Research Priorities of the SPC Oceanic Fisheries Programme

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Outline

• Tuna fishery and stocks
• OFP Strategic Plan 2006-2008
• Research priorities
WCPFC – Convention Area

Western and Central Pacific & Eastern Pacific boundary
Western and Central Pacific Fisheries Commission boundary
Catch Distributions

Purse seine

Longline
Tuna Catch

**Catch by gear**
- Other
- Purse seine
- Pole & line
- Longline

**Catch by species**
- Yellowfin
- Skipjack
- Bigeye
- Albacore
Status of Tuna Stocks - Summary

**Skipjack**
- Current catches sustainable and could be increased
- But increased purse seine effort will put more pressure on bigeye and yellowfin stocks

**Yellowfin**
- Overfishing likely, particularly in equatorial zone

**Albacore (South Pacific)**
- Current catches sustainable, could possibly be increased (although CPUE declines may impact profitability)

**Bigeye**
- Overfishing currently occurring
- Limits on longline and purse seine catches/effort required
OFP Strategic Plan

Goal

*Fisheries exploiting the region’s resources of tuna, billfish and related species are managed for economic and ecological sustainability using the best available scientific information*
OFP Strategic Plan

Objectives

1. *Accurate and comprehensive scientific data for regional and national fisheries management authorities*

2. *High-quality scientific information and advice for regional and national fisheries management authorities on the status of, and fishery impacts on, stocks targeted or otherwise impacted by regional oceanic fisheries*

3. *Improved understanding of pelagic ecosystems in the western and central Pacific Ocean*
Research Priorities – Stock Assessment (objective 2)

• Improvement in stock assessment methods
  – MULTIFAN-CL software developments, including sex & multi-species
  – Estimation of standardized abundance indices and effort, including estimation based on high resolution operational data
  – Appropriate stock assessment model structure, particularly spatial structure

• Enhancement of stock assessment data
  – Improvements in catch & effort, size & species composition data
  – Tagging data
Tagging Data in Stock Assessments

Movement and mixing

Mortality

Growth
Regional Tuna Tagging Project
1989-1992

Skipjack tuna releases
n = 97,852

Skipjack tuna returns
n = 12,328

Yellowfin tuna releases
n = 39,413

Yellowfin tuna returns
n = 4,890

Bigeye tuna releases
n = 7,906

Bigeye tuna returns
n = 979
A New Tagging Project

To provide information on:

• Current levels of fishing mortality (conventional tags)
• Movement (mixing), mortality, growth (conventional tags)
• Effects of FADs
  – Local-scale behaviour (archival tags)
  – On meso-large-scale movement (conventional + archival)
Regional Tuna Tagging Project 2

• Phase 1 – PNG
  – Conventional and electronic tagging
  – Exploitation rates and FADs
  – Budget ~ $1.5 million
  – Currently have finding commitments from GEF, EU, NZ, PNG (but scope for other collaboration)

• Phase 2 – the rest
  – Additional funding of about $3.5 million
  – Further funding likely through the WCPFC
  – Coordinate with IATTC tagging in the EPO
Tag Displacements Pre-FADs

 Movements of recaptured fish with distance from release point > 200 nm. SKJ (continuous line), YFT (dotted line)
PNG
FADs
Research Priorities – Ecosystem Understanding (objective 3)

- Impacts of environmental variation on the ecosystem (and fisheries)
  - SEAPODYM-type models
  - Empirical approaches, e.g. Kirby’s work
- Impacts of fisheries on ecosystem
  - Trophic interactions
  - Modelling – bottom-up (SEAPODYM) and top-down (ECOPATH-SIM)
  - Multi-species statistical models
- Special habitats & biodiversity
  - Effect of FADs
  - Seamounts
- By-catch
  - By-catch estimation
  - Status and fishery impacts on protected species
Summary of Key Priorities

• Stock assessment methodology
  – Model development
  – Abundance indices (particularly longline, but maybe purse seine)

• Tagging (conventional and electronic)
  – Stock assessment inputs
  – FADs

• Ecosystem research
  – Modelling
  – Trophic studies