

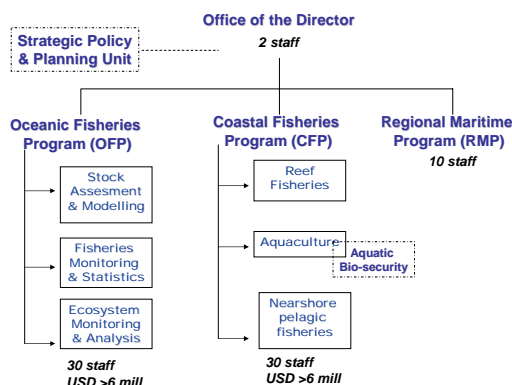
## SPC Marine Resources Division

First Programme Trilateral Meeting:  
Paragraph 19(b) of 2007 Leaders Communique



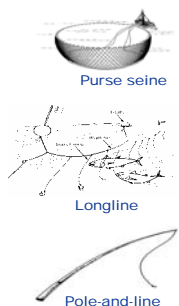
15-16 May 2008, Suva

## Overview of MRD



## Scope of Oceanic Fisheries

### Multiple Gear

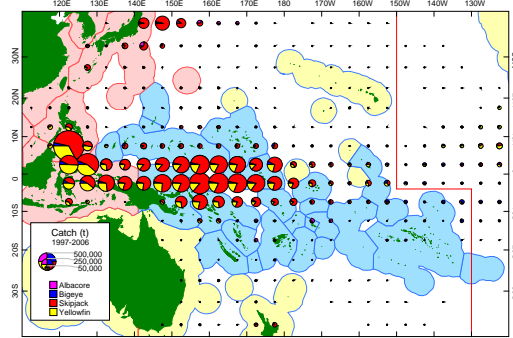


### Key Tuna Species



- Total catch in 2006: 2.2 million tonnes
- Landed value: >USD 3 billion
- >100 + by-catch species

## Stocks are highly migratory requiring regional approaches for management



SPC is also 'Science Provider' to Western & Central Pacific Fisheries Commission (WCPFC)

## OFP Strategic Programme Plan

### What Do We Deliver

Accurate and comprehensive scientific data for regional and national fisheries management authorities

### How Do We Deliver

- Training observers and port samplers
- Development of in-country data management systems
- Data management for the Western & Central Pacific Fisheries Commission
- Annual catch estimates

## OFP Strategic Programme Plan

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Accurate and comprehensive scientific data for regional and national fisheries management authorities

High-quality scientific information and advice on the status of, and fishery impacts on, stocks targeted or otherwise impacted by regional oceanic fisheries

### How Do We Deliver

- Training observers and port samplers
- Development of in-country data management systems
- Data management for the Western & Central Pacific Fisheries Commission
- Annual catch estimates
- Regional Tuna Stock Assessments
- National Tuna Fishery Status Reports
- Training to interpret stock assessments
- Tuna tagging data to estimate movement and mortality

## OFP Strategic Programme Plan



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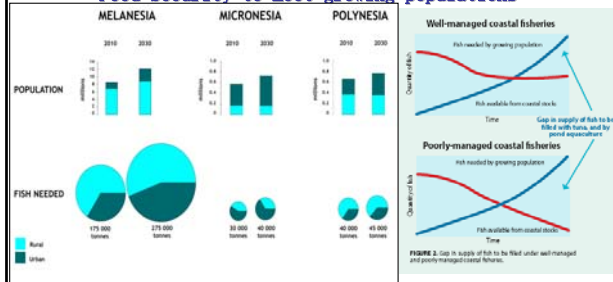
Improved understanding of pelagic ecosystems in the western and central Pacific Ocean, with a focus on the western tropical Pacific

### How Do We Deliver

- Training observers and port samplers
- Development of in-country data management systems
- Data management for the Western & Central Pacific Fisheries Commission
- Annual catch estimates
- Regional Tuna Stock Assessments
- National Tuna Fishery Status Reports
- Training to interpret stock assessments
- Tuna tagging data to estimate movement and mortality
- Analysis of biological data e.g. diet, condition, age and growth
- Ecological models on effects of environmental variability
- 'Ecological Risk Assessment' to prioritise bycatch species

## Scope of Coastal Fisheries (1/2)

### Food Security to meet growing populations



SPC Policy Brief: 50% increase in population by 2030 will require an additional 100,000 tonnes of fish protein. The gap can be reduced by well managed coastal fisheries and filled by alternative sources such as tuna and pond aquaculture

## Scope of Coastal Fisheries (2/2)

### Multiple livelihood opportunities

#### Coral reefs

- Reef finfish; Invertebrates (sea cucumber); Aquarium species; Eco-tourism



#### Aquaculture

- Est. USD216 mill/yr; black pearls, marine shrimp, coral; seaweed; Nile tilapia



#### Near shore fisheries

- Domestic tuna fisheries; deep sea snapper; sport fishing



## CFP Strategic Delivery



### What Do We Deliver

Scientifically informed and socially achievable coastal ecosystem management

### How Do We Deliver

- Assessments of resource users, management systems, and resources
- Cross-sectoral, scientifically and socially realistic national/island vision of coastal marine area usage
- Assistance for Ecosystem Approach to Coastal Fisheries and Aquaculture

## CFP Strategic Delivery



### What Do We Deliver

Scientifically informed and socially achievable coastal ecosystem management

Support for economically, socially and environmentally sustainable aquaculture

### How Do We Deliver

- Assessments of resource users, management systems, and resources
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- Regional networking of aquaculture
- Assist in sustainable and profitable aquaculture enterprises
- Assist aquatic biosecurity - exotic introductions quarantine, diseases, food safety and trade standards

## CFP Strategic Delivery



### What Do We Deliver

Scientifically informed and socially achievable coastal ecosystem management

Support for economically, socially and environmentally sustainable aquaculture

Develop domestic nearshore commercial fisheries within a sustainable ecosystem context

### How Do We Deliver

- Assessments of resource users, management systems, and resources
- Cross-sectoral, scientifically and socially realistic national/island vision of coastal marine area usage
- Assistance for Ecosystem Approach to Coastal Fisheries and Aquaculture

- Regional networking of aquaculture
- Assist in sustainable and profitable aquaculture enterprises
- Assist aquatic biosecurity - exotic introductions quarantine, diseases, food safety and trade standards

- Matching domestic commercial fishing to the sustainable capacity of resource
- Resources, advice and training on fisheries and fishing techniques
- Improve unit value fisheries production

## Scope of Maritime Programme

Meet international security and safety in shipping and ports



Compliance and accreditation with international obligations



Regulatory requirements for maritime safety and security regimes



Further regional professional maritime peer networks



## RMP Strategic Delivery

What Do We Deliver

Ensure Pacific Islands meet International standards

- International Maritime Organization (IMO)

Regional collaboration

- Women in maritime (PacWIMA)

Audit Systems

- Ship operations
- Port operations
- Seafarers
- Security

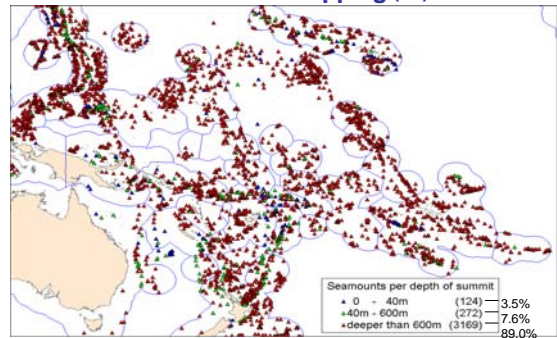
Promotion of business and maritime excellence

How Do We Deliver

- Integrated Data and Information Management systems
- Legal advice
- Training
- Security
- Ports
- Ship management

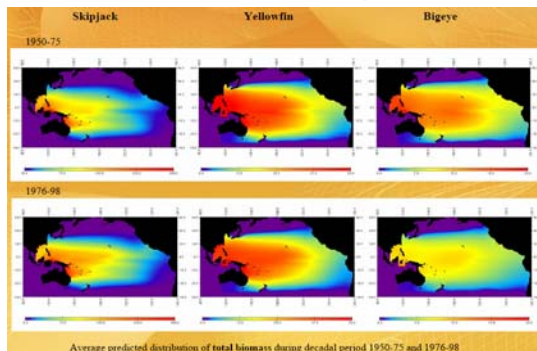
## Examples of MRD Activities with Synergies Relating to SOPAC

### Seamount Mapping (1/7)



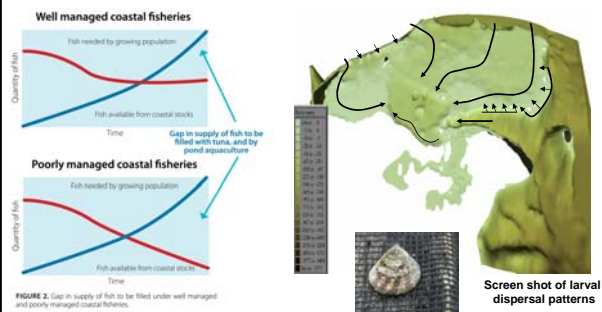
Eliminating false positives (25%) in global datasets by comparison with regional and national scale data. Further investigation of seamount effects on oceanography and fisheries.

### Basin-scale modelling of tuna (2/7)



Population dynamics driven by ocean productivity and fisheries. OFP have a project with IRD (Noumea) to use Regional Ocean Modelling System for New Caledonia and could extend this approach to EEZs of other members

### Modeling the effects of restocking Trochus in Tonga (3/7)



Other applications:

- Identify the self replenishing population = fisheries management unit
- Identifying optimum locations for marine protected areas

### Inshore FADs for subsistence fishing (4/7)

Bathymetry needed to choose best sites for FADS

### GIS Planning Tool for Inland Pond Aquaculture (5/7)

Soil Types    Population + Sugar cane sector    Forest cover    Slopes + Temperatures

Area Marginally suitable  
Suitable Soils  
Near Area (>100 percent)  
Near Area (>100 percent)  
AND in sugar cane sector  
Rivers  
Sample of Farms Location 2007

Fish ponds

Suitability map of physical and demographic parameters to identify areas for potential small pond aquaculture

### Mariculture Monitoring & Management: Pearl farming (6/7)

Manihiki Atoll

Pre disease 2000 to 2005  
2000 = \$18.4m export  
2005 = \$1.6m export  
Lost Revenue 2000  
NZD100+ million dollars

Manihiki Island, Cook Islands. Cultured Black Pearl Industry, 1999

Prevalence of Oyster Disease

Overstocking

Disease

Lagoon Management

Water Quality Monitoring

Environmental and information management systems (water quality monitoring, pearl census databases, farm mapping) to avoid costly disease outbreaks

### Climate Change and Fisheries (7/7)

PROJECT BRIEF

#### Impact of Climate Change on Fisheries in the Pacific

Incorporation of the impacts of climate change on fisheries in the Pacific, and the need for a comprehensive assessment of the impact of climate change on fisheries in the Pacific, is the focus of this project. The project will assess the impact of climate change on fisheries in the Pacific, and the need for a comprehensive assessment of the impact of climate change on fisheries in the Pacific.

Key outputs:

- Vulnerability assessment

Including.....

#### Projected Changes to Oceanography

- Prevailing currents
- Warm Pool/ENSO effects
- Sea temperature profiles/thermoclines
- Sea level
- Ocean Chemistry
- Eddies and other sources of variation
- Wind driven currents
- Wave height
- Upwellings/nutrient flux
- Non-linear and catastrophic changes