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NATIONAL FISHERIES AUTHORITY

***Fisheries Management Act* 1998.**

The National Live Reef Food Fish Fishery Management Plan

February 2002

The National Fisheries Authority, under Section 28 of the *Fisheries Management Act* 1998, hereby set out the National Live Reef Food Fish Fishery Management Plan to take effect immediately on and from the date of notification in the *National Gazette*.

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1. BACKGROUND

PNG is the new frontier for the Live Reef Food Fish (LRFF) trade as proclaimed by keen buyers in Hong Kong. The LRFF trade started in PNG in 1991 and has operated in Central, Milne Bay, Manus, East New Britain, Bougainville and New Ireland Provinces. Experience in Southeast Asia and initial forays into the Pacific have shown LRFF fisheries to be prone to a boom and bust cycles with one area after another being over-fished for high valued species. Of particular concern in Papua New Guinea is the potential for unsustainable targeting of grouper spawning aggregation sites by LRFF operators and the use of cyanide (and other chemicals) to stun and capture fish. These activities have wreaked extensive damage on the reefs of Indonesia and the Philippines. Operators in PNG and in other Pacific Island countries have already been caught targeting aggregation sites and using poisons.

The LRFF fishery presents PNG with potential opportunities and problems. As a relatively small-volume, high-value fishery, it has the potential to contribute significant income directly to fishing communities.

An operation on the remote Hermit Island, in Manus, exported 24 tonnes of Live Reef Food Fish during the 18 months fishing period. Annual exports of LRFF from PNG have remained below 50 tonnes. Peak export of Live Reef Food Fish was recorded in 1997 with over 30 tonnes. The relative catch per unit effort (CPUE) in Papua New Guinea ranged from 0.5 to 20kg/fisherman/day. Annual world production of Live Reef Food Fish is 25,000 tonnes and valued at more than US$1 billion.

The use of cyanide by operators in Milne Bay in 1998 resulted in the cancellation of their licenses and a moratorium on the issuance of new license for LRFFT exports in PNG by the board. This moratorium halted operations in Goodenough area of Milne Bay Province and Djaul and Tigak islands on New Ireland Province.

The National Fisheries Board, in one of its regular meeting no. 4/2000, decision no: 59/2000 recommended to trial a live reef food fish project in Kavieng and Manus. The board concluded that the results of the project would be used to assess the viability of the fishery and formulate management plan for the sustainable harvest of live reef fish in PNG.

A trial project was centered on Tigak, Soson and Tingwon islands in New Ireland Province from February to October 2001. A total of 6.1 tonnes of live fish were exported to Hong Kong for the 6 months fishing period. Over K130, 000.00 was made during the export. About K11, 000.00 was paid to fishers from the three management areas and an average of K4, 500.00 was paid to community accounts for the affected communities. Fishing was restricted to traps and handlining.

The trial project in part concluded in general, a desire for the resource owners in the trial areas to participate in the Live Reef Food Fish fishery, which they believe had provide the much needed ability to make money in this growing economic environment. The National Fisheries Authority believes the fishery has the potential to improve the living standards of the rural population by providing income for individuals in the rural community *if* managed sustainably.

It is for this reason that the National Live Reef Fish Fishery Management Plan is formulated to provide the broad management framework of the live reef food fish fishery (LRFF) in PNG. Site-specific management guidelines for each operational area will also be developed to compliment the national plan.

2. APPLICATION

a) The National Live Reef **Food** Fish Fishery Management Plan ("The plan") is prepared under the authority of, and in accordance with section 28 of the *Fisheries Management Act 1998.*

b) The National Live Reef **Food** Fish Fishery Management Plan shall be cited as the "National Management Plan" or "The plan" and shall cover all aspects of commercial live reef **food** fishing in Papua New Guinea.

c) The national plan shall apply to all fishing and related activities as defined in *the Fisheries Management Act 1998*, including hand lining, single line fishing, use of fish cages and traps, storage of caught fish, transportation of live fish, fish handling and transshipments of live fish.

d) The plan shall cover the following:

(i) all target reef fish **food** species set out in schedule 1; and

(ii) all other non-target fish species or by-catch.

e) The plan forms the broad framework for commercial live reef food fish operation in PNG and will provide for a specific management guideline to be developed as part of the licensing conditions to compliment this national plan.

f) This plan shall take effect upon approval by the Minister responsible for Fisheries matters (the Minister).

3. INTERPRETATION

In this Plan, unless the contrary appears, each word or group of words referred to in this plan has the same meaning, as is defined in the ***Fisheries Management Act 1998***,

"Act" means the ***Fisheries Management Act 1998*** as amended from time to time;

"Area specific management guidelines" means fishery management guidelines that shall be enforced for the specific fishery management area.

"By-Catch" means species of fish, other than the target reef fish food set out in schedule one, which are caught in the course of fishing for the target live reef food fish.;

"Fishery Management Area" means the specified area to which the fishery is to operate with which the boundaries shall be clearly demarcated;

"Closed area" means a specific area where no fishing shall take place;

"Closed season" means a time period when no fishing shall take place;

"Customary tenure" means traditional management regimes practiced by the indigenous people that have been passed down from generation to generation.

"Plan" means the live reef food fish fishery management plan;

"Live reef food fish Stock" means a discrete breeding population of a particular live reef food fish species;

"Total Allowable catch (TAC)" means the set amount of catch that is allowed to be taken in any one-year, season or area. The TAC is calculated as the basis of sustainable fishing with biological and economic inputs (level below MSY).

"Traditional resources owner" means individual, families or clan who have traditional fished or utilised the finfish resources and are recognised by the village community in which they live as having traditional ownership rights to the finfish species or to fishery management area.

"Management Working Committee" (MWC) is a committee established by the National Fisheries Authority to provide advice on the management of the live reef food fish in PNG.

"National Management Advisory Committee" (NMAC) is the National Management Advisory Committee as specified in the National Beche-de-mer Management Plan.

OBJECTIVES

The broad objective of this national plan is to ensure that use of the LRFF resource is sustainable and well regulated.

The national plan objectives are specifically:

a) To manage the LRFF fishery in the management areas so that the size of the stock tends towards one that will give the maximum sustainable economic yield (MESY).

b) To ensure the LRFF Fishery in the management areas is viable in biological, social and environmental terms.

c) To ensure the promotion of sustainable fisheries development practices for the participation and benefit of the traditional resource users;

d) To manage the fishery with a precautionary approach;

4. STRATEGIES

The following management strategies are adopted for the fishery:

a) A LRFF Total Allowable Catch (TAC) maybe established at each management area;

b) To formulate site-specific management guidelines for each of the management area.

c) The use of fishing methods in the fishery will be regulated and monitored;

d) Zoning will be implemented to prevent localised Live Reef Food Fish stock depletion, gear conflicts, protect spawning aggregations, and to ensure the long term viability of the locally-based fish population in each management area;

e) Scientific research priorities to help NFA to manage the LRFF resource will be identified;

f) Data on the status of Live Reef Food Fish stocks will be collected to contribute to national and regional assessments of stocks through the use of catch record forms, scientific observers, and other methods;

g) Impacts of LRFF fishing on associated or dependent species, coral reef ecosystem will be monitored;

h) Interactions between the commercial Live Reef Food Fish operations and other users of the resource will be monitored and where necessary measures will be implemented to address any adverse impacts

i) Active involvement by affected communities in the development of live reef food fish fishery will be encouraged through the development of community led strategies for;

   (i) Training and education in responsible fishing practices

   (ii) Improved fishing methods, monitoring and compliance

   (iii) Involvement in research

j) Close liaison and consultation with reputable organisations on all matters relating to the fishing of the target species will be maintained.

k) To establish a Management Working Committee (MWC) to provide necessary advise to NFA on the management of the live reef food fishery

l) To apply a precautionary approach in the management of LRFF fishery in each management area.

6. PRECAUTIONARY APPROACH

A precautionary approach will be applied to the management of the Live Reef Food Fish resource, non-target, associated and dependent species, taking into account the best scientific evidence available on the status of the stocks and the uncertainties inherent in that data;

5. MANAGEMENT ARRANGEMENT

a) The live reef **food** fish fishery shall be managed nationally. A Management Working Committee (MWC) shall be established in accordance with section 5 (k), to provide advice to NFA and or NMAC on the management of the live reef food fishery.

b) The role of the MWC will be to review the site specific management guidelines including; total allowable catch, size limits, gear restrictions, reporting, closed seasons and areas and any other relevant issues directed by the NFA or NMAC and or PEC. The final decision on the fishery management remains with the Managing Director.

c) The committee shall meet twice in a year preferably one in June and the other at the end of the year or unless directed by the Managing Director.

d) MWC shall be a voluntary job and the Managing Director shall approve the appointment of the members.

e) The MWC shall consist of the following persons, subject to the approval of the Managing Director;

i) One National Fisheries Authority representative or his nominee who shall be the chair,

ii) Two resource owner representative from each of the identified communities affected preferably a community leader and a youth leader or his nominee,

iii) One representative from the Provincial Fisheries headquarters;

iv) One dive association representative or a tourism officer.

v) One representative from the marine conservation related non-government organisation whose objectives include conservation of the marine environment and resources and,

vi) A representative from the operator.

f) Only one representative from each organisation shall be allowed to cast a vote.

g) A MWC maybe established in each of the province where live reef food fish fishery intends to operate.

h) Prior to taking up membership, representatives will be required to disclose any direct or indirect personal or pecuniary interests in the fishery. The nature of his/her interest shall be recorded in the minutes of the first meeting of the committee.

6. MANAGEMENT MEASURES

7.1 Catch Limits

a) Total Allowable Catch (TAC) for the target species may be set for each management area and/or shall be set based on the new information.

b) If a TAC for the target species in a management area is approached, fishing shall cease and total TAC for that management area be reviewed.

c) The NFA shall review the level of catch of each Live Reef Food Fish species every three months or when:

(i) The TAC for the target species is being approached for a particular management area;

(ii) An opportunity to expand the management area is presented;

(iii) New information on the status of the stocks shows a reduction in the level of fishing effort is needed due to significant interaction with subsistence fishing, or localised depletion; or

d) The NFA reserves the right to cease operation in a management area if it considers necessary to maintain a healthy LRFF stock

7.2 Fishing Methods

a) Fishing for live reef food fish shall be restricted to handlining only.

b) The licensee shall be allowed four permanent fish cage units for holding live fish in each management area. These fish cages shall have a dimension of 10" x 10" x 12" with a holding capacity not exceeding 500kg.

c) For transshipment purposes, fish cages may be towed to one management area only upon receipt of written approval form NFA at least fourteen days prior to actual transshipment.

d) A quarantine cage shall be constructed separately from fish cages for storing diseased fish for observer and quarantine purposes.

7.3 Restrictions

a) Export by the licensee of target species of sizes less than the approved size limit as in schedule 2 is prohibited.

b) Fishing within or close proximity of a declared spawning aggregation site is prohibited

c) Fishing for live reef food fish or other related activities within or close to the known diving spots is prohibited

d) Fishing for live reef food fish within the Torres Strait Protected Zone is prohibited.

e) Fishing for live reef fish shall be restricted to only resource owners employing fishing methods specified in section 7.2 (a).

f) The use, storage and transportation of explosives, noxious substances (including cyanide and naturally derived substances in any form) for the purpose of killing, stunning, rendering disabled or capturing of fish is prohibited.

g) The use of hookah gear and SCUBA for capturing fish for live reef **food** fish is prohibited.

h) Feeding diseased fish to fish kept in cages is prohibited.

i) Diseased fish shall be in cremated or buried under ground.

7.4 Areas of operation

a) The operator in consultation with the resource owners shall demarcate specific fishing areas and submit a written approval from the resource owners. The approval shall have the consent of the majority of community members.

b) The NFA shall require an "area specific management guidelines" as part of the licensing conditions. These conditions shall include;

(i) Spawning grounds identified by NFA or the local community to be declared as prohibited areas for fishing or other related activities.

(ii) Any traditional ground or area of sea identified by the local community as a no fishing zone.

(iii) Fishing pattern as approved by the communities in the management areas.

(iv) A set total TAC for the target species.

(v) Closed seasons and areas

c) NFA in consultation with resource owners shall require specific areas in the management areas to be closed to fishing, as it considers necessary for the health of the resource or marine environment.

7.5 Licensing

a) Under this plan, the following licences are applicable;

(i) Export

(ii) Aquaculture

(iii) Carrier Vessel

b) Licence fees as set out in (a) are as prescribed in schedule 1 of the Fisheries Management Regulation 2000

c) Under this plan, only one operator will be issued licence for the whole fishery. Total number of licences shall be reviewed once NFA is satisfied with the results of the current operation.

7.6 Conservation

a) Fish holding cages shall be located at a distance of at least 20 metres away from any land or reef area.

b) Fish cages shall be located in water deeper than 5 metres.

c) Fish holding cages shall be located in areas that have constantly circulating water.

d) The NFA may require the operator to move fish cages to locations it considers more suitable if measures set out in (a), (b) and (c) have not been met.

e) In an event an operator wishes to cease operation in a management area, all gear and equipment used for fishing and other related activities shall be taken away or disposed in an environmentally friendly manner.

7.7 Monitoring

NFA shall determine the percentage of observer coverage for each management area. The licensee is required to cooperate with observers in all aspects of sampling and monitoring.

7.8 Reporting

a) The licensee shall report to NFA the following information: all fish (target and non-target species) bought, the weigh of each fish (in kilograms), how much it was bought for (in kina), when and where it was caught and when it was bought. This information shall be set out in the form specified in schedule 3.

b) The licensee shall keep record of daily fish mortality in holding cages, including reasonable attempts to specify the cause of deaths. This information may be submitted

upon request by NFA.

c) Licensee shall report to NFA each time LRFF is to be exported detailing the species, weight (in kilograms) and value (in US dollars). All the details of the export shall be contained in the ***Certificate of Fitness for the Export of Fish and Fishery Products*** form as specified in section 31, *Fisheries Management Act 1998*. The form can be obtained from NFA's, *Audit and Certification Unit*.

d) The information required in paragraphs (a) and (b) shall be submitted at the end of each fortnight to NFA's Information and Licensing Section.

e) Failure to submit the required reports set out in (a), (b) and (c) above by more than ten (10) days or submitting incorrect or false data may result in suspension or cancellation of the fishing licence pursuant to provisions of the *Fisheries Management Act 1998 and Fisheries Management Regulation 2000.*

9. AMMENDMENT

The National Live Reef **Food** Fish Fishery Management Plan shall be kept under review from time to time when necessary.

10. RESEARCH

a) NFA may carry out, in collaboration with reputable national or regional or international organisations, a program of research on Live Reef Food Fish stocks in every management area. Parameters for research may include inter–annual variability, reproductive aspects, catch per unit effort, the species breakdown of catches, and size structure by species in the catches.

b) Baseline surveys for the purpose of assessing the standing stocks of LRFF, determining spawning aggregation sites and monitoring shall be carried out. These surveys shall form the baseline information held by NFA.

c) NFA shall continue to work with regional management bodies and non-government organizations interested in the live reef fish trade in research and monitoring of the Live Reef **Food** Fish fishery.

Approved this 12th day of June 2002

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HON. RON. G. GANARAFO, MP
MINISTER FOR FISHERIES AND MARINE RESOURCES

Schedule 1

Regulated fish

CODE	Common name	Scientific name	Local Name
EHG	Red mouth grouper	*Aethaloperca rogaa*	
AYG	Slender Grouper	*Anyperodon lecogrammicus*	
NXU	Black trevally	*Caranx lugubris*	
CFF	Peacock cod	*Cephalopholis argus*	
CFI	Coral Cod	*Cephalopholis miniata*	
EFT	Tomato rockcod	*Cephalopholis sonnerati*	
CUN*	Humphead Maori Wrasse	*Chelinus undulatus*	
ODJ	Black spot tusk fish	*Choerodon schoenlenii*	
MPV	Barramundi cod	*Cromileptis altivelis*	
EFH	Brown spotted grouper	*Ephinephelus chlorostigma*	
ECO*	Coral Grouper	*Ephinephelus corallicola*	
EPY	Speckled blue grouper	*Ephinephelus cyanopodus*	
EEU	Flowery cod	*Ephinephelus fuscoguttatus*	
EEN	Giant Grouper	*Ephinephelus lanceolatus*	
EEC	Trout cod	*Ephinephelus maculatus*	
MAR	Malabar Cod	*Ephinephelus malabaricus*	
EEK	Camouflage grouper	*Ephinephelus polyphekadion*	
EPT	Greasy Grouper	*Ephinephelus tauvina*	
ETU*	Potato cod	*Ephinephelus tukula*	
EUN*	Maori grouper (Maori cod)	*Ephinephelus undulostriatus*	
LHI	Red throat emperor	*Lethrinus miniatus*	
RES	Managrovejack	*Lutjanus argentimaculatus*	
LJB	Red bass	*Lutjanus bohar*	
LCA*	Stripery sea perch	*Lutjanus carponotatus*	
MAL	Saddle tailed sea perch	*Lutjanus malabaricus*	
SNU	Moses perch	*Lutjanus russelli*	
LUB	Red emperor	*Lutjanus sebae*	
LUJ	Brown stripped red snapper	*Lutjanus vitta*	
EME	Squaretail coral trout	*Plectropomus areolatus*	
EML	Chinese footballer trout	*Plectropomus laevis*	
EMO	Leopard coral trout	*Plectropomus leopardus*	
PLM	Bar cheecked coral trout	*Pletropomus maculatus*	
POL*	High fin coral trout	*Plectropomus oligocantus*	
VAL*	White edge lyretail	*Variola albimarginata*	
VRL	Coronation trout	*Variola louti*	
SVE*	Reef stone fish	*Synaceia verrucosa*	

* NFA codes, as the species code is not given by FAO.

Schedule 2

Export size limits

Common name	Scientific name	Size limit
Coral Cod	*Cephalopholis miniata*	no minimum size
Tomato rockcod	*Cephalopholis sonnerati*	no minimum size
Hump head Maori Wrasse	*Chelinus undulatus*	65cm
Black spot tusk fish	*Choerodon schoenlenii*	30cm
Barramundi cod	*Cromileptis altivelis*	40cm
Flowery cod	*Ephinephelus fuscoguttatus*	55cm
Trout cod	*Ephinephelus maculatus*	no minimum size
Camouflage grouper	*Ephinephelus polyphekadion*	37cm
Potato cod	*Ephinephelus tukula*	65cm (>120cm)
Maori grouper (Maori cod)	*Ephinephelus undulostriatus*	45cm
Red throat emperor	*Lethrinus miniatus*	35cm
Managrovejack	*Lutjanus argentimaculatus*	40cm
Red bass	*Lutjanus bohar*	no minimum size
Stripery sea perch	*Lutjanus carponotatus*	25cm
Saddle tailed sea perch	*Lutjanus malabaricus*	40cm
Moses perch	*Lutjanus russelli*	25cm
Red emperor	*Lutjanus sebae*	55cm
Maori Perch	*Lutjanus rivulatus*	55cm
Squaretail coral trout	*Plectropomus areolatus*	36cm
Chinese footballer trout	*Plectropomus laevis*	60cm
Leopard coral trout	*Plectropomus leopardus*	36cm
Bar cheecked coral trout	*Pletropomus maculates*	36cm
High fin coral trout	*Plectropomus oligocantus*	36cm
Coronation trout	*Variola louti*	no minimum size

Schedule 3

NATIONAL FISHERIES AUTHORITY

PO Box 2016, Port Moresby, National Capital District, Papua New Guinea
Telephone: 309 0444, Facsimile: 320 2069, Email: nfa@fisheries.gov.pg

Catch Logsheet for Reef Finfish

1. Start a new form each month.
2. Use as many forms as are required during the month.
3. Start at "Page 1" each month.
4. Use as many rows as required for a transaction with a fisher.

ALL WEIGHTS MUST BE IN KILOGRAMS

Year:	
Month:	

Please return this form to:

Manager
Licensing & Information
P.O. Box 2016, Port Moresby
Papua New Guinea

Ph: 309 0444
Fax: 320 2069

Storage Facility License No.	Province of Operation
Company Name:	Buyers Name:

REVISED NFA, APR., 2002

Purchase date	Fisher's name	Fishing hours	No of hooks	Reef name-->	LLG area	Species code	alive / dead	No	Wgt	Species code	alive / dead	No	Wgt	Species code	alive / dead	No	Wgt	Species code	alive / dead	No	Wgt
Sub -totals:																					

VALUE

STATUS	Species code	price (/kg)	Species code	price (/kg)	Species code	price (/kg)	Species code	price (/kg)	Species code	price (/kg)	Species code	price (/kg)	Species code	price (/kg)	Species code	price (/kg)
ALIVE	1.		2.		3.		4.		5.		6.		7.		8.	
DEAD																

Catch Logsheet for Reef Finfish - Explanations

COMPANY NAME: Is the name of the licensed company e.g. RFI Ltd

STORAGE FACILTY LICENCE No: Refers to the storage facility licence number.
E.g.: For Allmarine Products Ltd. storage facility license No. 0105110, record "**0105110**" in this box).
N.B.: This is not the Aquaculture Licence number or Export License number.

BUYERS NAME: The name of the individual who is buying the finfish for the company

PROVINCE OF OPERATION: The province from which the licensee is allowed to operate out of (e.g. Manus)

PURCHASE DATE: For each transaction with a fisher use as many rows as needed. Record the day's date using two figures (e.g. 07 for the 7th) in the first row for each transaction. Record "Year" and "Month" at top of this column.

FISHERS NAME: Name of fisher from whom fish is purchased or fisher who put effort into catching fish (e.g. Joe Bloe)

FISHING HOURS: Is the estimated period of time a fisher spent to catch a particular species of fish

No. OF HOOKS: The actual number of hooks deployed to catch a specified species of fish in a specified period of time

REEF NAME: Name of reef (could be fishing area) from which a particular species is caught/bought (e.g. Stephen strait)

LLG AREA: Refers to the Local Level Government area from which a particular fish species is caught or bought.
This is as designated in the license conditions.

SPECIES CODE: Use the standard 3-letter FAO international code to represent particular species of fish ⟶
(e.g. Camouflage Grouper is coded as EEK). A full copy of all FAO fish codes can be obtained from NFA
If a species is difficult to identify then, as a last resort, use the code for the family (at bottom of code list)

ALIVE or DEAD: In this column record "A" for alive fish and record "D" for dead fish

No: The actual number of either dead or alive fish of the same species caught by the fisher while fishing on a specified reef
E.g.: If five squaretail coral groupers (*Plectropomus areolatus*) were bought live then record: **"EME A 5"**

WEIGHT: Total weight of each species of fish caught or bought in a specific time period for a specified reef or LLG area.
(N.B.: Dead specimens and live specimens should be recorded seperately if both live and dead are in the mix.)

SPECIES CODE: FAO 3-letter species code as explained above and listed at right.

PRICE/KG: Standard price offered to fishers for each species (dead) or each species (alive).

STATUS	Species code	price (kg)
ALIVE	[1] EEK	K8.00
DEAD	EEK	K4.00

E.g.: On 8th May, Allfish Ltd., In Tikana, buy 4 dead red hind at K4 per kg. (5.5kg) and 6 live at K8 per kg (7.0 kg) from Joe Catcher who used 2 handlines, with 3 hooks each, fishing 12 hours on Jagged Reef. Record as:

Purchase date	Fisher's name	Fishing hours	No. of hooks	Reef name	LLG area	Species code	alive / dead	No.	Wgt.	Species code	alive / dead	No	Wgt.	
08	Joe Catcher	12	6	Jagged Reef	Tikana	EEK	D	4	5.5	EEK	A	6	7.0	

FAO CODE	COMMON NAME	SCIENTIFIC NAME
EFY	Banded grouper	Epinephelus amblycephalus
NDU	Black jack	Caranx lugubris
EBL	Blacksaddled coralgrouper	Plectropomus laevis
EEA	Blacktip grouper	Epinephelus fasciatus
LUV	Bluebanded snapper	Lutjanus rivulatus
EEV	Blue-and-yellow grouper	Epinephelus flavocaeruleus
EFN	Brownspotted grouper	Epinephelus chlorostigma
LUJ	Brownstripe red snapper	Lutjanus vitta
EEK	Camouflage grouper	Epinephelus polyphekadion
EFN	Catface grouper	Epinephelus andersoni
EEP	Comet grouper	Epinephelus morrhua
CXT	Coral trout	Plectropomus leopardus
EPJ	Dogtooth grouper	Epinephelus diacanthus
EEG	Dungat grouper	Epinephelus goreensis
GPD	Dusky grouper	Epinephelus marginatus
EFK	Duskytail grouper	Epinephelus bleekeri
LUB	Emperor red snapper	Lutjanus sebae
EEN	Giant grouper	Epinephelus lanceolatus
EPT	Greasy grouper	Epinephelus tauvina
EPV	Halfmoon grouper	Epinephelus rivulatus
EEC	Highfin grouper	Epinephelus maculatus
EER	Honeycomb grouper	Epinephelus merra
MPV	Humpback grouper	Cromileptes altivelis
LJG	Humpback red snapper	Lutjanus gibbus
	Humphead Maori Wrasse	Cheilinus undulatus
EMO	Leopard coralgrouper	Plectropomus leopardus
EFQ	Longfin grouper	Epinephelus quoyanus
EFE	Longtooth grouper	Epinephelus bruneus
MAR	Malabar grouper	Epinephelus malabaricus
EEY	Misty grouper	Epinephelus mystacinus
EPF	Olive grouper	Epinephelus cifuentesi
ENI	Orange-spotted grouper	Epinephelus coioides
CFF	Peacock hind	Cephalopholis argus
LTS	Pink ear emperor	Lethrinus lentjan
GPR	Red grouper	Epinephelus morio
EEU	Red hind	Epinephelus fuscoguttatus
EHG	Redmouth grouper	Aethaloperca rogaa
EEF	Rock grouper	Epinephelus fasciatomaculosus
SNU	Russell's snapper	Lutjanus russelli
ESE	Seddletail grouper	Epinephelus daemeli
EFX	Sixbar grouper	Epinephelus sexfasciatus
AYG	Slender grouper	Anyperodon leucogrammicus
EEM	Snubnose grouper	Epinephelus macrospilos
EPY	Speckled blue grouper	Epinephelus cyanopodus
EEJ	Speckled grouper	Epinephelus magniscutis
PLM	Spotted coral grouper	Plectropomus maculatus
GPS	Spotted grouper	Epinephelus analogus
EME	Squaretail coralgrouper	Plectropomus areolatus
EEX	Starspotted grouper	Epinephelus hexagonatus
EFT	Tomato hind	Cephalopholis sonnerati
HUU	Tripletail wrasse	Cheilinus trilobatus
LJB	Two-spot red snapper	Lutjanus bohar
EIU	Wavy-lined grouper	Epinephelus undulosus
EFB	White-edged grouper	Epinephelus albomarginatus
VRL	White-edged lyretail	Variola albimarginata
EFW	Yellow grouper	Epinephelus awoara
EEL	Yellowedge grouper	Epinephelus flavolimbatus
VRL	Yellow-edged lyretail	Variola louti
EMP	Emperors(=Scavengers) nei	Lethrinidae
GPX	Groupers nei	Epinephelus spp
TRE	Jacks, crevalles nei	Caranx spp
SNX	Snappers, jobfishes nei	Lutjanidae

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