منظمة الأغذية والزراعة للأمم المتحدة | 联合国粮食及农业组织 | Food and Agriculture Organization of the United Nations | Organisation des Nations Unies pour l'alimentation et l'agriculture | Organización de las Naciones Unidas para la Agricultura y la Alimentación

COORDINATING WORKING PARTY ON FISHERY STATISTICS

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Need assessment and draft proposal for the update of "the current International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) in use from 2000" from the aquaculture statistics perspectives

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CONTEXT

CWP25 established a Task Group under this session for reviewing and developing a proposed revision of the ISSCAAP groupings, to be led by the Aquaculture group and to involve representative of Capture given the shared nature of ISSCAAP groupings. This Task Group is requested to table a concrete proposal of necessary classifications and corresponding codes including revised species groupings, for endorsement by CWP26. This proposal should address the following objectives:

- establishing well-balanced species groupings with appropriate hierarchies for enhancing global harmonization and comparability of statistics
- securing adequate level of segregation of fresh water cultured species
- mitigating confidentiality, without losing comparability among data collected

This document authored by FAO constitutes the initial food for thoughts for the Aquaculture sub-group feedback. The points raised in this document are draft in nature and at this stage primarily based on aquaculture statistics perspectives.
The Aquaculture sub-group is expected to develop the TORs and identify the membership of the ISSCAAP groupings Task Group. In its final version for endorsement by CWP26, the proposal will have to take into account a proper balance between Aquaculture and Capture groups.

BACKGROUND

"The current International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) in use from 2000"[1] is widely used in grouping aquatic species for analyzing the production statistical data for monitoring, management and planning of capture fishery, aquaculture and the two sectors combined. It is one of the basic statistical classification systems used by concerned organizations in fisheries and aquaculture data dissemination and data analysis. For example, the annually released FAO global statistics datasets of fishery production, aquaculture production and combined production use the ISSCAAP classification for data dissemination through the ***FishStat J*** and ***workspace package***, the ***online query panels*** as well as the ***statistics yearbook***.

All productions from capture and aquaculture are categorized into 9 Divisions by the ISSCAAP in current use, and the number Groups under each Division varies from 3 to 9. For production data analysis purpose, higher numbers of Groups under a Division are generally desirable to illustrate the details better of the species composition of the production.

Finfish, ***crustaceans*** and ***molluscs*** are the most important species for both capture and aquaculture production. However, the number of Groups assigned for freshwater species and marine species under the corresponding Divisions 1 and 3 (excluding Division 2 for diadromous fishes) for these species are greatly imbalanced. As shown in Table 1, there are only 5 Groups assigned for freshwater species under Divisions 1, 3, 4 and 5, collectively, while there are 22 Groups for marine species.

Table 1: Number of Groups under current ISSCAAP Divisions for finfish, crustaceans and molluscs*

Selected ISSCAAP Divisions	Freshwater	Marine water
Division 1: Freshwater fishes	3	-
Division 3: Marine fishes	-	9
Division 4: Crustaceans	1	6
Division 5: Molluscs	1	7
Total	**5**	**22**

** Note: Division 2 (Diadromous fishes) excluded for consideration.*

The development status and trend monitoring and reporting on aquaculture sector rely heavily on the analytical use of aquaculture data. The dominance of freshwater species in aquaculture production necessitates the addition of more Groups and the revision of some existing Groups under several Divisions in the current ISSCAAP, which would certainly improve the details and clarity of specific types of farmed species groups for data extraction for analysis.

[1] Available at: ftp://ftp.fao.org/FI/DOCUMENT/cwp/handbook/annex/AnnexS2listISSCAAP2000.pdf

CONSIDERATIONS

From the year 2000, when the current ISSCAAP came into use, world aquaculture has increased in annual production by 136% in the first fifteen years in the 3rd millennium, while the capture production has stayed relative stable. World total aquaculture production comprises 64% of species farmed in freshwater. Using the existing Groups of ISSCAAP Division 1 (***Group 11 Carps, barbels and other cyprinids***; ***Group 12 Tilapias and other cichlids***, and ***Group 13 Miscellaneous freshwater fishes***), the details of aquaculture production of some important species groups, such as catfishes, perch/bass and Characins, become obscure.

In addition, the Groups under several other current ISSCAAP Divisions could be revised (in terms of species composition, name change or both) to better suit the present aquaculture sectoral situation for improved details for data analysis. For a few existing Groups, there is need to adopt more appropriate names only in order to improved clarity, better understanding by data users and for avoidance of potential confusions.

MAJOR CRITERIA

The criteria used for the current ISSCAAP in use from 2000 appears a mixture of, among others, the taxonomic classification of aquatic species, type of the water as natural habitat of the species according to the salinity (freshwater vs marine water), the behavior of the species and the economic importance of the species.

The same criteria are used in proposing a draft of revised/update version of the ISSCAAP classification, while also taking into consideration of the feeding habit of the aquatic animal species, which is of vital importance in aquaculture.

REVISION NEED ASSESSMENT AND DRAFT PROPOSALS

A first round assessment and draft proposals pertaining to the composition of Groups of the current ISSCAAP Divisions 1,2, 3,4 7,8 and 9 were conducted by FAO, primarily from the aquaculture statistics perspectives, for the preliminary findings to be tabled at this intersessional work meeting for review and discussion. The main points of need assessment for revision and draft proposals for envisaged potentially possible addition and revision to be made under the aforesaid Divisions are summarized thereafter with changes and additions heighted in grey colour.

The numbering of the existing Groups (with or without revision) and additional Groups is not taken into consideration at this stage. No revision is proposed for Divisions 5 and 6.

Division 1

Assessment: Need for the addition of four more Groups. Species under these additional groups are important worldwide or regionally.

1 Freshwater fishes	**1 Freshwater fishes**
11 Carps, barbels and other cyprinids	11 Carps, barbels and other cyprinids
12 Tilapias and other cichlids	12 Tilapias and other cichlids
13 Miscellaneous freshwater fishes	13 Miscellaneous freshwater fishes
	14 Freshwater catfishes
	15 Freshwater perches and basses
	16 Snakeheads
	17 Characins

Division 2

Assessment: (1) Milkfish and several species of mullets are important aquaculture species. They are farmed in freshwater, brackishwater and marine water. They are similar in terms of their relatively low position in the food chain, requiring less animal protein if and when artificial feeds are used for cultivation. Additional species of similar characteristics need to be reviewed.

(2) While barramundi is farmed in large volume in SE Asia and Australia, Japanese seabass, a species that also migrates naturally between habitats in inland water and the sea, is an important species farmed East Asia. Both are carnivorous, requiring high dietary animal protein level for feeding in aquaculture. Along with other similar species (to be assessed further), Japanese seabass could be grouped together with barramundi.

2 Diadromous fishes	**2 Diadromous and euryhaline fishes**
21 Sturgeons, paddlefishes	21 Sturgeons, paddlefishes
22 River eels	22 River eels
23 Salmons, trouts, smelts	23 Salmons, trouts, smelts
24 Shads	24 Shads
25 Miscellaneous diadromous fishes	25 Miscellaneous diadromous and euryhaline fishes
	26 Herbivorous & omnivorous euryhaline fishes
	27 Carnivorous euryhaline fishes

Note:

(1) For re-assigning the species to proposed Group 26, species like Milkfish need to be moved out from "Group 25 Miscellaneous diadromous fishes" and mullets from "Miscellaneous coastal fishes".

(2) For re-assigning the species to proposed Group 27, species like Barramundi need to be moved out from "Group 25 Miscellaneous diadromous fishes" and Japanese seabass from "Miscellaneous coastal fishes".

(3) A number of euryhaline fin fish species, including milkfish, mullets, barramundi and Japanese seabass, are globally important species for aquaculture in volume terms. Separating them into different ISSCAAP Groups is based on their feeding habits

Division 3

Assessment: The collective name "flat fish" or "flatfish" is commonly used for most of the species under the Group "Flounders, halibuts, soles". A number of flat fish species, such as turbot, are farmed commercially.

3 Marine fishes	**3 Marine fishes**
31 Flounders, halibuts, soles	31 Flat fishes
32 Cods, hakes, haddocks	32 Cods, hakes, haddocks
33 Miscellaneous coastal fishes	33 Miscellaneous coastal fishes
34 Miscellaneous demersal fishes	34 Miscellaneous demersal fishes
35 Herrings, sardines, anchovies	35 Herrings, sardines, anchovies
36 Tunas, bonitos, billfishes	36 Tunas, bonitos, billfishes
37 Miscellaneous pelagic fishes	37 Miscellaneous pelagic fishes
38 Sharks, rays, chimaeras	38 Sharks, rays, chimaeras
39 Marine fishes not identified	39 Marine fishes not identified

Division 4

Assessment: (1) Existing Group 45 "Shrimps, prawns" refer to only marine shrimps and prawns, causing potential confusion or misleading result to data users.

(2) Similarly, existing Group 42 "Crabs, sea-spiders" posed potential confusion or misleading result to data users. Considering that freshwater crabs are also farmed, a word "marine" could be added to define the "crabs".

(3) A new Group for "Freshwater shrimps and pawns" need to be created, because freshwater shrimps and pawns are farmed in significant quantity today. Currentlythey are aggregated under the current Group 41 "Freshwater crustaceans".

(4) A new Group for crayfish/crawfish species need to be created. They are farmed in significant quantity in North America and East Asia, plus Europe and other regions in small quantity. The proposed name "Freshwater crayfishes (crawfishes)" is tentative. Use of the work "frseshwater" need to be further discussed, because crayfish/crawfish are generally regarded as freshwater aquatics.

4 Crustaceans	**4 Crustaceans**
41 Freshwater crustaceans	41 Freshwater shrimps and prawns
42 Crabs, sea-spiders	42 Marine crabs, sea-spiders
43 Lobsters, spiny-rock lobsters	43 Lobsters, spiny-rock lobsters
44 King crabs, squat-lobsters	44 King crabs, squat-lobsters
45 Shrimps, prawns	45 Marine shrimps and prawns
46 Krill, planktonic crustaceans	46 Krill, marine planktonic crustaceans
47 Miscellaneous marine crustaceans	47 Miscellaneous marine crustaceans
	48 Freshwater crayfishes (crawfishes)
	49 Miscellaneous freshwater crustaceans

Division 7

Assessment: Sea cucumbers are farmed in significant volume, particularly the cold water species in East Asia. Farming several tropical sea cucumber species is spreading in other regions. Creation of a Group for sea cucumber species is desirable.

7 Miscellaneous aquatic animals	**7 Miscellaneous aquatic animals**
71 Frogs and other amphibians	71 Frogs and other amphibians
72 Turtles	72 Turtles
73 Crocodiles and alligators	73 Crocodiles and alligators
74 Sea-squirts and other tunicates	74 Sea-squirts and other tunicates
75 Horseshoe crabs and other arachnoids	75 Horseshoe crabs and other arachnoids
76 Sea-urchins and other echinoderms	76 Sea-urchins and other echinoderms
77 Miscellaneous aquatic invertebrates	77 Miscellaneous aquatic invertebrates
	78 Sea cucumbers

Division 8

Assessment: (1) Existing Group 81 “Pearls, mother-of-pearl, shells” include both marine and freshwater species. In value term, marine pearls are significantly higher than freshwater ones. Marine molluscs are farmed for shells, while freshwater species is rarely farmed for their shells only. Separation of the them by creating a Group for “Freshwater pearls and shells” is desirable.

(2) Live rock is farmed in many tropical countries primarily for aquarium / ornamental use. Defining “live rock” for aquaculture production statistics classification need to be further reviewed due to the multi-species nature of the so-called live rock purpose live rock, causing difficulties in classifying them taxonomically.

8 Miscellaneous aquatic animal products	**8 Miscellaneous aquatic animal products**
81 Pearls, mother-of-pearl, shells	81 Marine pearls, mother-of-pearl, shells
82 Corals	82 Corals
83 Sponges	83 Sponges
	84 Freshwater pearls and shells
	85 Live rocks (ornamental)

Division 9

Assessment: (1) The existing Group 93 "Green seaweeds" also include micro green algae species. Firstly, the term "seaweeds" (usually refers to marine macro algae) is not adequate for the micro species of green algae. Secondly, many of the micro green algae species are freshwater species (including *Haematococcus pluvialis* farmed commercially in an increasing number of countries.

(2) Micro algae aquaculture is booming for various uses. It is desirable to create a new Group "Aquatic microalgae" to include micro algae species, including the micro green algae species *Haematococcus pluvialis*, Cyanobacteria Spirulina spp, and others (to be reviewed further).

(3) For existing Groups "Brown seaweeds" and "Red seaweeds", it is tentatively proposed to change the word "seaweeds" to "algae". Further review by concerned parties in needed.

9 Aquatic plants	
91	Brown seaweeds
92	Red seaweeds
93	Green seaweeds
94	Miscellaneous aquatic plants

9 Aquatic plants	
91	Brown algae
92	Red algae
93	Marine macro green algae
94	Miscellaneous aquatic plants
95	Aquatic microalgae
96	Aquatic macrophytes (ornamental)

For comparison of the ISSCAAP classification in current use from 2000 and the propose draft update version are annexed in tabular form to this document.

ANNEX:
Comparison of "the current International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) in use from 2000" with the proposed draft update version of ISSCAAP classification

The current International Standard Statistical Classification of Aquatic Animals and Plants (ISSCAAP) in use from 2000		**Proposed update version**	
Code	**ISSCAAP Groups**	**Code**	**ISSCAAP Groups**
1 Freshwater fishes		**1 Freshwater fishes**	
11	Carps, barbels and other cyprinids	11	Carps, barbels and other cyprinids
12	Tilapias and other cichlids	12	Tilapias and other cichlids
13	Miscellaneous freshwater fishes	13	Miscellaneous freshwater fishes
		14	Freshwater catfishes
		15	Freshwater perches and basses
		16	Snakeheads
		17	Characins
2 Diadromous fishes		**2 Diadromous and euryhaline fishes**	
21	Sturgeons, paddlefishes	21	Sturgeons, paddlefishes
22	River eels	22	River eels
23	Salmons, trouts, smelts	23	Salmons, trouts, smelts
24	Shads	24	Shads
25	Miscellaneous diadromous fishes	25	Miscellaneous diadromous fishes
		26	Herbivorous & omnivorous euryhaline fishes
		27	Carnivorous euryhaline fishes
3 Marine fishes		**3 Marine fishes**	
31	Flounders, halibuts, soles	31	Flat fishes
32	Cods, hakes, haddocks	32	Cods, hakes, haddocks
33	Miscellaneous coastal fishes	33	Miscellaneous coastal fishes
34	Miscellaneous demersal fishes	34	Miscellaneous demersal fishes
35	Herrings, sardines, anchovies	35	Herrings, sardines, anchovies
36	Tunas, bonitos, billfishes	36	Tunas, bonitos, billfishes
37	Miscellaneous pelagic fishes	37	Miscellaneous pelagic fishes
38	Sharks, rays, chimaeras	38	Sharks, rays, chimaeras
39	Marine fishes not identified	39	Marine fishes not identified
4 Crustaceans		**4 Crustaceans**	
41	Freshwater crustaceans	41	Freshwater shrimps and prawns
42	Crabs, sea-spiders	42	Marine crabs, sea-spiders
43	Lobsters, spiny-rock lobsters	43	Lobsters, spiny-rock lobsters
44	King crabs, squat-lobsters	44	King crabs, squat-lobsters
45	Shrimps, prawns	45	Marine shrimps and prawns
46	Krill, planktonic crustaceans	46	Krill, marine planktonic crustaceans
47	Miscellaneous marine crustaceans	47	Miscellaneous marine crustaceans
		48	Freshwater crayfishes (crawfishes)
		49	Miscellaneous freshwater crustaceans
5 Molluscs		**5 Molluscs**	
51	Freshwater molluscs	51	Freshwater molluscs
52	Abalones, winkles, conchs	52	Abalones, winkles, conchs

53	Oysters
54	Mussels
55	Scallops, pectens
56	Clams, cockles, arkshells
57	Squids, cuttlefishes, octopuses
58	Miscellaneous marine molluscs
6 Whales, seals and other aquatic mammals	
61	Blue-whales, fin-whales
62	Sperm-whales, pilot-whales
63	Eared seals, hair seals, walruses
64	Miscellaneous aquatic mammals
7 Miscellaneous aquatic animals	
71	Frogs and other amphibians
72	Turtles
73	Crocodiles and alligators
74	Sea-squirts and other tunicates
75	Horseshoe crabs and other arachnoids
76	Sea-urchins and other echinoderms
77	Miscellaneous aquatic invertebrates
8 Miscellaneous aquatic animal products	
81	Pearls, mother-of-pearl, shells
82	Corals
83	Sponges
9 Aquatic plants	
91	Brown seaweeds
92	Red seaweeds
93	Green seaweeds
94	Miscellaneous aquatic plants

53	Oysters
54	Mussels
55	Scallops, pectens
56	Clams, cockles, arkshells
57	Squids, cuttlefishes, octopuses
58	Miscellaneous marine molluscs
6 Whales, seals and other aquatic mammals	
61	Blue-whales, fin-whales
62	Sperm-whales, pilot-whales
63	Eared seals, hair seals, walruses
64	Miscellaneous aquatic mammals
7 Miscellaneous aquatic animals	
71	Frogs and other amphibians
72	Turtles
73	Crocodiles and alligators
74	Sea-squirts and other tunicates
75	Horseshoe crabs and other arachnoids
76	Sea-urchins and other echinoderms
77	Miscellaneous aquatic invertebrates
78	Sea cucumbers
8 Miscellaneous aquatic animal products	
81	Marine pearls, mother-of-pearl, shells
82	Corals
83	Sponges
84	Freshwater pearls and shells
85	Live rocks (ornamental)
9 Aquatic plants	
91	Brown algae
92	Red algae
93	Marine macro green algae
94	Miscellaneous aquatic plants
95	Aquatic microalgae
96	Aquatic macrophytes (ornamental)