LONG GOD YUMI STANAP

Vanuatu National Deep-Bottom Fish Fishery Management Plan

Pacific Community
Communauté du Pacifique

Vanuatu National Deep-Bottom Fish Fishery Management Plan

Prepared by the Vanuatu Fisheries Department

ISBN

APPROVAL

APPROVAL OF THE VANUATU NATIONAL DEEP-BOTTOM FISH FISHERY MANAGEMENT PLAN

This Vanuatu National Deep-Bottom Fish Fishery Management Plan is made in accordance with Part 4, Section 11 of the Fisheries Act No. 10 of 2014, and is hereby approved on this date.

COMMENCEMENT DATE

By virtue of powers conferred upon the Minister responsible for Fisheries, under Section 6(1), 10(1) and 11(5) of the Fisheries Act No. 10 of 2014, notice on the implementation of the Vanuatu National Deep-Bottom Fish Fishery Management Plan is hereby given on ……29…… day of ……March……2016.

REPUBLIC OF VANUATU
MINISTER OF AGRICULTURE, LIVESTOCK, FORESTRY, FISHERIES & BIO-SECURITY
REPUBLIQUE DE VANUATU

……

Honorable Matai Nawalu SEREMAIAH (MP)

Minister Responsible for Fisheries

Local artisanal fishermen cleaning the catch of the day.
Note, the separation of catch for the different intended markets (Source: VFD)

Local fishermen in Mangaliliu village, Efate. The use of modified local canoes equipped with outboard motor and sail is being promoted by VFD through the Japan International Cooperation Agency funded "Grace of the Sea" project (Source: VFD).

EXECUTIVE SUMMARY

The Vanuatu Fisheries Act No. 10 of 2014 states that upon designation of a fishery by the Minister responsible for Fisheries, the Director of the Vanuatu Fisheries Department will prepare, and review where necessary, a plan for the management and development of each designated fishery. The deep-bottom fish fishery is a designated fishery. This document is the Vanuatu National Deep-Bottom Fish Fishery Management Plan (hereafter referred to as the Plan). The Plan sets out the formal policy guidelines in the form of strategies and measures for the sustainable development, management, and conservation of the deep-bottom fish fishery.

The Plan comprises ten sections, and includes an introduction, fishery overview, legal and policy framework, issues and challenges faced by the fishery, current and previous management measures applied to the fishery, broad policy directions needed for the fishery, management measures and strategies, policy priority areas, monitoring and evaluation methods, and review and amendment procedures.

A key element in the development process of this Plan is consultation. The Plan is a result of a nationwide consultation process that started in 2013. Consultations were conducted on various levels, including national and provincial government, communities and fishers. The Plan has been structured in accordance with the requirement of the Fisheries Act but reflect the views received during the consultation process.

During the consultation process, several issues and challenges were identified as needing urgent policy attention. These include adequate exercise of control over the fishery, data collection and monitoring mechanisms, market access, quality control and institutional capacity. The measures and policy strategies outlined in this Plan are designed to address these particularly important issues.

Partnership between different stakeholders in the fishery and access to finance are key elements to support the effective implementation of this Plan.

It is anticipated that effective implementation of such measures and policy strategies will ensure responsible fishing and a viable deep-bottom fish fishery for Vanuatu.

DEFINITIONS

In this Plan, unless stated otherwise, each word or group of words has the same meaning, as defined in the Fisheries Act No 10 of 2014, except where this differs as provided below.

Act means the Fisheries Act No. 10 of 2014

Designated fishery means a fishery designated under section 10(2) of the Fisheries Act

Director means the Director of the Vanuatu Fisheries Department (VFD)

Deep-bottom fish includes all deep-bottom fish species of the families Lutjanidae (subfamilies Etelinae, Lutjaninae and Apsilinae), Serranidae (subfamily Epinephelinae) and Lethrinidae

Fishing vessel means any fishing vessel that is:

a) wholly owned and controlled by one or more natural persons who are citizens of Vanuatu or entitled by law to permanently reside in Vanuatu; or

b) wholly owned by any corporation or body established by or under any law of Vanuatu, all shares of which are beneficially owned by one or more natural persons who are citizens of Vanuatu or entitled by law to permanently reside in Vanuatu; or

c) wholly owned by the Government of Vanuatu or by any public corporation or body established by or under any law of Vanuatu, all shares of which are beneficially owned by the Government of Vanuatu.

Minister means the Minister responsible for Fisheries;

Open access fishery means the condition where access to the fishery (for the purpose of harvesting fish) is unrestricted (i.e. the right to catch fish is free and open to all)

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1 INTRODUCTION

1.1 Policy statement

The deep-bottom fish fishery has the potential to effectively contribute to the economic development of Vanuatu. This Plan aims to ensure responsible fishing and promote stakeholder participation for a viable deep-bottom fish fishery in Vanuatu.

1.2 Need and purpose for the deep-bottom fish fishery management plan

The deep-bottom fish fishery comprises deep-bottom snappers (Lutjanidae), emperors (Lethrinidae) and groupers (Serranidae). The fishery is a designated fishery under Section 10(2) of the Fisheries Act No. 10 of 2014. Section 10(4) of the Fisheries Act requires the preparation of a plan for the management and development of each designated fishery. The purpose of the deep-bottom fish fishery management plan is to ensure the long-term sustainability of the fishery for the benefit of current and future generations of ni-Vanuatu.

The Plan has five main objectives that will be monitored to ensure successful implementation. The five objectives will focus on the i) conservation and biology of the fishery, ii) livelihood and economic development of the fishery, iii) effective monitoring, and iv) strengthening or supporting of provincial administrations, and v) strengthening or supporting fishermen's associations in the management of the fishery. More specifically, the objectives are to ensure:

i. that exploitation takes advantage of potential productivity of fish stocks while ensuring that the conservation of the stocks remains above agreed harvest limit reference points;

ii. the optimal use of deep-bottom fish resources for long-term sustainable food security, livelihoods and economic development within communities of Vanuatu;

iii. that an effective monitoring programme is established;

iv. the promotion and support of co-management principles and community participation in managing the fishery; and

v. that the deep-bottom fish fishery contributes to economic development within the urban, suburban and rural areas of Vanuatu.

1.3 Guiding principles

The conservation, management and development of this fishery will be guided by the following key guiding principles and best management practices.

i. Precautionary approach to fisheries management

This management principle involves the application of prudent foresight, taking into account the uncertainties in fisheries systems and the need to take action with limited knowledge on the basis that such action could prevent severe or irreversible harm to society or the environment[1].

ii. Ecosystem approach to fisheries management

This management principle entails an integrated management approach to fisheries that aims to balance diverse societal objectives, by taking account of the knowledge and uncertainties of biotic, abiotic and human components of ecosystems and their interactions within ecologically meaningful boundaries[2].

[1] Food and Agriculture Organization of the United Nations. Fisheries Glossary. <http://www.fao.org/fi/glossary/>
[2] Food and Agriculture Organization of the United Nations. Fisheries Management, 2. The Ecosystem Approach to Fisheries. Technical Guidelines for Responsible Fisheries No 4 Suppl 2, FAO 2003, 14.

iii. Equitable and fair participation of ni-Vanuatu in the fishery

The utilization of the deep-bottom fish fishery within Vanuatu archipelagic waters is a reserved fishing activity as stipulated under the Vanuatu Investment Promotion Authority Act. This principle promotes the full and fair participation of ni-Vanuatu in the fishery within the territorial waters and exclusive economic zone of Vanuatu.

iv. Cost recovery

The conservation, management and development of this fishery will have additional financial implications for the Government of Vanuatu. Where feasible, those involved in the commercial aspects of this fishery will be expected to offset costs through mechanisms such as licensing of commercial fishers, buyers and sellers.

1.4 Scope

The scope of this Plan covers all fishing vessels and those involved in the artisanal and commercial harvesting, buying and selling of the deep-bottom fish fishery in Vanuatu.

1.5 Consultation

The requirement for consultation towards the development of a fishery management plan is provided for under Section 11(3) and (4) of the Fisheries Act.

This Plan has gone through a major consultation process in all provinces within Vanuatu. Representation during consultations included provincial administrators, fishers, women's groups, youth representatives, and community leaders.

2 OVERVIEW OF THE DEEP-BOTTOM FISH FISHERY

2.1 General

The Vanuatu deep-bottom fish fishery has been exploited for more than 30 years. It is a multi- species fishery with the most represented families being Lutjanidae (subfamilies Etelinae, Lutjaninae and Apsilinae), Serranidae (subfamily Epinephelinae) and Lethrinidae (subfamily Monotaxinae). The 17 main species, according to the catch data collected by VFD, are: the Lutjanidae *Aphareus rutilans*, *Etelis carbunculus*, *E. coruscans*, *E. radiosus*, *E.* sp., *Lipocheilus carnolabrum*, *Lutjanus malabaricus*, *Paracaesio kusakarii*, *Pristipomoides filamentosus*, *P. flavipinnis*, *P. multidens* and *P. zonatus*; the Serranidae *Epinephelus magniscuttis*, *E. morrhua* and *Hyporthodus octofasciatus*; and the Lethrinidae *Wattsia mossambica* (see Table 1). Three Eteline snappers (*Etelis carbunculus*, *E. coruscans* and *E.* sp.) make up more than half of the total amount of recorded catch.

Table 1: Deep-bottom fish species targeted by the artisanal and commercial fishers in Vanuatu.

Family		Scientific name	English common name	Bislama name	Maximum size (standard length)
Lutjanidae (snappers)		*Aphareus rutilans*	Rusty jobfish	Silva poulet	98 cm
		*Etelis carbunculus*	Pygmy ruby snapper	Pigmi red poulet	62 cm
		*Etelis coruscans*	Flame snapper	Longtel red poulet	90 cm
		*Etelis radiosus*	Pale snapper	Silva jaw red poulet	80 cm
	* 	*Etelis* sp.	Ruby snapper	Sottel red poulet	122 cm
		*Lipocheilus carnolabrum*	Tang's snapper	Yello brim	50 cm
		*Lutjanus malabaricus*	Malabar blood snapper	Red snapa	88 cm
	* 	*Paracaesio kusakarii*	Saddle-back snapper	Kusaka brim	60 cm
		*Pristipomoides filamentosus*	Crimson jobfish	Braon poulet	90 cm
		*Pristipomoides flavipinnis*	Golden eye jobfish	Yelofin waet poulet	50 cm
		*Pristipomoides multidens*	Goldbanded jobfish	Big scale poulet	80 cm
		*Pristipomoides zonatus*	Oblique-banded snapper	Yello stripe poulet	45 cm
Serranidae (groupers)		*Epinephelus magniscuttis*	Speckled grouper	Spot los	132 cm
	* 	*Epinephelus morrhua*	Comet grouper	Banded los	80 cm
		*Hyporthodus octofasciatus*	Eightbar grouper	Eit ban los	115 cm
Lethrinidae (emperors)		*Wattsia mossambica*	Mozambique large-eye bream	Bigeye brim	48 cm

* Vanuatu deep-bottom fish fishery indicator species (see VI HARVEST LIMITS on page 19).

The following overview will briefly describe the location, fishing methods, production, biology and status of the fishery.

2.2 Location of fishery

Deep-bottom fish species are widely distributed throughout the country. Historically, fishing efforts have occurred throughout the archipelago, although most has occurred in Santo, Malekula, Ambrym, Epi, Efate and Tanna (Fig. 1). Intensive fishing activities have occurred around the urban and semiurban areas on the islands of Santo, Malekula and Efate.

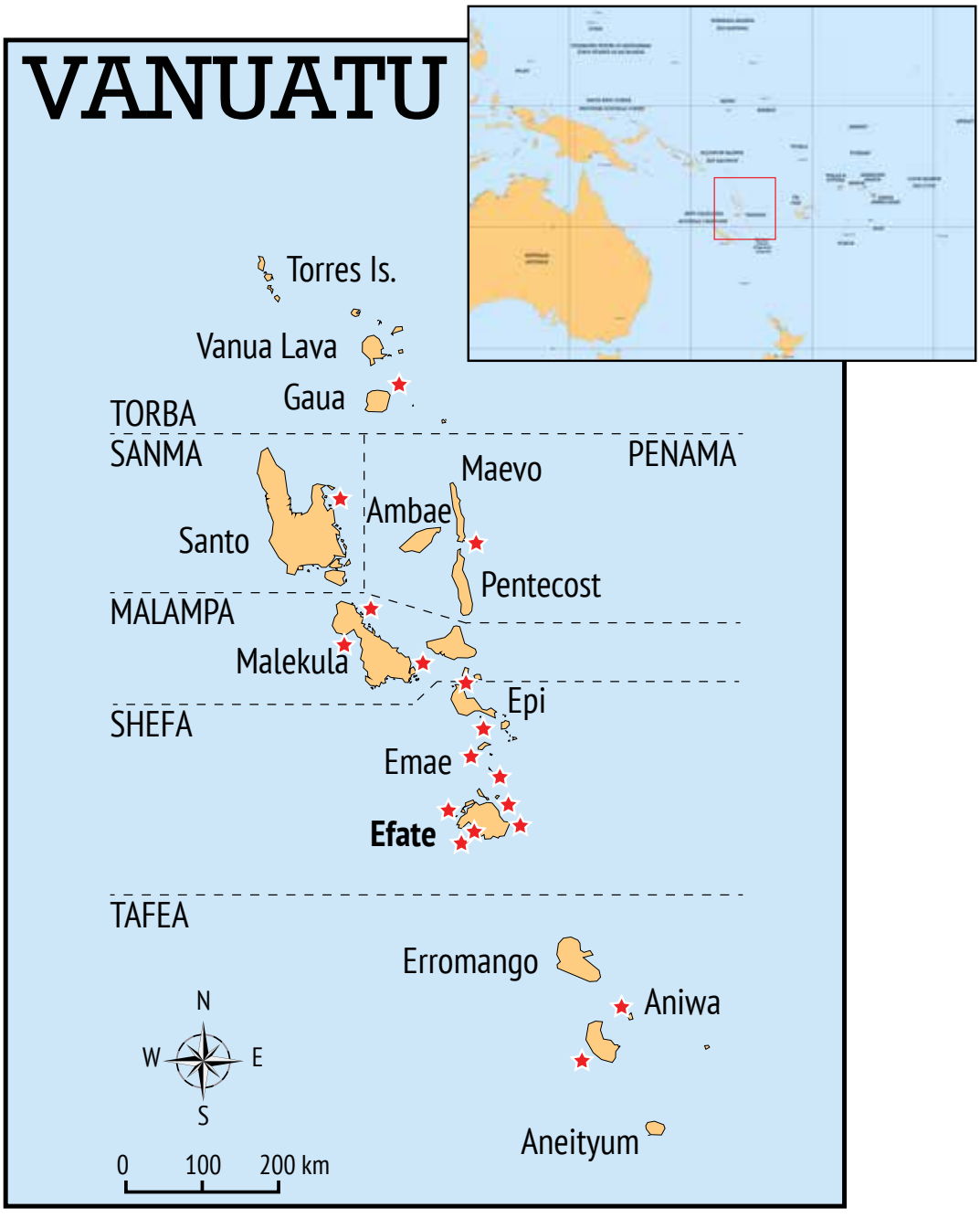


Figure 1: Islands and provinces of Vanuatu (stars represent historical fishing areas).

2.3 Fishery description

Two types of fishing methods are employed in this fishery: vertical dropline and deep-bottom longline. These methods were introduced to Vanuatu in the 1980s by the South Pacific Commission (renamed the Pacific Community in 2015). Since the fishery started in the 1980s, the vertical dropline method gained popularity and is currently the most commonly used method. Vertical dropline gear usually consists of a FAO[3]-developed Samoan hand reel (Fig. 2a) fitted with monofilament line that ends with a branchline carrying 3–10 hooks (Fig. 2b), baited with squid, skipjack tuna belly or other fish parts according to availability. The deep-bottom longline method uses 10–100 hooks attached via branchlines to a mainline; the gear is anchored to the sea floor and linked to the surface by one or two buoylines (Fig. 2c). Due to concerns raised by artisanal fishers about the potential negative impact of the deep-bottom longline method on the fishery stock, restrictions were put in place to control the use of this method in 2012.

Subsistence, artisanal and commercial fishers are all involved in the deep-bottom fish fishery. Subsistence fishers use canoes and small vessels with outboard motors and use the vertical dropline fishing method. Artisanal fishers also use small vessels – typically in the 5–8 meters size range – with outboard motors (Fig 3) and use vertical dropline and deep-bottom longline gear. Commercial fishers use a combination of small vessels (5–8 meters long) fitted with outboard engines or larger vessels (over 8 meters long) equipped with inboard or outboard engines. They use both vertical dropline and deep-bottom longline fishing methods. Some commercial fishers use hydraulic reels. Fishing for deep-bottom fish occurs at depths ranging from 50 meters to 600 meters on reef slopes and on seamounts, generally within nine nautical miles of the edge of the fringing reef.

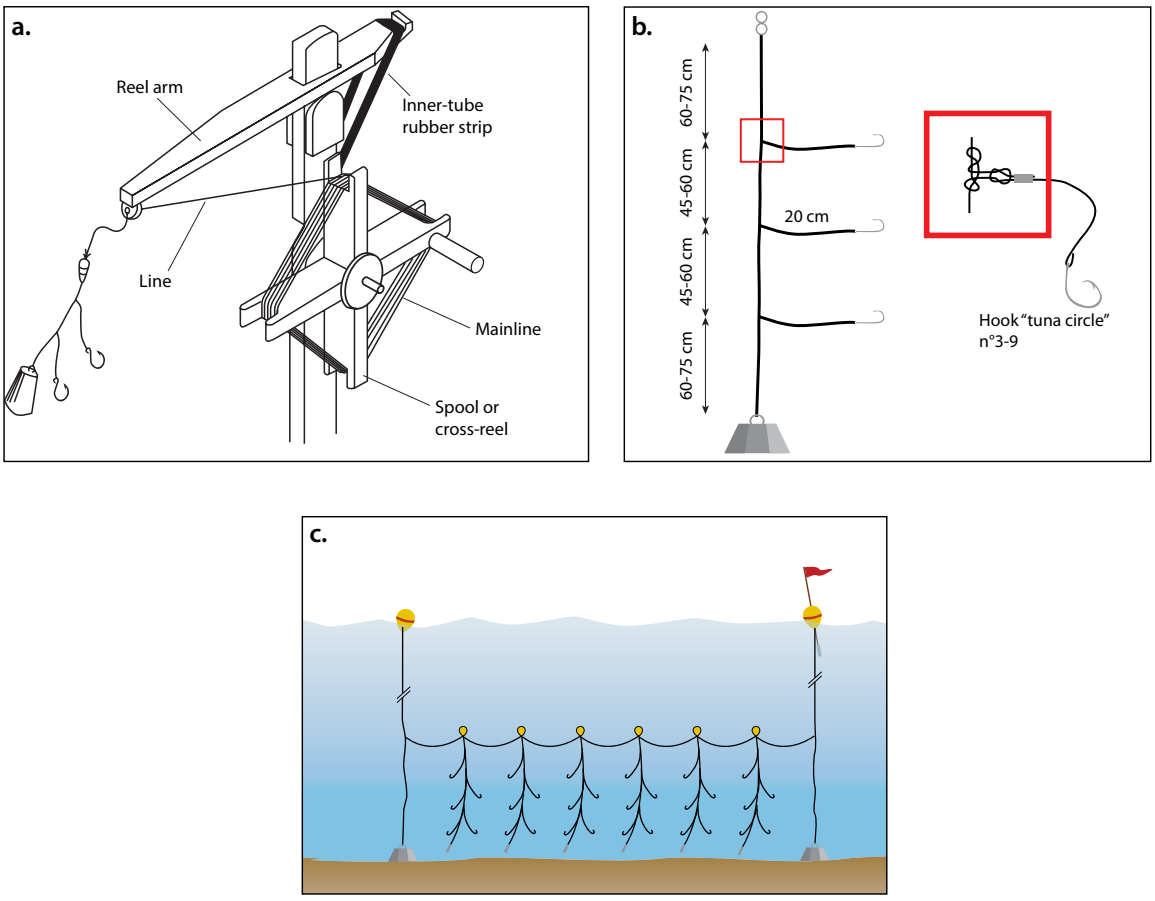


Figure 2: (a) FAO-developed Samoan hand reel; (b) branchline used for the vertical dropline fishing method (Source: Cillauren et al. 2001; see footnote #4); and (c) illustration of bottom set longline (Source: SPC).

[3] FAO = Food and Agriculture Organization of the United Nations

Figure 3: (a) 5-m Hartley model and (b) fiberglass boat. Both vessels are equipped with fishing reels and an outboard motor.

2.4 Fishery production

Since its commencement in the 1980s, this fishery has largely remained an open access fishery, which means that fishing activities are largely unregulated and there are no controls in place on who can and who cannot participate in the fishery. As such, effective data collection to capture the full level of the utilization of the fishery in Vanuatu has been a challenge.

A data collection system was put in place by the Vanuatu Fisheries Department (VFD) using duty-free fuel as an incentive for fishers to submit catch data, but not all fishers involved in this fishery have participated. Consequently, deep-bottom fish fishery data in Vanuatu is poor. Data on deep-bottom fish production is underestimated and production figures are localized to a few fishers and a few areas, including markets and restaurants. Based on these data, Figure 4 shows the production levels between 1980 and 2015.

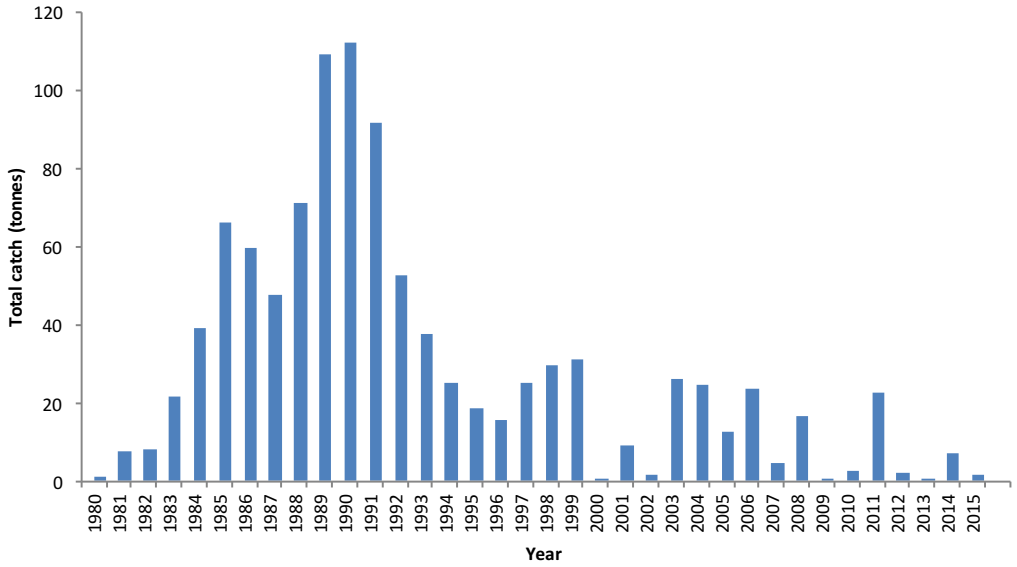


Figure 4: Total production for the artisanal deep-bottom fishery sector from 1980 to 2015.

The available catch records show an annual average yearly production of 53 tonnes between 1980 and 1991, which peaked at around 110 tonnes in 1989–1990. Since 2000, production has been less than 27 tonnes.

The deep-bottom fish species are some of the most valuable fish found for sale in fish markets, restaurants and hotels in Vanuatu. Beach price ranges from VUV 800–1,000 while selling prices at fish markets and restaurants in Port Vila range from VUV 1,200–2,000.

2.5 Life history and population biology

Most of the deep-bottom snapper and emperor species are fished for around all the islands of Vanuatu, particularlyon their eastern sides. Deep-bottom groupers are widely distributed around Vanuatu but are mainly fished for in Ambrym, Pentecost and Tanna Islands[4].

The biology of the major deep-water bottomfish species has been studied in several locations within the tropical Pacific, but important knowledge gaps remain, particularly for those species that are not primary targets of the fishery. Biological parameters such as growth and mortality have been estimated for various deep-bottom snappers and groupers in the Pacific. Studies have indicated that these fish are slow growing, have low rates of natural mortality, and are long-lived, with maximum ages exceeding 20 years[5] (Fig. 5).

Deep-bottom snappers are dioecious (i.e. distinct males and females), and spawn several times (serial spawners) over a prolonged breeding season, primarily between November and May in the South Pacific. Sexual maturity is attained at 50% maximum length. Estimating annual egg production is challenging because these species are serial spawners over a breeding season[6].

Reproduction strategies in deep-bottom groupers differ from those of deep-bottom snappers in that groupers are protogynous hermaphrodites (i.e. males change sex to become females) and spawn in large aggregations within a short period during which they are highly vulnerable to fishing[7].

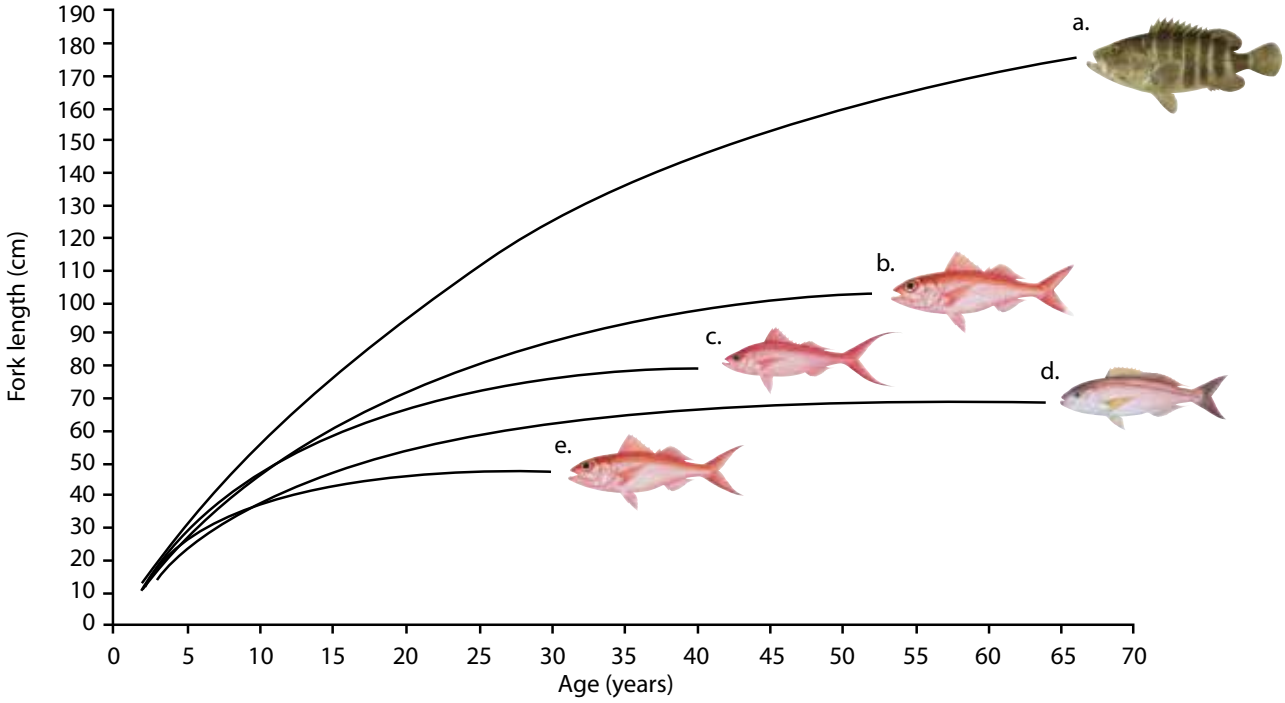


Figure 5: Growth curves for some deep-bottom fish species found in Vanuatu. a) *Hyporthodus octofasciatus* b) *Etelis* sp., c) *Etelis coruscans*, d) *Pristipomoides filamentosus*, e) *Etelis carbunculus*. (Source SPC).

[4] Cillaurren E., David G. and Grandperrin R. 2001. Coastal fisheries atlas of Vanuatu: A 10-year development assessment. Paris, IRD editions. 256 p.

[5] Newman S.J. and Dunk I.J. 2003. Age validation, growth, mortality, and additional population parameters of the goldband snapper (Pristipomoides multidens) off the Kimberley coast of Northwestern Australia. Fishery Bulletin 101:116–128.
Williams A.J., Loeun K., Nicol S.J., Chavance P., Ducrocq M., Harley S.J., Pilling, G.M., Allain V., Mellin C. and Bradshaw C.J.A. 2013. Population biology and vulnerability to fishing of deep-water eteline snappers. Journal of Applied Ichthyology 29:395–403.

[6] Everson A.R., Williams H.A. and Ito B.M. 1989. Maturation and reproduction in two Hawaiian eteline snappers, uku, *Aprion virescens*, and onaga, *Etelis coruscans*. Fishery Bulletin 87:877–888.

[7] Morris, A. V., Roberts, C. M. & Hawkins, J. P. 2000. The threatened status of groupers (Epinephelinae). Biodiversity & Conservation, 9, 919-942.

2.6 Resource assessment and current stock status

Conducting stock assessments for policy formulation is important for this fishery. These assessments are usually expensive because they require intensive monitoring and time-series of catch and effort to estimate an index of abundance. Two previous studies in Vanuatu have focused on estimating maximum sustainable yield (MSY) using catch per unit of effort data. A 1996-published study[8] estimated MSY at 294 tonnes while a 2001-published study[9], using a different methodology, estimated MSY at 586 tonnes. There is some uncertainty regarding the maximum sustainable harvest level for the deep-bottom fish fishery.

Current stock status of the deep-bottom fish fishery in Vanuatu is unknown. However, based on a recent study of the two main species targeted by the fishery (*Etelis carbunculus* and *E. coruscans*), the stock should remain stable in the long term with the current low level of exploitation[10].

3 LEGAL AND POLICY FRAMEWORK

This section outlines the various legal and policy frameworks that contribute to the management, development and conservation of the deep-bottom fish fishery.

3.1 Legislative framework

The Fisheries Act No. 10 of 2014 is the primary legal instrument for the management, development and conservation of fisheries resources in Vanuatu, including the deep-bottom fish fishery. Fisheries Regulation Order No. 28 of 2009 provides the regulatory framework.

Section 10(4) of the Fisheries Act requires the Director of VFD to prepare a plan for the management and development of all designated fisheries. The deep-bottom fish fishery is a designated fishery that is utilized for subsistence, artisanal and commercial purposes. Section 36 of the Fisheries Act stipulates that a local fishing license should be issued to authorize participation in a commercial fishing activity. The regulations provide for the licensing framework and imposing restrictions on the use of fishing methods.

Other relevant instruments that contribute to fisheries management in Vanuatu and relevant to the management, development and conservation of the deep-bottom fish fishery include the Decentralization and Local Government Regions Act (1997), the Environmental Protection and Conservation Act CAP 283, the Maritime Zone Act No. 6 of 2010, and the Vanuatu Foreign Investment Promotion Act No. 15 of 1998.

The Decentralization and Local Government Act empowers Vanuatu's provinces to pass "bylaws", regulating fishing activities within their six-mile provincial waters,and the issuance of fishing licenses. The Environmental Protection and Conservation Act CAP 283 contains a range of general provisions relating to the protection and conservation of the environment. It provides for the establishment of community conservation areas as well as for the need for environmental impact assessments. The Maritime Zone Act establishes a series of zones in Vanuatu waters from the archipelagic baseline. The archipelagic baseline is the line from which the seaward limits of a State's territorial waters, contiguous zone and exclusive economic zone are measured. The Vanuatu Foreign Investment Promotion Act provides for activities and industries reserved exclusively for citizens of Vanuatu. For instance, in the fisheries sector, according to the Maritime Zone Act, fishing within the archipelagic waters is reserved for ni-Vanuatu. Most fishing activities of the deep-bottom fish fishery occurs within archipelagic waters.

[8] Dalzell P., Adams T.J.H. and Polunin N.V.C. 1996. Coastal fisheries in the Pacific Islands. Oceanography and Marine Biology: An Annual Review 34:395–531.
[9] Cillaurren E., David G. and Grandperrin R. 2001. Coastal fisheries atlas of Vanuatu: A 10-year development assessment. Paris, IRD editions. 256 p
[10] Kaltavara J. 2014. Biology and fishery of the deepwater Eteline snappers in Vanuatu. Master of Applied Science (Marine Environment) with Honours, University of Tasmania.

3.2 Policy framework

Some aspects of the Tuna Fishery Management Plan 2014 (TMP) provide important guidance for the management, development and conservation of the deep-bottom fish fishery.

Section 1.3 of the TMP states that the scope of the TMP applies to commercial, artisanal, sport and/or game fishing, research, exploratory and test fishing activities in Vanuatu waters, including vertical and horizontal longline fishing for deep-bottom fish. Schedule I.2 of the TMP outlines area restrictions for local fishing vessels, including those targeting the deep-bottom fish fishery. Furthermore, Schedule II.3 sets out the restrictions on the number of licenses that can be issued, including licenses for the deep-bottom fish fishery.

4 ISSUES AND CHALLENGES

During consultations and the development of this Plan, the following challenges emerged.

i. The fishery lacks a fishery management plan and, thus, there is no clear policy direction for the management, development and conservation of the deep-bottom fish fishery

This fishery has been in operation for over 30 years without a formal management plan. This Plan has been developed to address this issue.

ii. Lack of implementation of current measures

There are measures in place to regulate the fishery, but the implementation of these measures is lacking or slow. These measures include licensing and restrictions on the number of hooks for the longline fishing method.

iii. Institutional arrangement and capacity

The institutional arrangement and capacity of VFD is too limited to ensure that effective monitoring, control and surveillance is provided for the fishery.

iv. The fishery is an open access fishery

The fishery has been in operation for over 30 years, but still suffers the traits of an open access fishery: there are no controls, monitoring or accountability in place. Open access fisheries are difficult to manage and are prone to overharvesting, which contributes to the depletion of resources.

v. Lack of appropriate data

The fishery maybe characterized as being data-deficient or data-poor. It lacks appropriate catch and effort level data, and data on species catch composition or the size and/or length of fish being caught. In addition, data on the total number of fishers and fishing vessels involved in this fishery, and the frequency of fishing trips are absent.

vi. Lack of monitoring, control and surveillance mechanisms in the fishery

The fishery lacks efficient monitoring, control and surveillance mechanisms. As an open access fishery, it usually operates without observers or port samplers, and there is a lack of data collection mechanisms. Despite the Fisheries Act requiring the licensing of deep-bottom fishers, this remains a challenge.

vii. Market access is difficult

Fishers, particularly in rural areas, have continuously raised the issue of market access. Infrastructure and transport that link most of the islands to urban and semiurban markets remains a difficult challenge. There are a limited number of markets in the rural areas.

viii. Lack of sufficient infrastructure

There is a lack of sufficient infrastructure in terms of roads, wharfs and market facilities, and the efficient development of the deep-bottom fish fishery is hindered by these constraints.

ix. Quality control

Due to the lack of proper ice plants and storage facilities in Vanuatu's rural and suburban areas, quality control continues to be an issue, and one that has led to low value and income for fishers.

x. Fishing vessel size

The majority of fishing vessels engaged in the fishery are open skiffs, ranging in length from 5 meters to 8 meters. While such vessels are affordable and economical to operate, they are not suitable for long fishing trips.

5 CURRENT AND PREVIOUS MANAGEMENT MEASURES

This section outlines the current and previous management measures applied to this fishery.

Licensing – vessels 8 meters long or more have been issued licenses;

Area restriction – restricts certain fishing vessel sizes to certain areas;

Data collection – data collection in this fishery has been implemented through two means: i) license condition; and ii) duty-free fuel as an incentive for fishers to submit data;

Gear restriction – a ministerial order (Conservation and Management Measure for Deep-Bottom Fish Fishery Order No 87 of 2012) prohibits the use of deep-bottom longline gear and restricts the number of hooks on a vertical dropline to 10.

6 BROAD POLICY DIRECTION

This Deep-bottom Fish Fishery Management Plan is based on a single overall goal supported by several strategies.

6.1 Overall policy goal

The overall policy goal of this Plan is to promote the sustainable management and development of the deep-bottom fish fishery for the social and economic benefit of present and future generations of Vanuatu citizens while acknowledging the role and participation of the different stakeholders in this fishery.

6.2 Policy objectives

This Plan aims to achieve the following objectives detailed below.

6.3 Policy outcomes

It is anticipated that the effective implementation of the measures and strategies contained in this Plan will achieve the following outcomes:

- A fishery that is well monitored, controlled and sustained;
- A fishery that can contribute to the overall economic growth of Vanuatu;
- A fishery that can contribute to nutrition and food security; and
- A fishery that can contribute to driving and adding value to other rural economic activities.

7 FISHERY MANAGEMENT MEASURES AND STRATEGIES

This section sets out the management measures that will apply in this fishery. It is anticipated that the effective implementation of these measures will contribute to achieving the above-mentioned broad policy outcomes.

7.1 Licensing

The following licenses will be applied in this fishery.

7.1.1 Local fishing license

- A local fishing license will be issued to all fishing vessels involved in the harvesting of deep-bottom fish species;
- The Director of the Vanuatu Fisheries Depatment will issue the local fishing license;
- The local fishing license application form is attached in Schedule I;
- The local license format is attached in Schedule II;
- The fee payable for this license is outlined in Schedule III; and
- This fee will be collected by VFD.

7.1.2 Provincial access permit

- This license will be issued by the relevant provincial government;
- This provincial access permit applies to all fishing vessels wishing to conduct fishing and fishing-related activities within the jurisdiction of a provincial government as outlined in the Decentralization and Local Government Regions Act;
- Fees payable are subject to relevant provincial government applicable fees; and
- Relevant provincial governments will collect this fee.

7.2 Area restriction

An area restriction related to fishing vessel size will be applied in this fishery, as outlined in Schedule IV.

8 POLICY PRIORITY AREAS

For this Plan to fully achieve the above overall goal, certain priority action areas must be addressed in addition to the management measures through the implementation of strategies. Outlined below are six priority action areas that will be targeted within the next five years.

1. Registration of fishing vessels;
2. Improved data collection mechanisms;
3. Institutional capacity;
4. Fleet size;
5. Rural fish market infrastructure; and
6. Research and training.

8.1 Policy priority action area 1: Registration of fishing vessels

Currently, information on the total number of fishing vessels and the number of fishers involved in the deep-bottom fish fishery is unknown. Such information is critical to developing a sustainable fishery. The strategies outlined below will provide a clearer understanding of the current status of the deep-bottom fish fishery so that sound policy interventions can be adopted to ensure continued long-term sustainable utilization.

8.1.1 Policy strategies

- VFD will carry out a survey in collaboration with relevant provincial governments, fishers' associations, individual fishers and communities to determine the total number of fishing vessels engaged in this fishery by the end of 2016; and
- VFD will design, develop, update and maintain a register of fishing vessels involved in this fishery by the end of 2016.

8.2 Policy priority action area 2: Data collection mechanisms

This fishery can be characterized as being data-poor. This means that there is insufficient data to assist with the development of sound management strategies. Such data include operational level catch and effort data, catch composition and fish size and/or length data, and distribution of stocks information. This is due to the current lack of appropriate data collection mechanisms. The new data collection system will involve catch and effort reporting by licensed fishers, and the sampling of fish catch by fisheries officers, authorized officers or observers. Harvest limit reference points need to be developed and agreed on to ensure that management actions are taken if these reference points are exceeded. The implementation of the following policy strategies will assist with strengthening data collection in this fishery.

8.2.1 Policy strategies

- VFD will license all artisanal and commercial fishing vessels involved in the deep-bottom fish fishery;
- VFD will obligate all fishing vessels through license conditions to provide operational level catch and effort data (a log form is attached as Schedule V);
- VFD, in collaboration with partners and stakeholders, will set "harvest limit reference points" over the life of the Plan, which will be specified in the schedules of the Plan. In the interim, the reference limits in Schedule VI apply.
- VFD may, in collaboration with partners, endeavour to develop and implement a stock assessment programme for this fishery;

- VFD will work with fish market outlets, restaurants and hotels to put in place a data collection system by the end of 2016;
- VFD will develop and implement a port sampling programme by late 2016; and
- VFD will, from time to time, require fishing vessels to take onboard VFD observer personnel.

8.3 Policy priority action area 3: Institutional capacity

An effective, adequately resourced and relevant institutional capacity is a key element to ensure smooth, effective and timely implementation of programme activities. Currently, VFD capacity is not adequate enough to guarantee that the management and development of the deep-bottom fish fishery is effectively controlled and monitored to ensure sustainability and maximization of returns.

It is anticipated that the following policy strategies will assist with strengthening this important area.

8.3.1 Policy strategies

- VFD, when reviewing its organizational structure, will consider including positions of monitoring and enforcement officers;
- VFD, when reviewing its structure, will consider streamlining the Department such that there is a clear demarcation between the offshore and coastal fisheries divisions;
- VFD will appoint authorized officers based on certain islands to assist with data monitoring, control and surveillance of this fishery; and
- VFD will work with other recognized organizations or networks to assist with the monitoring, control and surveillance of this fishery.

8.4 Policy priority action area 4: Fleet size

The majority of fishing vessels engaged in this fishery are open skiffs ranging in length from 5 m to 8 m long. While such vessels are affordable and easy to operate, they are not suitable for long fishing trips. The strategies below are designed to help address this issue.

8.4.1 Policy strategies

- VFD will work with its partners and local fishers to identify appropriate fishing vessels or vessel designs, taking into account sea worthiness, adaptability and economics;
- VFD will select and work with local fishers to conduct trial fishing onboard such vessels to test their viability; and
- VFD will promote such fishing vessels if they suit the purpose.

8.5 Policy priority action area 5: Rural market infrastructure

Fishers have continuously raised the issue of market access. There are limited market facilities in rural areas and linking most of the islands to urban and suburban markets remains a challenge. Appropriate market facilities in Vanuatu's rural areas will assist in maintaining quality standards and prolong the shelf life of the catch, which should generate better returns to fishers.

Fishers in rural areas who wish to maximize the returns from their catch are limited by the lack of transport linking rural areas to urban and suburban markets. It is believed that the effective implementation of certain policy strategies could address this area of need.

8.5.1 Policy strategies

- VFD will work with its partners, fishers associations and communities to establish rural fish market outlets;
- VFD will work in collaboration with stakeholders, especially the private sector in the shipping industry, to provide services for safe and adequate transportation of catch to urban and suburban market outlets; and
- The government will find ways to improve shipping linkages from rural areas, and ensure that vessels are equipped with proper storage facilities.

8.6 Policy priority action area 6: Research and training

The deep-bottom fish fishery is an important fishery in Vanuatu; however, information is lacking on catch and effort, the total number of vessels and fishers involved in the fishery, and the status of stocks. To ensure this fishery remains viable for rural fishers and contributes to the national social and economic growth, it is fundamental that research and training efforts be focused on addressing these gaps.

Other areas of research and training may cover gear development, quality control and fishers training. These could involve conducting research on the efficiency of fishing gear, developing various quality control measures and methods, and producing training guides.

The following policy strategies will be implemented by VFD to address the above issues.

8.6.1 Policy strategies

- VFD will work with fishers to develop and implement a sampling programme;
- VFD will encourage advance training in science, management and development activities related to deep-bottom fish fisheries;
- VFD will work with its partners and in collaboration with communities or the private sector to identify various quality control measures or methods; and
- VFD will work with its partners and other stakeholders to design and develop training guides if the need arises.

9 MONITORING AND EVALUATION

For this Plan to be implemented with successful outcomes against the key objectives, VFD is required to develop and implement an effective monitoring and evaluation system within six months of the date of approval of this Plan. Monitoring and evaluation will ensure appropriate and efficient feedback mechanisms, and this entails carrying out monitoring and evaluation on each key objective and outcome.

10 REVIEW AND AMENDMENTS

The Plan will be reviewed in consultation with stakeholders and the Fisheries Management Advisory Council (FMAC) based on a five-year cycle. However, parts of this Plan may be reviewed if there are significant changes in the operating environment in the course of its implementation. The Director of VFD may revise and amend schedules to this Plan as necessary. Any proposed amendments to schedules shall be in consultation with the Fisheries Management Advisory Council.

SCHEDULES

I APPLICATION FORM FOR A LOCAL FISHING VESSEL LICENCE

Application form

INSTRUCTIONS:

- Underline surnames
- For "address" provide as much detail as possible
- Leave no question blank
- If not applicable, write N/A
- Attach a recent photograph (of the applicant (s))
- Submit copies of Provincial approval
- Submit copies of community agreements (if relevant)
- Specify units of measurement

ADDRESS TO:
Director of Fisheries
Fisheries Department
PMB 9045
Port Vila

I hereby apply for a fishing licence for the vessel described below.

1	Select appropriate		Artisanal
			Sport fishing/charter
			Other[specify]
2	Name of vessel		
3	Name and address of vessel operator		
4	Contact details	Telephone	
		Fax	
		Email	
5	International radio call sign/ provincial code		
6	Area of operation		
7	Name and address of master		
8	Nature of fishing operation to be undertaken	[Attach full description]	
9	Nature of vessel		

	a) Year built	
	b) Place of construction	
	c) Overall length (in metres)	
	d) Main engine(s) power	
	e) Fuel carrying capacity (in litres)	
10	Number of crew expected	
11	Fish storage capacity, for each storage method	
I declare that the vessel described above is wholly owned by:		
	a) the Government of Vanuatu	
	b) a public corporation established by or under a law of Vanuatu	
	c) one or more persons who are citizens of Vanuatu	
	d) a company, society or other association of persons incorporated or established under the laws of Vanuatu	
And that the full name and address, or names and addresses of the owner or of all the owners are:		
Name(s) of owner(s)		
Full address(es) of owner(s)		
Contact details	Telephone	
	Facsimile	
	Email	
Full address #2		
Contact details	Telephone	
	Facsimile	
	Email	
I understand that I am required to report any changes in the information contained in this form to the Director of Fisheries, Port Vila, within 7 days of the change.		

…….. ……..

Signature of applicant Date

Name of applicant		
Address of applicant		
Status of applicant		Owner
(select appropriate)		Charterer

II LOCAL FISHING VESSEL LICENCE

Licence form: ……. Licence number: …….

The person named as the licence holder below is hereby licensed in accordance with Section 36(1) of the Fisheries Act No 10 of 2014 to use the vessel described below for fishing in accordance with the terms and conditions set out in this licence and the conditions prescribed from time to time in the Fisheries Regulations.

Name of licence holder:	
Name of vessel:	
Radio call sign: (if applicable)	
Authorized period of licence:	
Special conditions:	
Permitted transhipment operations: (where applicable)	
Permitted use of fish aggregating devices: (where applicable)	

…….. ……..

Director of Fisheries Date

III FEES FOR LOCAL FISHING VESSELS

Efate and Luganville, excluding offshore islands and rural Santo	
Vessel category	**License fee (VT)**
Less than or equal to 8 meters	20,000
Greater than 8 meters	20,000 + 5,000 per meter over 8 meters
Sport fishing	50,000
Other islands	
Less than or equal to 8 meters	10,000
Greater than 8 meters	10,000 + 2,500 per meter over 8 meters
Sport fishing	30,000

IV AREA RESTRICTION FOR LOCAL FISHING VESSELS

Fishing category	**Fishing vessel**		
	Less than 10 meters	**Equal to or greater than 10 meters**	**Greater than 15 meters**
Artisanal fishing vessels	No restriction	Outside 6 nautical*	outside 12 nautical miles*
Commercial fishing vessels (e.g. Lady Christina, Ocean Fishing Ltd)	Comply with provincial bylaws if applicable	Outside 6 nautical miles*	outside 12 nautical miles*

* From the archipelagic baseline

V FISHING REPORTING LOG FORM

FISHING LOGSHEET

Trip Information

LANDING SITE	VESSEL NAME	DEPARTURE DATE and TIME YY MM DD hh mm	PAGE NO ..... OF.....
RECORDER - name or code	VESSEL OWNER	RETURN TIME hh mm	(and date if different to departure) YY MM DD
NUMBER OF CREW	SKIPPER'S NAME	BOAT POWER - circle one MOTOR PADDLE SAIL	

Trip Costs

FUEL PURCHASED Y / N		ICE PURCHASED Y / N		BAIT PURCHASED Y / N		GEAR PURCHASED Y / N	
AMOUNT	VT:	AMOUNT	VT:	AMOUNT	VT:	ITEM	VT:

Fishing Events

FISHING EVENT No. 1	FISHING AREA or FAD NAME		FOR THIS EVENT DID YOU:	USE LIVE BAIT? Y / N		FISH ON A FAD? Y / N		CATCH FISH? Y / N	
			SPECIES	NO	KG	SPECIES	NO	KG	
	FISHING METHOD								
	TOTAL HOURS FISHING	NUMBER OF							
		LINES	HOOKS						

Fishing Events

FISHING EVENT No. 2	FISHING AREA or FAD NAME		FOR THIS EVENT DID YOU:	USE LIVE BAIT? Y / N		FISH ON A FAD? Y / N		CATCH FISH? Y / N	
			SPECIES	NO	KG	SPECIES	NO	KG	
	FISHING METHOD								
	TOTAL HOURS FISHING	NUMBER OF							
		LINES	HOOKS						

VI HARVEST LIMITS

In the absence of agreed harvest limits the following reference points apply:

Limits on fishing effort;

(1) The number of licenses will initially be limited to the total number included in the vessel register to be finalized by the end of 2016 (see action 8.1)

(2) The Director will monitor the deep-bottom fish fishery catch at Santo, Makelula and Efate and any other location comprising more than 20% of issued licenses.

(3) The ruby snapper (*Etelis* sp.), the saddle-back snapper (*Paracaesio kusakarii*) and the comet grouper (*Epinephelus morrhua*) will be indicator species that provide an indication of the status of the entire suite of species in the fishery. A minimum of 50% of the catch of these species must be measured for length and weight, and their otoliths must be extracted.

(4) No further licenses will be issued if the Director determines that:

- 25% of the ruby snapper (*Etelis* sp.) catch is less than 54 cm fork length, or
- 25% of the saddle-back snapper (*Paracaesio kusakarii*) catch is less than 33 cm fork length, or
- 25% of the comet grouper (*Epinephelus morrhua*) catch is less than 44 cm fork length,

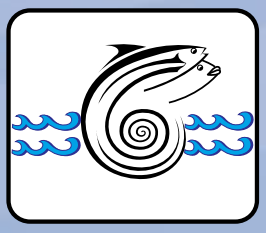
until appropriate limit reference points for the deep-bottom fish fishery are set and accepted, or the trend in proportion of juveniles in the catch decreases to below the above levels over a 5-year period.

Limits on catch

(1) If the latest annual catch record of the deep bottom fish fishery in the fishery waters clearly exceeds the average yearly catch record of the past five years, the Director will review the impact of this level of catch in relation to the objectives of the Plan, and may reduce the total number of licenses.

(2) The Director may apply additional limits to fishing with the approval of the Minister and after consultation with the Provincial Governments, relevant fishers' associations, key stakeholders and the FMAC when he/she is of the opinion that it is in the interest of the sustainability or economic viability of the deep-bottom fish fishery in Vanuatu.

NOTES:



Pacific Community
Communauté du Pacifique

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