Adaptations to maintain the contributions of small-scale fisheries to food security in the Pacific Islands


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Context

Importance of fish to food security (kg/person/year)

Source: Bell et al. (2009), Gillett (2009)
Regional plans to use fish for food security

- Provide 35 kg of fish per person per year
- Maintain traditional fish consumption where it is >35 kg
Increased coral bleaching

Reduced reef fish production

Source: Bell et al. (2011)
Adaptations

Minimize the gap

Fill the gap
An adaptation framework
Adaptations to minimize the gap

Manage and restore vegetation in catchments

Reverse degradation of habitats

- Maintain water quality
- Conserve structural complexity of reefs
- Prohibit physical damage to seagrass
- Manage timber collection in mangroves

Improves resilience of coral reef, mangrove and seagrass habitats

Source: Bell et al. (2011)
Provide for landward migration of fish habitats

Adaptations to minimize the gap

Source: Bell et al. (2011)
Adaptations to minimize the gap

Sustain production of fish stocks

Maintain habitat mosaics and herbivorous fish species

Maintaining spawning adults needed for regular replenishment will help build resilience of stocks

Source: Bell et al. (2011)
Foster effective co-management based on:

• A climate-informed, community-based, ecosystem approach to fisheries management (CBEAFM) to maintain fish habitats and fish stocks

• Integrated development plans for agriculture, forestry, infrastructure and fisheries to avoid maladaptation

• ‘Primary fisheries management’ regulations to underpin CBEAFM
Adaptations to fill the gap

Skipjack tuna > 1 million Mt p.a.

Yellowfin tuna > 300,000 Mt p.a.

Assist communities to catch tuna by expanding use of nearshore fish aggregating devices (FADs)

Provide training in safe and effective FAD-fishing methods

Source: Bell et al. (2011)
Adaptations to fill the gap

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Fish Needed (Mt)</th>
<th>Tuna Needed (Mt)</th>
<th>% Regional Tuna Catch</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>268,000</td>
<td>32,000</td>
<td>~2%</td>
</tr>
<tr>
<td>2035</td>
<td>345,000</td>
<td>87,500</td>
<td>~6%</td>
</tr>
</tbody>
</table>

Source: Bell et al. (2015)
Effects of climate change on tuna?
Effects of climate change on tuna?

Skipjack tuna

Yellowfin tuna

Source: Patrick Lehodey & Inna Senina
Supporting policies

- Include nearshore FADs as part of the national infrastructure for food security
- Transfer some access rights and revenues from industrial tuna fisheries to small-scale fisheries
- Evaluate whether industrial fishing exclusion zones provide adequate access to tuna for small-scale fishers
- Couple fishing licences to small boat operator certificates
- Develop forecasting tools for small-scale fishers
- Store spare FAD materials in cyclone-proof containers
Thank you