FDA Bad Bug Book, Venomous Fish, p. 245.,

[4] Fisheries Safety Handbook, American Fisheries Society, Bethesda, MD, 2008. Fish Handling Safety, p. 28.

- Wire cutters to remove spines prior to evaluation.

[4] Fisheries Safety Handbook, American Fisheries Society, Bethesda, MD, 2008. Fish Handling Safety, p. 28.

Appendix C. Scallop Moisture: Product (Lot) Inspection Procedures Historical content

Scallop Moisture Determination

To establish uniform inspection procedures when certifying scallops for total moisture content. This policy will only affect scallops for domestic use and will also not be required for lots less than 200 pounds unless other conditions warrant it (e.g., compliance history, buyer's requirements). Product intended for export will be inspected and certified relative to the importing country's requirements.

General

On August 31, 1992, the Food and Drug Administration (FDA) through the Office of Seafood developed a policy memo entitled "Interim Labeling Policy Established for Scallops." The purpose of the policy was to "…provide consumers with a better indication about the amount of water in the scallop products they buy." At that time the FDA and the Seafood Inspection Program (SIP) along with many sectors of the industry including retailers and consumer groups were concerned that the practice of adding water and phosphate compounds to scallop adductor muscle meats was potentially deceptive, fraudulent and in violation of the Food, Drug and Cosmetic (FD & C) Act as it relates to adulterated food (21 USCS, § 342(b)(4)): "A food shall be deemed to be adulterated … if any substance has been added thereto or mixed or packed therewith so as to increase its bulk or weight, or reduce its quality or strength, or make it appear better or of greater value than it is."

The FDA "Interim Labeling Policy" established moisture percentages that would differentiate non-treated scallops or what has been referred to as natural scallops from scallops that were subjected to water and/or a phosphate treatment. Scallops less than 80.0% total moisture, if not subjected to processing conditions utilizing excessive water and/or phosphate treatment, could be labeled simply as scallops. As opposed to scallop products whose total moisture analysis demonstrated a percentage of 80.0 % to 84.0% would have to be labeled "X % Water Added Scallop Product" appearing in the principal display panel of the label. The statement, "Processed with Sodium Tripolyphosphate," or any other polyphosphates used, is also to appear in the identity statement if the product has been processed with the ingredient. In addition, the ingredient statement on the labels for these products must include water and sodium tripolyphosphate (or other phosphate, as appropriate). Products having moisture content over 84.0 % were considered adulterated under the FD & C Act.

It has been the SIP's policy since the inception of the FDA policy to test all lots of scallops for total moisture using the "Ohaus method" or the official AOAC method. The results of these analyses are noted on the certificate and the product would have to be labeled accordingly. On May 18, 2004, the FDA rescinded their Interim Labeling Policy of August 1992. In effect, the percentages that FDA used for

defining labeling statements are no longer being enforced. However, scallop products that are subjected to processing conditions that will result in added moisture and/or to food additives (e.g., phosphates) must be properly labeled both in the identity statement (i.e., on the principal display panel) and in the ingredient statement.

Policy

Because the FDA has rescinded its policy regarding the action levels of moisture content in scallops, the SIP will no longer use that criteria. However, due to concerns over improper labeling, NOAA SIP will continue to require that all lots of scallops over 200 pounds destined for domestic use be tested for total moisture using the AOAC Official Method 950.46-Moisture in Meat (AOAC Method) or other valid methods and equipment that provide results statistically equivalent to those of the AOAC Method for total moisture. The results of the analysis will be noted on the certificate, score sheet or memorandum. If the inspector has definitive knowledge that the product has been treated in some way to add water to the product, the label must reflect that. Also if the product tests over 83.0 % for total moisture, the SIP will assume that the product has been treated and must be properly labeled. This assumption is based on studies and data collected by various governmental agencies, academia, and other organizations that have demonstrated total moisture content of scallops consistently less than 83%.

At this time there is no upper limit for moisture content.

The SIP will closely follow the development of the international Proposed Draft Standard for Quick Frozen Scallop Adductor Muscle Meat under the Codex Alimentarius Commission (the joint Food Standards Programme of the Food and Agriculture Organization of the United Nations and the World Health Organization). The issues of moisture content limits, phosphate usage, and proper labeling are central elements in this draft standard. The SIP will evaluate the data submitted regarding these issues during the development of this international standard, as well as any data that are obtained directly from foreign agencies or other sources with the intent of establishing appropriate moisture content and phosphate usage criteria for use by this Program.

{**Note:** "X%-water-added" is calculated by knowing the natural moisture content (A) and the moisture content after treatment (B). $X = (B-A)/(1-B)$.}