



# **The International Standard for the Trade In Live Reef Food Fish**



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## Preface

Coral reefs are some of the most biologically productive and diverse ecosystems on Earth. They support thousands of species of fish, invertebrates, algae, plankton, sea grasses and other organisms. They have great commercial, recreational, cultural and aesthetic value. They provide shoreline protection, areas of natural beauty and sources of food, jobs and pharmaceuticals. They are the focus of a wide range of activities, including education, research, recreation, tourism and fishing.

At the same time, most coral reef ecosystems around the world are being degraded and severely threatened by human activities including land-based pollution, over-fishing, destructive collection and fishing practices, reef mining, coastal development, vessel groundings, siltation and climate change.

The live reef food fish (LRFF) fisheries provide a livelihood for many fishers in coastal communities around the world, in areas where there are few alternatives, and the LRFF trade represents a valuable source of income for exporting countries. Live reef food fish attract premium prices and are potentially low-volume, high-value fisheries that can “add value” to a region’s reef fisheries if implemented responsibly.

These fisheries, however, are synonymous with destructive fishing practices and over-fishing that damage not only the marine environment but also the economies and social fabric of coastal fishing communities dependent on coral reef resources. The longer-term negative impacts of unmanaged LRFF fisheries on fish stocks and traditional fishing communities that target them are now apparent in many countries.

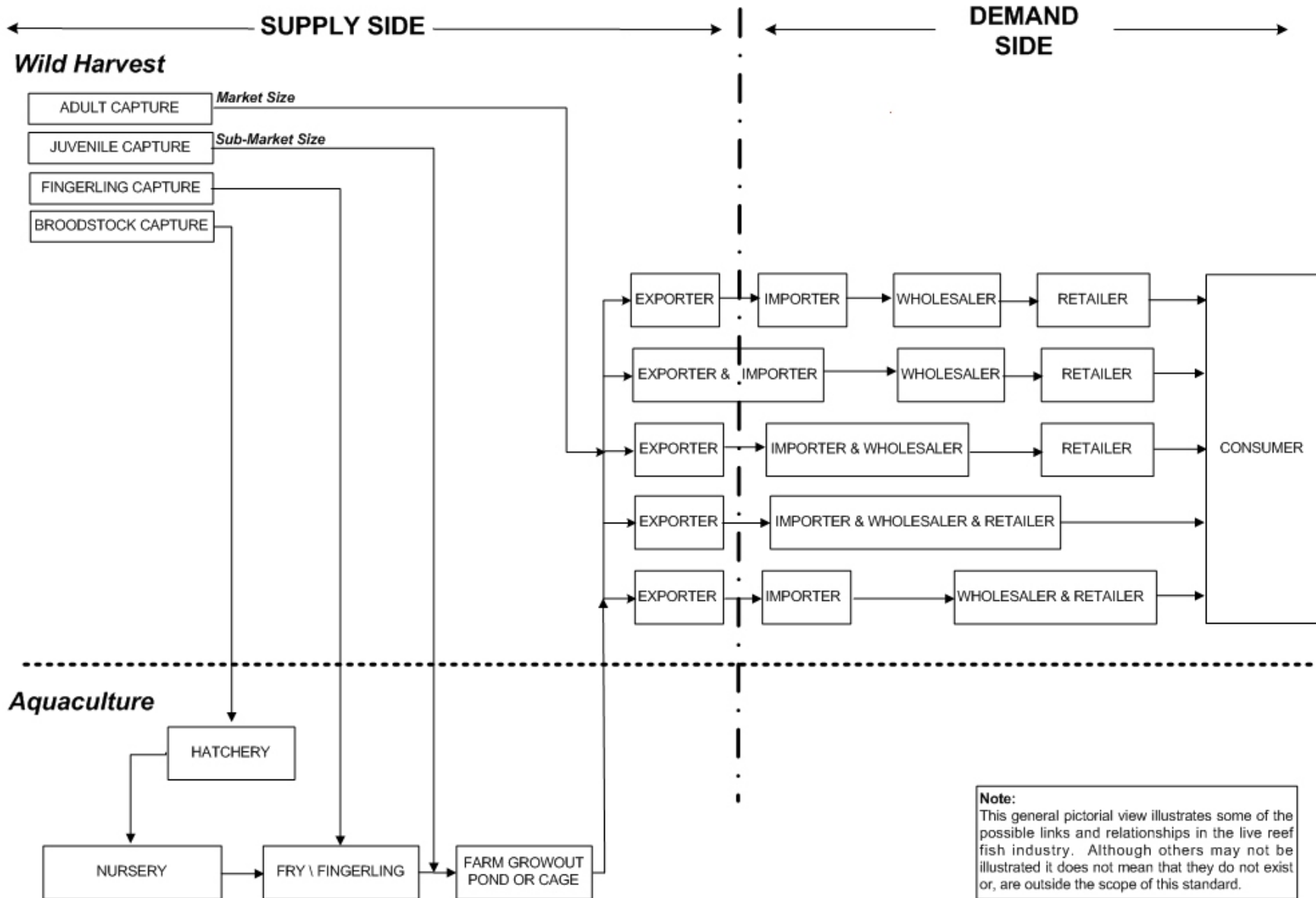
Responsible management of these fisheries is needed to ensure sustainable use of marine resources and the conservation of coral reefs for the benefit of future generations.

Alternatives to the harvesting of wild live reef food fish (for example, hatchery-based aquaculture) are also important. While the move from wild-caught to cultured live reef food fish as a source of market product is seen as a significant way of taking pressure off species, particularly those that are highly fished or endangered, these activities are seen to have their own sustainability issues.

Participants in the trade in live reef food fish, whether wild-caught or farm-raised, wish to ensure that they operate in a responsible manner to ensure sustainable use of the resource.

This voluntary LRFF Standard is being produced through an international consultation process and covers the capture of wild live reef food fish; the aquaculture of live reef food fish; and the handling, holding distribution and marketing of live reef food fish. It is aimed at being a standard to which all responsible members of the LRFF trade will adhere so as to enable the trade to continue for generations to come. (See Figure 1.)

**Figure 1: Scope of this International Standard for the Trade in Live Reef Food Fish**



# 1. Introduction

## 1.1 Purpose

This International Standard for the Trade in Live Reef Food Fish (LRFF) aims to promote a “sustainable fishery,” i.e., one in which the harvesting of the target species is conducted in such a way, and at a rate, that 1) It does not threaten the health of the stock and the ecosystem on which it depends, or 2) It does not inhibit recovery of the stock or the ecosystem if it has previously been reduced below appropriate levels.

## 1.2 Objectives

### 1.2.1 Sustainable Fisheries

The requirements in this Standard are based upon:

- a) The maintenance (and) or re-establishment of healthy populations of the targeted species;
- b) The maintenance (and) or re-establishment of the integrity of their marine ecosystems; and
- c) The development and maintenance of effective fisheries management systems for the targeted species and their ecosystem.

### 1.2.2 Compliance with Existing Authorities

The requirements in this Standard recognize the importance of fisheries management and operations being conducted in a manner consistent with relevant local and national laws and standards and international understandings and agreements as well as in compliance with this document.

### 1.2.3 Rights of Fishermen and Other Stakeholders

The requirements in this Standard recognize the need to observe and respect the long-term interests of people dependent on fishing for food and livelihood to the extent that it is consistent with ecological sustainability.

These requirements also recognize that sustainable fishery would maintain its potential to meet the needs and aspirations of present and future generations of fishers as well as others with an interest in the ecological health and sustainability of the stock and the coral reef ecosystems from which they come.

### 1.2.4 Stakeholder Involvement

The requirements in this Standard recognize and emphasize that management efforts are most likely to be successful in accomplishing the goals of conservation and sustainable use of marine resources when there is full co-operation among the full range of stakeholders, including those who are dependent on fishing for their food and livelihood as well as other users of the marine ecosystem.

### 1.2.5 Socioeconomic, Gender and Poverty Issues

The requirements in this Standard recognize the need to support rural communities, involve women and marginalized groups and contribute to poverty alleviation.

## **2. Requirements for the Capture of Wild Live Reef Food Fish**

### **2.1 Development of New Fisheries**

#### **2.1.1 State approval of fisheries**

All new fisheries shall be established in accordance with applicable laws, including any provisions for the approval of specific fisheries or activities by national, sub-national and local authorities.

#### **2.1.2 Fishery viability**

All new fisheries shall have a viability assessment undertaken to establish baseline data and should ensure all biological, social, cultural and economic aspects are considered. The assessment shall adopt a risk adverse approach and shall not be reliant on only one method of assessment.

#### **2.1.3 Trial and review period**

All new fisheries shall be trialed for a pre-determined period before being subjected to a stakeholder review. This review shall be based on the best available information and shall detail reasons to support any decision made to continue with or discontinue the fishery.

### **2.2 Management Requirements for New and Established Fisheries**

#### **2.2.1 Fisheries management framework**

All fisheries shall be developed within an integrated fisheries management framework that takes into account the best available information and considers the impact and needs of all resource users. The management framework shall establish mechanisms for achieving sustainability and conservation of resources.

#### **2.2.2 Management plan**

All fisheries shall be conducted in accordance with a fisheries management plan that includes mechanisms for flexible management and that satisfies the requirements of this LRFF Standard.

#### **2.2.3 Compliance with national and international laws**

All fisheries shall comply with the applicable laws of international, national, sub-national and local authorities.

#### **2.2.4 Operational basis**

All fisheries shall be approved and operated only on the basis of best available information and the application of the precautionary approach.

#### **2.2.5 Periodic resource assessments**

Periodic assessments of the biological status of the resource and general ecosystem shall be conducted.

### **2.2.6 Trigger points**

All fisheries shall have a formal procedure in place that details the action to be taken when certain pre-determined events occur. This procedure shall identify limit and target reference points, and the appropriate responses to be implemented if these reference points are breached.

### **2.2.7 Access control**

Access to the fishery for the purposes of harvesting live fish shall be restricted.

### **2.2.8 Monitoring, control, surveillance and enforcement**

All fisheries shall be subject to effective monitoring, control and surveillance.

### **2.2.9 Socio-economic, gender and poverty issues**

Management principles shall be adopted for the fishery that support rural communities, involve women and marginalized groups and contribute to poverty alleviation.

## **2.3 Operational Requirements of New and Established Fisheries**

### **2.3.1 Destructive fishing**

Destructive methods of fishing shall not be used within the fishery.

### **2.3.2 Target stock**

Fishing operations:

- a) Shall not target spawning aggregations or fish on known aggregation sites;
- b) Shall not target or retain immature fish;
- c) Shall not take threatened or endangered species; and
- d) Shall minimize by-catch.

### **2.3.3 Food safety**

Fishing operations shall take steps to minimize the risk of supplying ciguatoxic fish by avoiding:

- a) Known ciguatoxic areas, and
- b) Species during known seasonal high levels of susceptibility.

### **2.3.4 Transshipment**

Transshipment of live reef food fish shall take place at a designated hub unless a state authorized agent monitors the activity in accordance with relevant regulations.

### **3. Requirements of Live Reef Food Fish Aquaculture**

#### **3.1 Management Requirements**

##### **3.1.1 Use of hatchery reared fry and fingerlings**

- a) Preference shall be given to use of hatchery-reared fingerlings for LRFF aquaculture.
- b) Hatchery and nursery producers should use and promote the use of appropriate procedures for the selection of broodstock and the production of eggs, larvae and fry that lead to healthy and good quality fry and fingerlings.

##### **3.1.2 Limits to harvesting wild caught fry, fingerlings and juveniles**

- a) The harvesting of wild caught fry and fingerlings shall occur only when it can be demonstrated that it does not damage or negatively impact the sustainability of wild stocks.
- b) Aquaculture farms that use wild caught fry, fingerlings and juvenile must have a program in place to eliminate their use for LRFF aquaculture.

##### **3.1.3 Compliance with national and international laws**

All participants engaged in LRFF aquaculture shall comply with the applicable laws of international, national, sub-national and local authorities.

#### **3.2 Operational Requirements**

##### **3.2.1 Post-capture treatment of wild caught larvae and juveniles**

Measures shall be taken to minimize post-capture mortality of wild caught larvae and juveniles.

##### **3.2.2 Fish health management (including stock movements)**

Aquaculture farms shall adopt effective farm and fish health management practices that minimize risk of spread of fish pathogens.

##### **3.2.3 Aquaculture feed supply and management**

The protein used for fish feed shall be derived from a sustainable resource.

##### **3.2.4 Grow-out farms siting and habitat interactions**

Aquaculture farms should be sited so as to:

- a) Maintain fish in optimum health;
- b) Minimize damage to habitats; and
- c) Minimize interference with of other coastal resource users.



### **3.2.5 Harmful algal blooms**

Aquaculture farms shall have an action plan to deal with a local occurrence of harmful algal blooms.

### **3.2.6 Chemical and drug use in aquaculture**

- a) Hazardous chemical inputs and drugs shall be used in a manner consistent with known best practices.
- b) Therapeutants, hormones, drugs, antibiotics and other disease control chemicals shall be employed in a manner to ensure their safe, effective and minimal use.

### **3.2.7 Waste control and effluent management**

Aquaculture farming shall be practiced in ways that minimize the environmental impacts of waste.

### **3.2.8 Food quality and safety**

Aquaculture farms shall ensure the food safety and quality of aquaculture products by promoting efforts that maintain product quality at the appropriate national and international standards. The standards shall apply before and during harvesting, during on-site processing, in storage and during transport of the products.

### **3.2.9 Socio-economic, gender and poverty issues**

Responsible aquaculture-practices shall be adopted that support rural communities, involve women and marginalized groups and contribute to poverty alleviation.

## **4. Requirements of Trading and Consumption of Live Reef Food Fish**

### **4.1 Trading in Live Reef Food Fish**

#### **4.1.1 Fish species traded**

Exporting and importing companies shall source only those fish that have been supplied in accordance with the requirements of this Standard.

#### **4.2 Holding and Distribution of Live Reef Food Fish**

##### **4.2.1 Holding Times**

Holding times for fish of marketable size shall be kept to a minimum.

##### **4.2.2 Holding Facilities**

Holding facilities shall be designed, operated and maintained so as to keep live reef food fish in optimum condition and to reduce waste, losses and the spread of pathogens.

##### **4.2.3 Chemical and drug use during holding**

Operations engaged in the holding and distribution of live reef food fish shall ensure that:

- a) Their use of hazardous chemical inputs and drugs is consistent with known best practices; and
- b) They employ safe, effective and minimal use of therapeutants, hormones and drugs, antibiotics and other disease control chemicals.

##### **4.2.4 Handling techniques**

LRFF trade participants shall utilize proper handling techniques to ensure that all live reef food fish are kept in optimum condition.

##### **4.2.5 Holding and distribution technology**

States and industry from import and source countries should promote the development and adoption of technologies that maintain live reef food fish in optimum condition during holding and distribution.

##### **4.2.6 Declaration of fish health**

All LRFF exporters shall:

- a) Provide LRFF importers with accredited health certificates for each shipment of fish, and
- b) Comply with cyanide detection testing programs as operated within supply countries.

#### **4.2.7 Traceability to source and country of origin**

Exporting and importing companies shall ensure that LRFF shipments can be:

- a) Identified as wild-caught or cultured; and
- b) Traced back to their country of origin.

### **4.3 Consumption of Live Reef Food Fish**

#### **4.3.1 Compliance with this LRFF Standard**

LRFF trade participants shall promote responsible seafood consumption by encouraging consumers to purchase and consume fish that have been supplied in accordance with the requirements of this Standard.

## 5. Definitions

### 5.1 Sources

Wherever possible this LRFF Standard has employed terminology that has wide international or industry acceptance and use. Where possible, the definitions below were taken from the following sources:

- Convention on Biological Diversity [CBD]
- Convention on International Trade in Endangered Species of Wild Fauna and Flora [CITES]
- UN Environment Program's Global Biodiversity Assessment [GBA]
- UN Food and Agriculture Organization [FAO]

### 5.2 Terms

Each definition below is meant to provide an overarching description of the term being defined.

- 5.2.1 Aquaculture:** The farming of aquatic organisms including fish, molluscs, crustaceans and aquatic plants. Farming implies some sort of intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators, etc. Farming also implies individual or corporate ownership of the stock being cultivated. For statistical purposes, aquatic organisms which are harvested by an individual or corporate body which has owned them throughout their rearing period contribute to aquaculture while aquatic organisms which are exploitable by the public as a common property resource, with or without appropriate licences, are the harvest of fisheries.
- 5.2.2 Baseline data:** Basic information gathered before a venture begins that characterizes the existing conditions of both the aquatic and terrestrial resources of the area to be impacted by the venture. Emphasis is placed on those aspects that are likely to be modified by the venture such that data collected on those same aspects at a later time can be used to measure change and assess the ventures impact.
- 5.2.3 By-catch:** Fish species that have little or no value as live reef food fish and which are either discarded or used as feed for the live reef fish.
- 5.2.5 Biological diversity:** The variety and variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems. Diversity indices are measures of richness (the number of species in a system) and, to some extent, evenness (variances of species' local abundance). They are, therefore, indifferent to species substitutions, which may, however, reflect ecosystem stresses (such as those due to high fishing intensity). [FAO]
- 5.2.6 Ciguatoxic:** Reef fish that can carry the toxin *ciguatoxin*, which may lead to *ciguatera* food poisoning in humans who consume the contaminated fish. Ciguatoxins may be specific to certain reefs, are concentrated up the food chain and as such are more likely to be present in larger reef fish, and cannot be destroyed by cooking and freezing
- 5.2.7 Conservation:** (a) The judicious use and management of nature and natural resources for the benefit of human society and for ethical reasons. [GBA]; (b) The management of human use of the biosphere so that it may yield the greatest sustainable benefit to current generations while maintaining its potential to meet the needs and aspirations of future generations. Thus conservation is positive, embracing preservation, maintenance, sustainable utilization, restoration, and enhancement of the natural environment. [CBD]

- 5.2.8 Coral reef:** A reef, shoal or other natural feature composed in part of the solid skeletal structures in which corals are major framework constituents.
- 5.2.9 Coral reef ecosystem:** The interacting complex of organisms and nonliving variables associated with coral reefs and their habitats, including sea grass beds, sand flats, mangroves, and algal plains, that function as an ecological unit in nature.
- 5.2.10 Designated Hub:** A location that has been approved by the relevant national or provincial regulatory authority for the loading/unloading of live reef food fish.
- 5.2.11 Destructive collection and fishing practices:** The collection and fishing of live reef food fish through methods that are environmentally destructive or harmful to the habitat and non-target species, including but not limited to practices such as the use of poison/toxins, other deleterious materials, and explosives; reef dredging; and physical damage to non-target organisms, especially corals other sessile invertebrates, and fish.
- 5.2.12 Developed:** The process by which fisheries expand or change over time that results in sustainable and equitable improvements for all or most stakeholders without risk to the long-term health of the ecosystem.
- 5.2.13 Ecosystem:** (a) A dynamic complex of plant, animal, fungal, and micro-organism communities and their associated non-living environment interacting as a functional unit; and/or (b) The organisms living in a given environment, such as a tropical forest, a coral reef or a lake, and the physical part of the environment that impinges on them. [Adapted from CBD and GBA]
- 5.2.14 Ecosystem integrity:** The ability to support and maintain a balanced, integrated, adaptive biological community having a species composition, biological diversity, and functional organization comparable to that of natural habitat in the region. [FAO]
- 5.2.15 Exporter:** A seller of live reef food fish to an importer or other supplier (whether an individual, company, or other business entity) who receives payment for those fish to be taken out of the country or state of origin to another country (e.g., exported from the Philippines into Hong Kong).
- 5.2.16 Environmental management:** Management and control of the environment and natural resources systems in such a way so as to ensure the sustainability of development efforts over a long-term basis. [FAO]
- 5.2.17 Fish pathogens:** Organisms (e.g. bacteria, viruses, parasites and fungi) that cause disease in fish.
- 5.2.18 Fisher:** A gender-neutral name for a person (male or female) participating in the catching, taking, or harvesting of fish or other aquatic organisms.
- 5.2.19 Fishery:** (a) The sum (or range) of all fishing activities on a given resource. It may also refer to the activities of a single type or style of fishing. The fishery can be artisanal and/or industrial, commercial, subsistence or recreational and can be annual or seasonal; and (b) The activity of catching live reef food fish from one or more stocks that can be treated as a unit for purposes of conservation and management and that are identified on the basis of geographic, scientific, technical, recreational, social, or economic characteristics and/or method of catch.
- 5.2.20 Fishery management:** The integrated process of information gathering, analysis, planning, decision-making, allocation of resources, and formulation and enforcement of fishery regulations by which the fishery management authority controls the present and future behaviour of interested parties in the fisheries, in order to ensure the continued productivity and well being of the living resources. [FAO]

- 5.2.21 Fishery management framework:** The social, political, legal and institutional processes within which the planning for management of a fishery occurs. The fishery management framework determines the information requirements and sets down the long-term management goals and objectives for the conservation and sustainable use of fisheries resources, which is formulated as a fishery management plan.
- 5.2.22 Flexible management:** A management structure or policy approach that is flexible enough to allow for timely responses to resource, industry, and other national, regional or local needs and that, based on data acquired from ongoing monitoring activities, can take appropriate action to address threats to ecosystem integrity in order to improve the likelihood of meeting stakeholder goals and objectives
- 5.2.23 Fry and fingerlings:** A non-specific terminology indicating the late larval or juvenile stage of a fish's lifecycle
- 5.2.24 Habitat:** The place or type of site where an organism or population naturally occurs. [CBD]
- 5.2.25 Hatchery-reared:** Fish that are raised from egg in intensive, semi-intensive or extensive aquaculture production facilities
- 5.2.26 Harvest:** To capture, catch, or collect live reef food fish from their natural environment for commercial purposes.
- 5.2.27 Health:** The condition of the marine environment from the perspective of adverse effects caused by anthropogenic activities, in particular habitat destruction, changed sedimentation rates and the mobilization of contaminants. Such condition refers to the contemporary state of the ocean, prevailing trends and the prognosis for improvement or deterioration of its quality [FAO]
- 5.2.28 Immature or juvenile fish:** A young fish or animal that has not reached sexual maturity. [FAO]
- 5.2.29 Importer:** A buyer of live reef food fish from an exporter or other supplier (whether an individual, company, or other business entity) who pays for those fish to be brought into another country or state (e.g., imported from the Philippines into Hong Kong).
- 5.2.30 Limit reference point:** A state of a fishery and/or a resource which is considered to be undesirable and may refer to either a minimum (i.e. low catch per unit of fishing effort) or maximum condition (i.e. high total number of days fished) for which management action should be taken to avoid. [Adapted from FAO]
- 5.2.31 Monitoring, control and surveillance:** (a) The intermittent (regular or irregular) surveillance to ascertain the extent of compliance with a predetermined standard or degree of deviation from an expected norm [CBD and GBA]; and (b) The collection of information for the purpose of assessing the progress and success of an area-use plan. Monitoring is used to assess performance of a management plan or compliance scheme in order to revise it or to gather experience for future plans. [Adapted from FAO]
- 5.2.32 Optimum health or optimum condition:** A state of complete wellbeing and not merely the absence of disease or infirmity.
- 5.2.33 Precautionary approach:** A set of agreed cost-effective measures and actions, including future courses of action that ensures prudent foresight and reduces or avoids risk to the resource, the environment, and the people, to the extent possible, taking into account existing uncertainties and the potential consequences of being wrong. [FAO]
- 5.2.34 Periodic resource assessment:** Regular assessments undertaken to describe the status of resources and their habitat and to determine the presence and extent of harvest impacts on target species and their associated ecosystems

- 5.2.35 Risk averse:** Adopting a prudent program of assessment that takes into account, to the extent possible, existing uncertainties and the potential consequences of being wrong in order to reduce the risk of future adverse impacts upon the resource, the environment and the people. [Adapted from FAO]
- 5.2.36 Spawning aggregation:** A group of conspecific fish gathered for the purpose of spawning, with fish densities and numbers significantly higher (three-fold increase) than those found in the area of the aggregation during non-reproductive periods.
- 5.3.47 Species:** (a) A group of organisms capable of interbreeding freely with each other but not with members of other species [CBD]; and (b) A group of animals or plants that have common characteristics, are able to breed together to produce fertile (capable of reproducing) offspring, and maintain their separateness from other groups. [FAO]
- 5.3.48 Stakeholder:** An individual or group of individuals, whether at an institutional or personal level, who has an interest or claim that has the potential of being impacted by or having an impact on a given activity. This interest or claim can be stated or implied and direct or indirect. Stakeholders and stakeholder groups can be at the household, community, local, regional, national, or international levels. [Adapted from FAO]
- 5.3.49 Supplier:** A provider of live reef food fish at any stage of the supply chain, e.g., collector, fisher, middleman/woman, exporter, and importer.
- 5.3.50 Sustainable use:** The use of components of biological diversity in a way and at a rate that does not lead to the long-term decline of biological diversity, thereby maintaining the potential of the components to meet the needs and aspirations of present and future generations. [CBD]
- 5.3.51 Target reference point:** A state of a fishery and/or a resource that is considered to be desirable and at which management action, whether during a developmental phase or stock rebuilding, should aim. [Adapted from FAO]
- 5.3.52 Target species or target stock:** Fish species that the live reef food fish trade mostly seeks and that are specially targeted by the fishers.
- 5.3.53 Threatened or endangered species:** Species at risk (threatened) or in danger (endangered) of extinction and whose survival is unlikely if causal factors continue operating. Included are species whose numbers have been drastically reduced to a critical level or whole habitats have been so drastically impaired that they are deemed to be in immediate danger of extinction. Also included are those that possibly are already extinct, in so far as they definitely have not been seen in the wild in the past 50 years.
- 5.3.54 Traceability:** The ability to trace the history, application or location of a fishery product by means of recorded identifications. [Adapted from ISO]
- 5.3.55 Transshipment:** The transfer of live reef food fish between suppliers at any stage of the supply chain, but specifically between middleman/woman and exporters and between exporters and importers.
- 5.3.56 Trigger point:** A previously agreed performance indicator of a fishery's status has been reached signalling a prescribed action, usually a review of the fishery, is to be initiated.
- 5.3.57 Viability assessment:** The activities necessary to assess if a fishery can be established that maintains the fish population in sufficient numbers and reproductive potential to maintain its existence over time in spite of normal fluctuations in population levels.

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Packard

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