



Sandfish (*Holothuria scabra*) fisheries in the Pacific, present status, management overview and outlook for rehabilitation



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Outline

- Background on sandfish
- Sandfish fishery in the Pacific
- Regional production status of sea cucumber
- Fishery trends and moratorium
- Regional comparative resources assessments & Results
- Country specific results
- Current management measures used
- Aquaculture and wild stock management
- Advises on aquaculture and ranching/restocking
- Management actions – SPC and countries



Sandfish-*Holothuria scabra*

- Shallow water (sea grass and near mangrove habitat)
- Biology is relatively well known
- High value species in high demand
- Subsistence and domestic commercial use in some areas
- Subject to community management via CMT systems
- Subsistence fishery normally exempted from regulations
- Stocks and production is declining across its range
- Fishery is facing huge management challenge
- Species is under particular attention for aquaculture development



Sandfish fishery

COMMERCIAL

SUBSISTENCE

**DOMESTIC
COMMERCIAL**



\$

EXPORT



\$



\$



\$

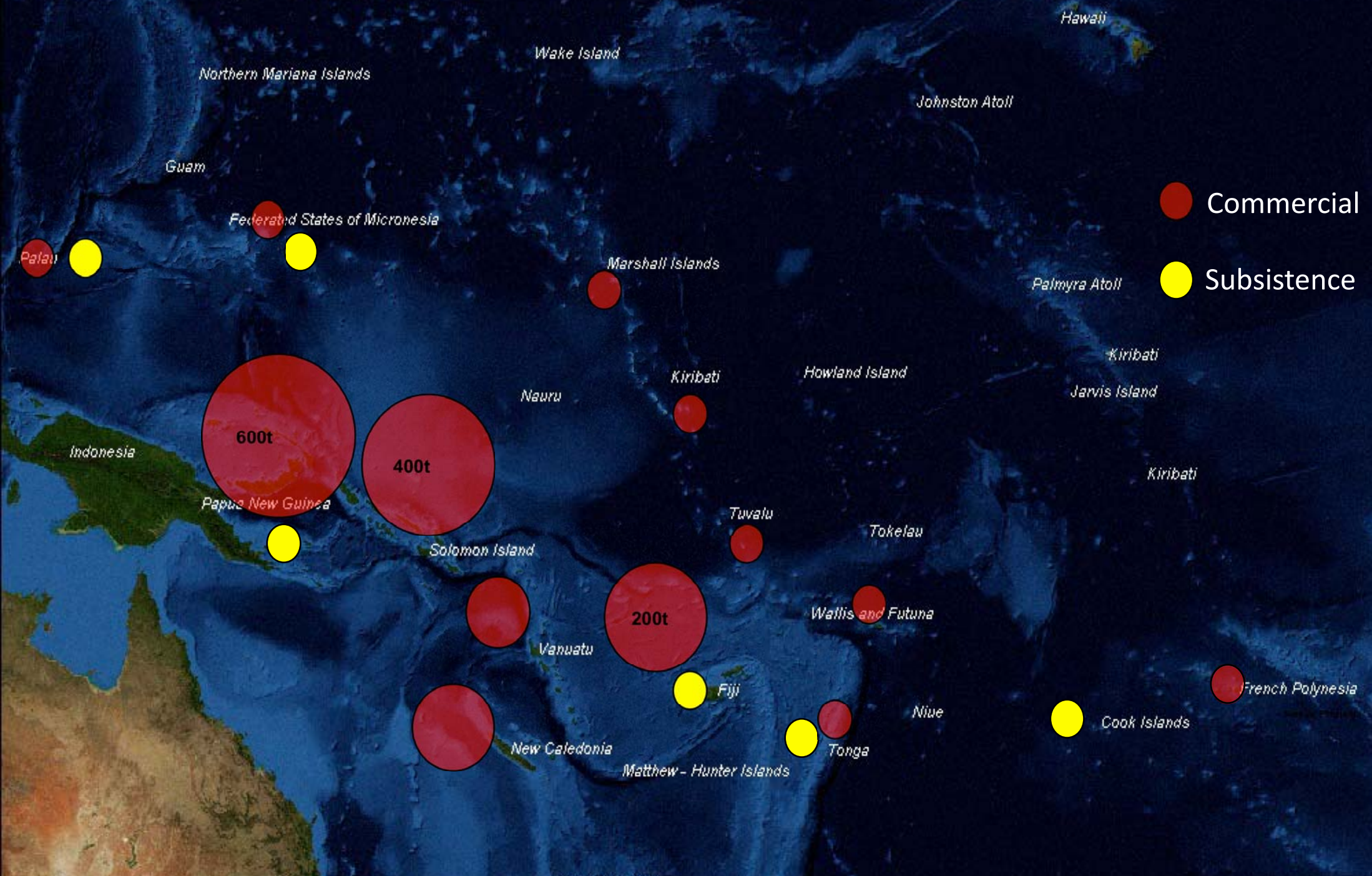


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Some export for home consumption

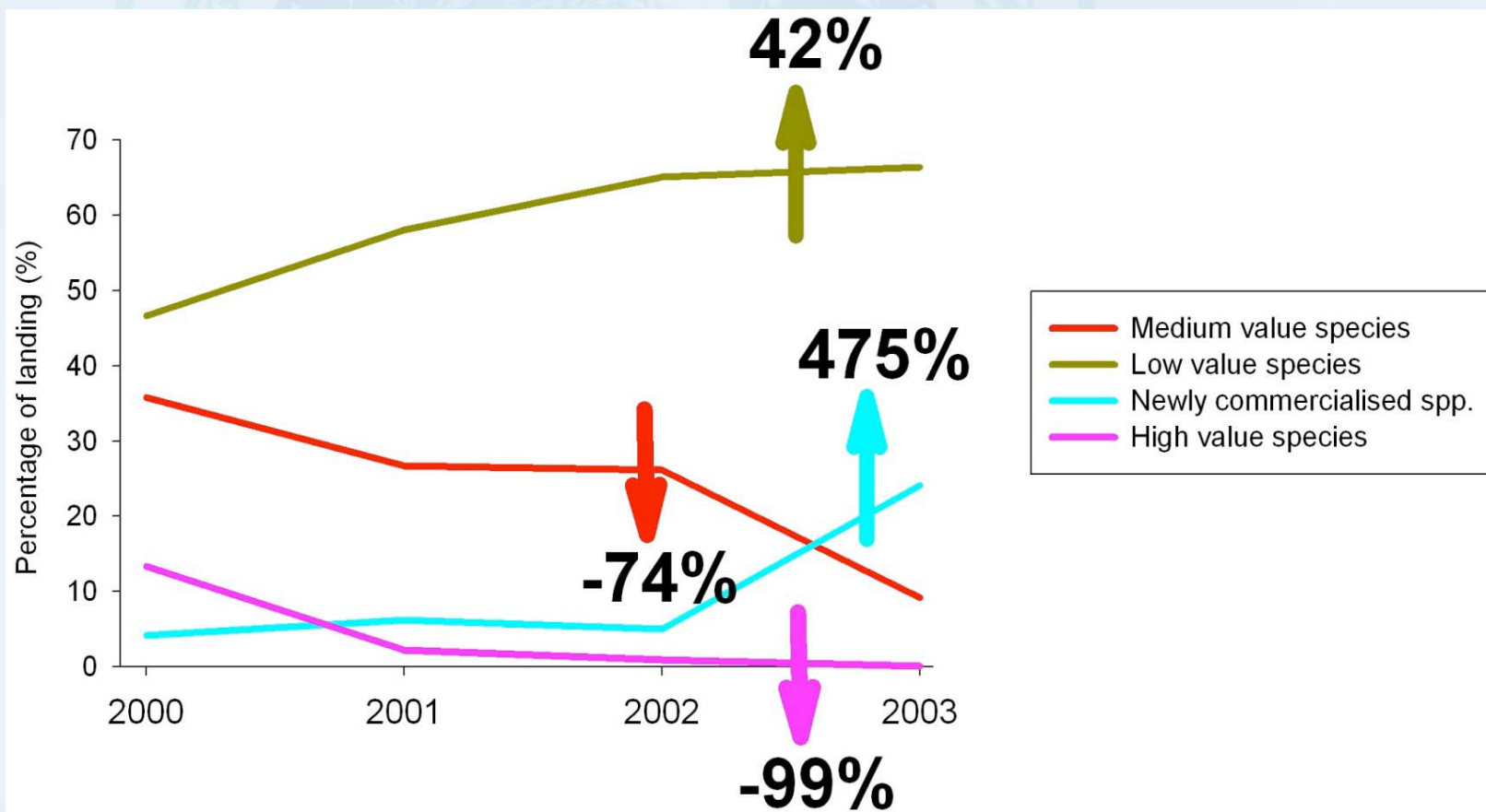
Production - Pacific Islands



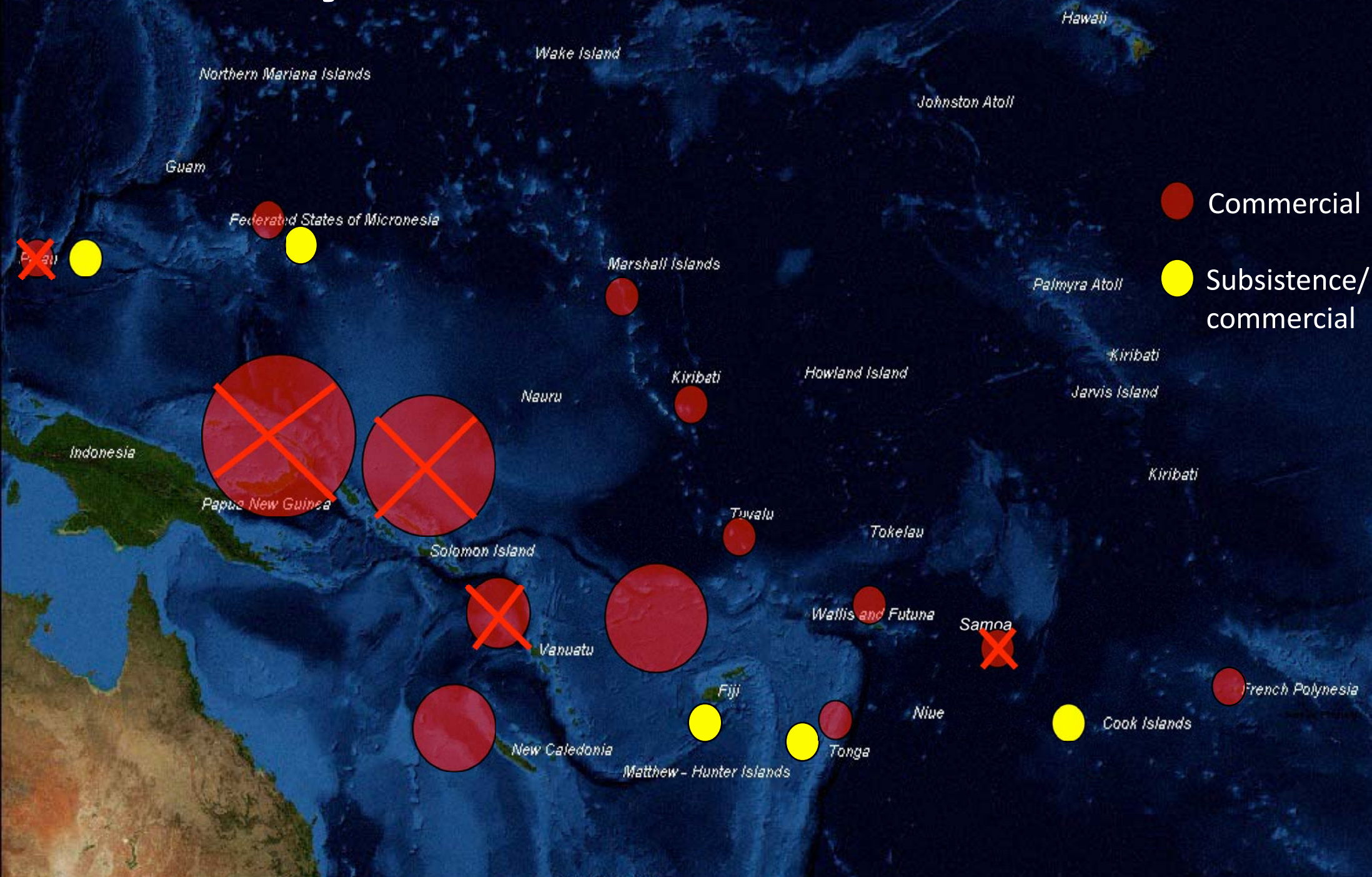


Fishery trend

Landings values change by species



Fishery moratorium - Pacific Islands

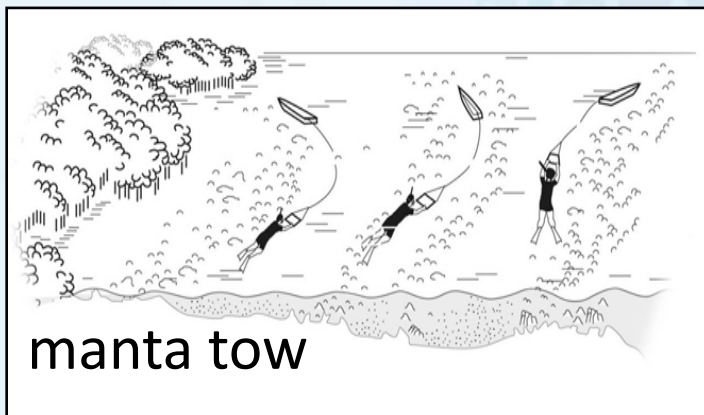


Regional comparative assessments

17 countries from 2002 - 2009 (PROCFish/COFish)

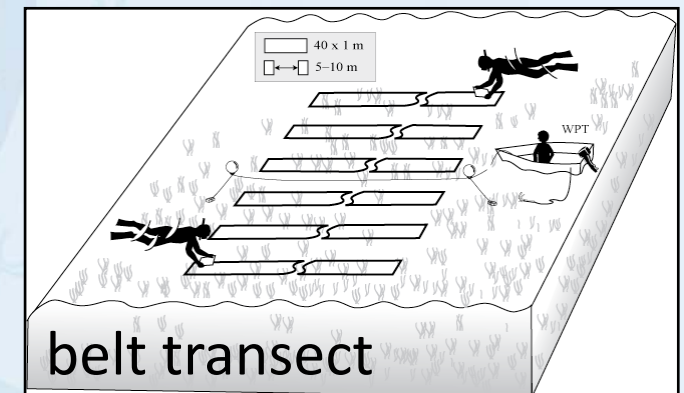
Rapid Assessment methodologies - adopted for invertebrate resources

Quick, low tech, but provide robust determination of status (no population estimate)



manta tow

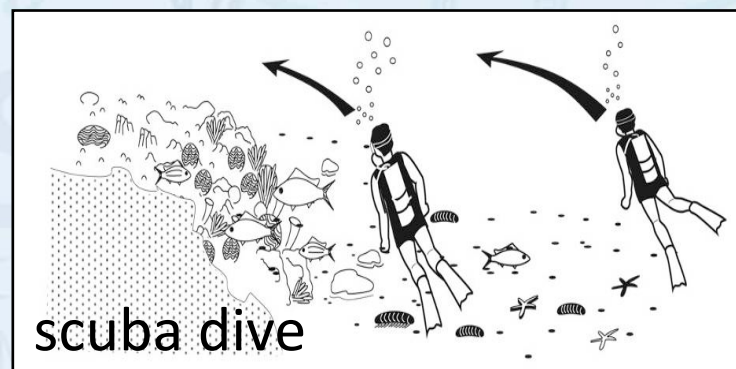
Shallow water sea
grass beds with
good visibility



belt transect

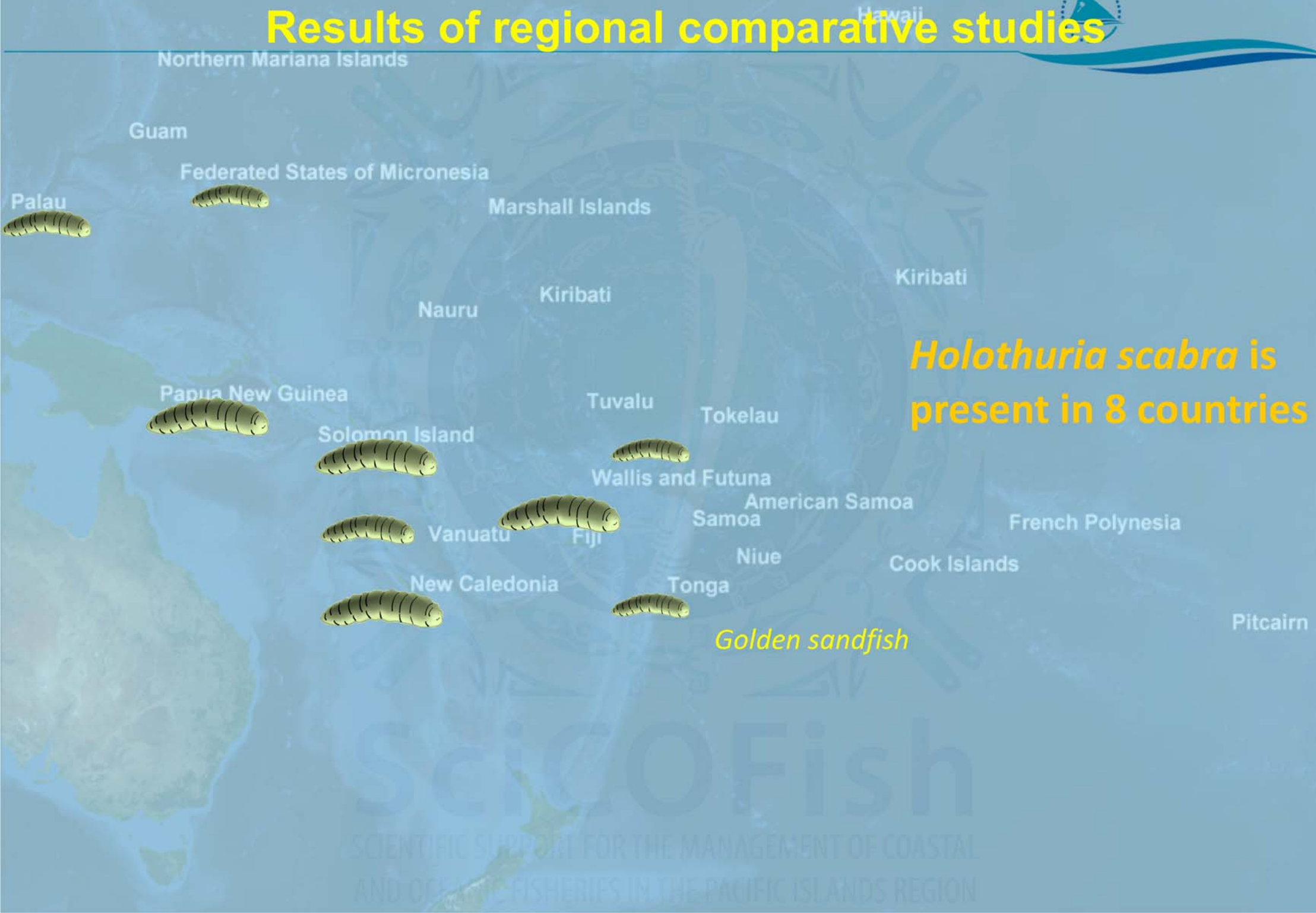
Shallow water soft bottom
sea grass beds near
mangroves

Lagoon with soft
bottom and
good visibility



scuba dive

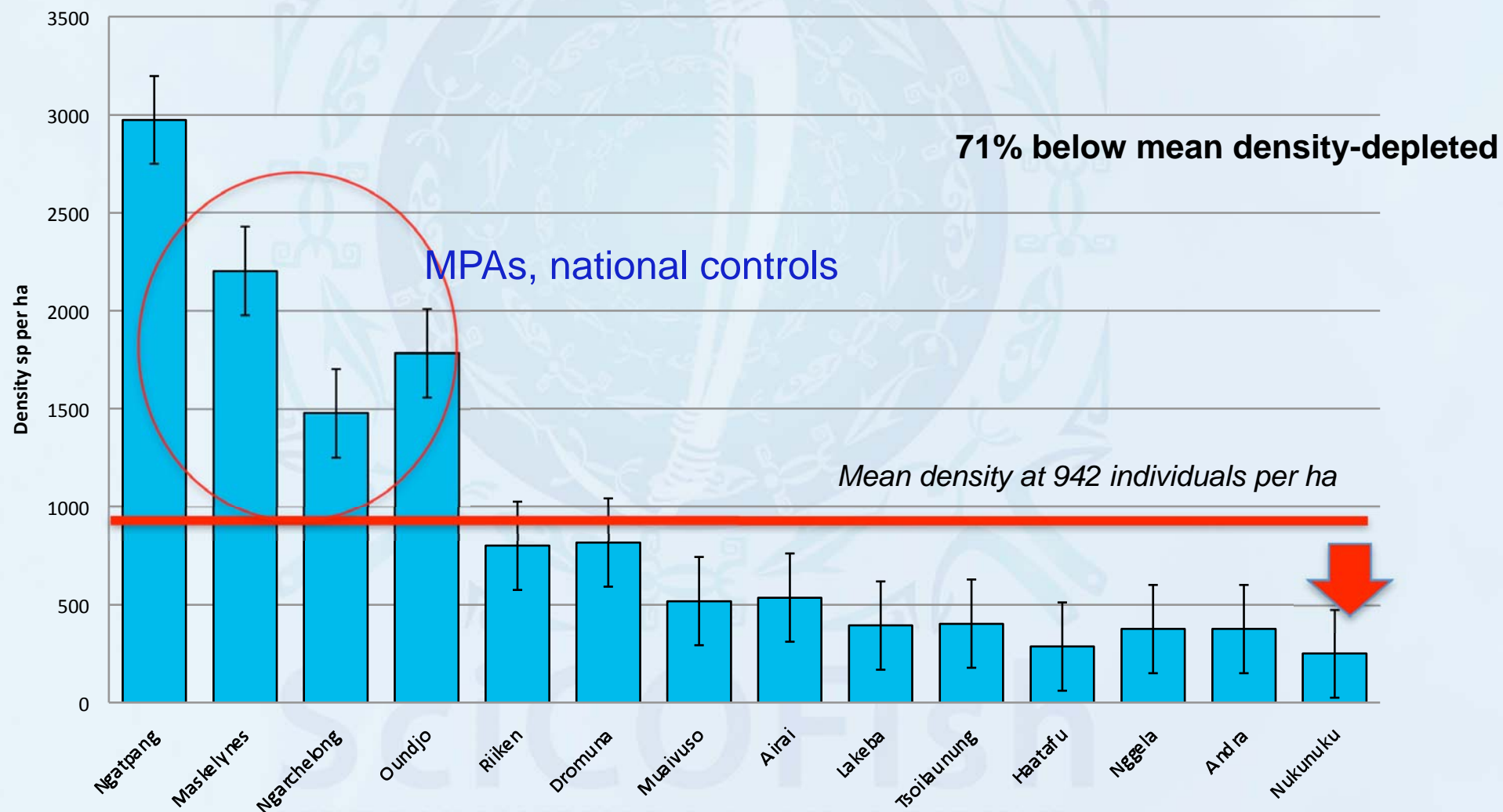
Results of regional comparative studies





Stock densities

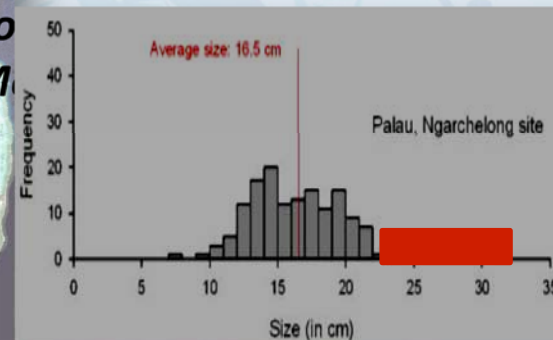
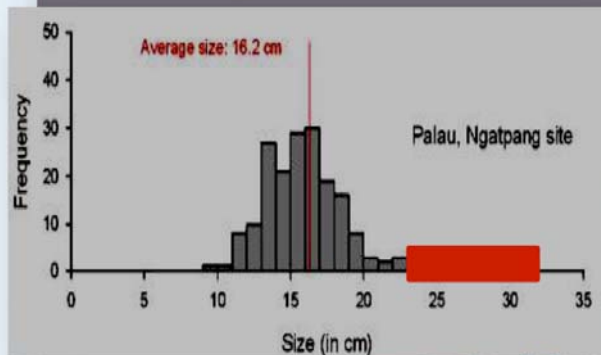
14 best habitat sites



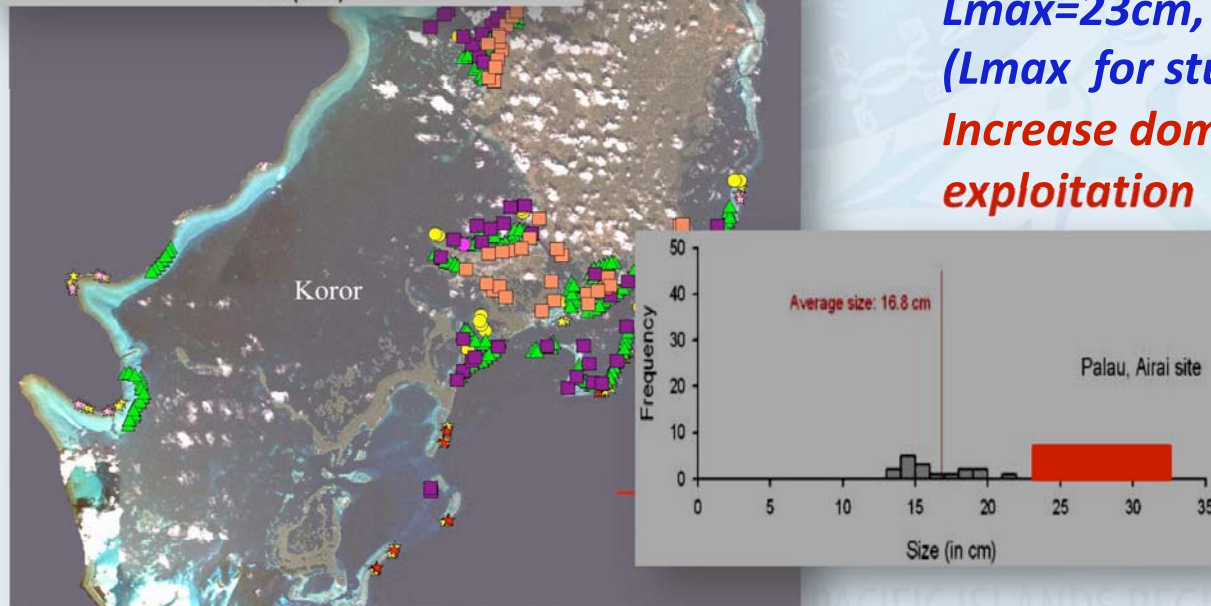


Palau

- *Sea cucumber is a local delicacy, 8 species – sandfish most important for meat & intestine*
- *Domestic commercial sale is very active involving expo*
- *12 years moratorium -6 species including *H. scabra* (M)*
- *Community based management active*



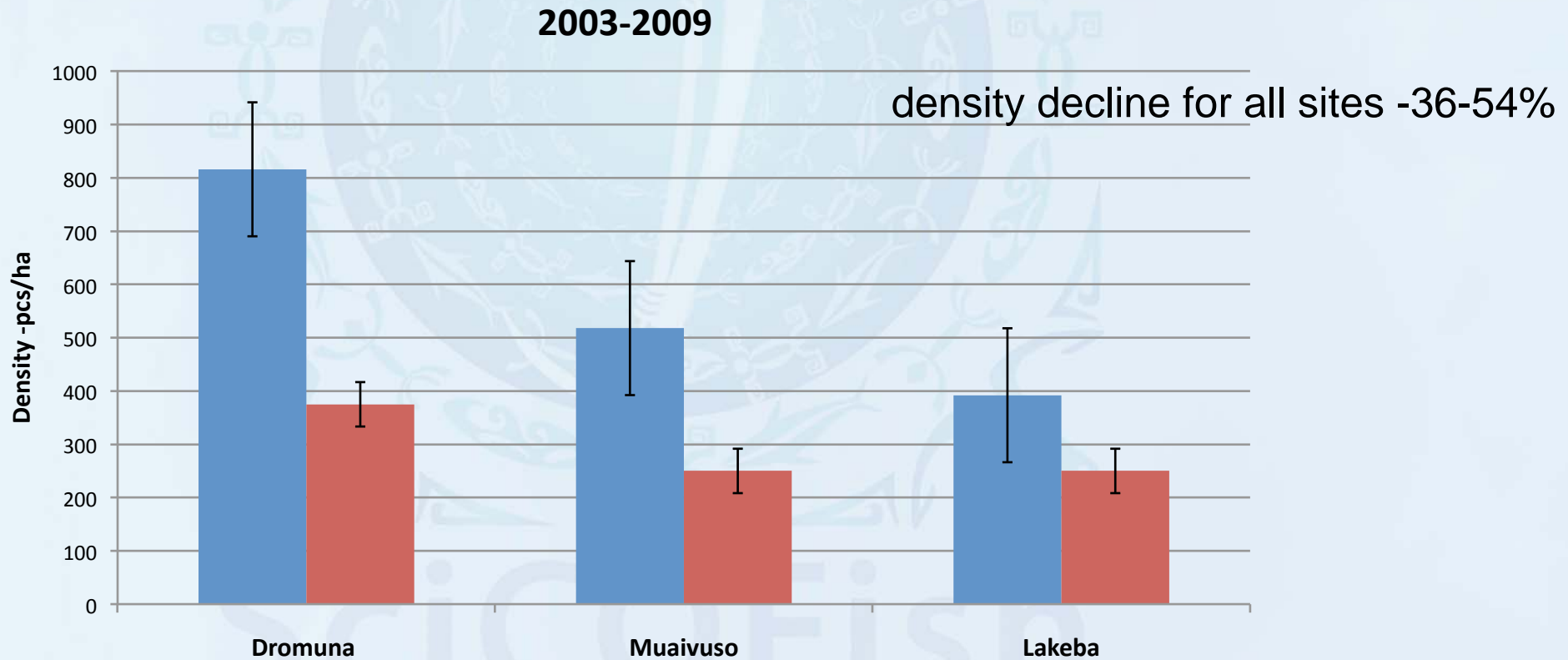
- *Low density at Airai State*
 - *Young population -mean size 16cm-
Lmax=23cm,
(Lmax for study = 32cm)*
- Increase domestic commercial exploitation*





Fiji

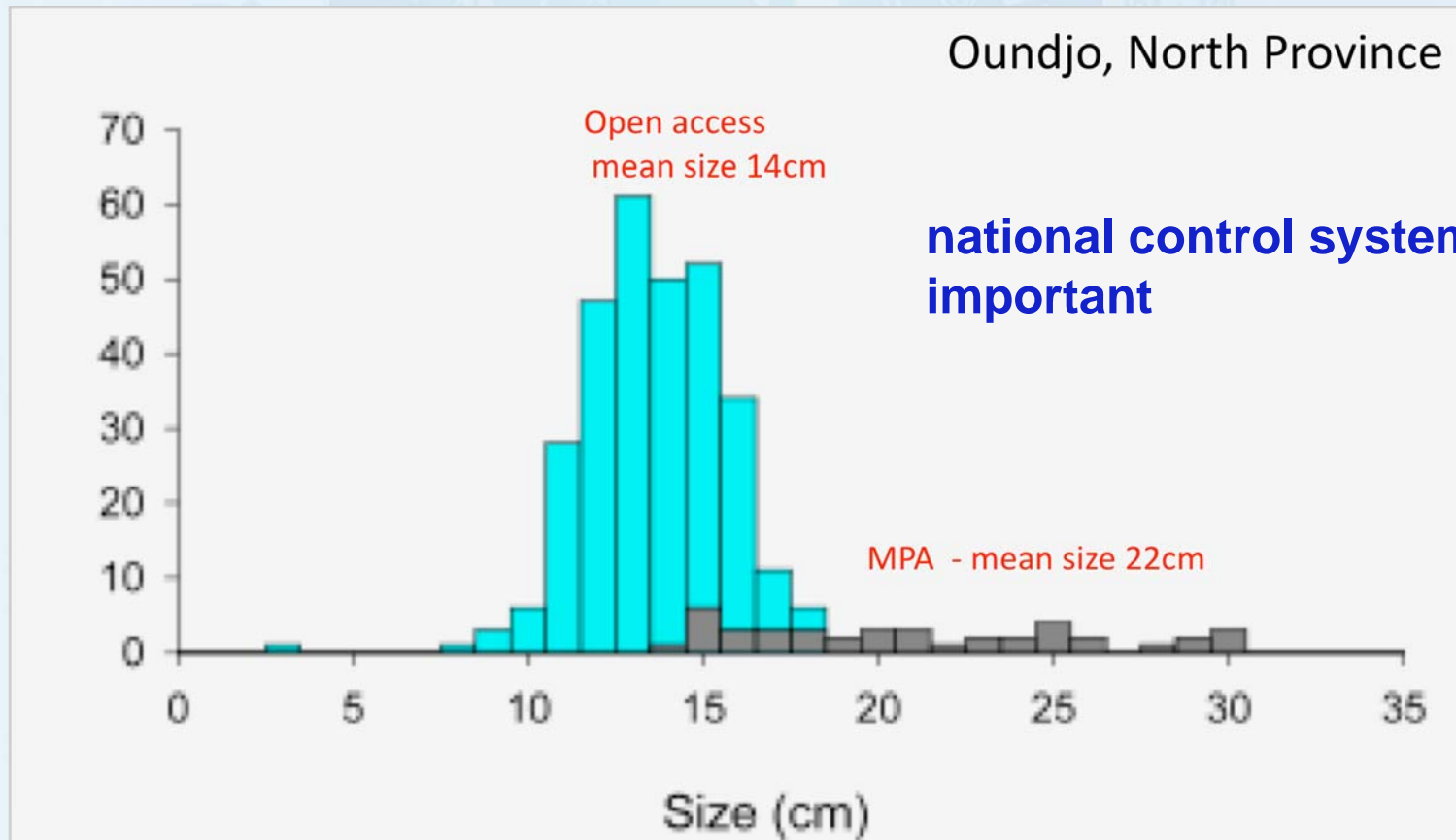
Sandfish (Dairo) is a local delicacy, active subsistence & domestic commercial sale, Ban on commercial export of sandfish 1988, sites were assessed twice, 2 sites had MPA





New Caledonia

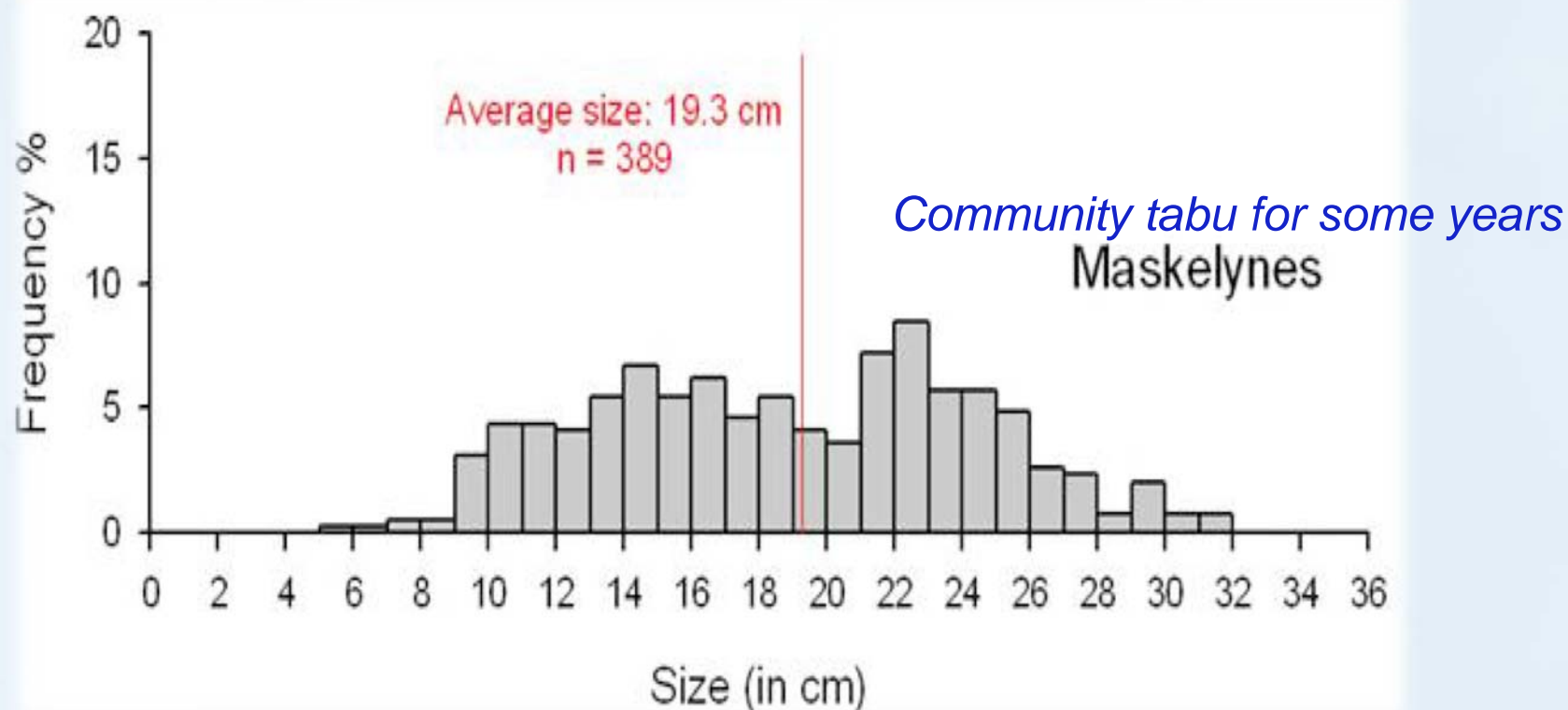
- Fishery is tightly controlled by the National Government, province and community
- No subsistence & domestic sale,
- Sandfish is the 3rd most exported species





Vanuatu

No subsistence or local commercial activity, active community protection, No national fishery management plan



Population structure changed by fishing soon after this study





Tonga

- Golden sandfish – *H. scabra* var. *versicolor* now *H. lessoni*
- Local delicacy (Nga-ito)
- Fishing was active in 1990s,
- Moratorium on commercial export since 1997
- Subsistence and domestic commercial sale is exempted from the moratorium

Resource assessments by SPC since 2002, 2004, 2006, 2010 recorded very few specimens in Tongatapu, Vava'u and Ha'apai.

Status of stock is uncertain, with continuing local harvest, the species is in danger and may not recover unless drastic action is taken





Summary - Management systems in the PIC

- Moratorium is being increasingly used to manage the fishery, effective tool to allow stock to recover, management after moratorium remains an issue.
- Many countries do not have strong sea cucumber fishery management plans and regulatory framework
- Domestic commercial sale putting more pressure on resource, yet is being classed with subsistence fishery which enjoy unlimited exemption.
- Customary management by communities is working but needs the support of national control systems to be effective
- Lack of basic knowledge about the fisheries and lack of skilled fisheries officers in sea cucumber fishery is an ongoing issue
- Enforcement remains a problem in many island countries
- **Aquaculture is an exciting new field in the islands**



Aquaculture vs wild stock management

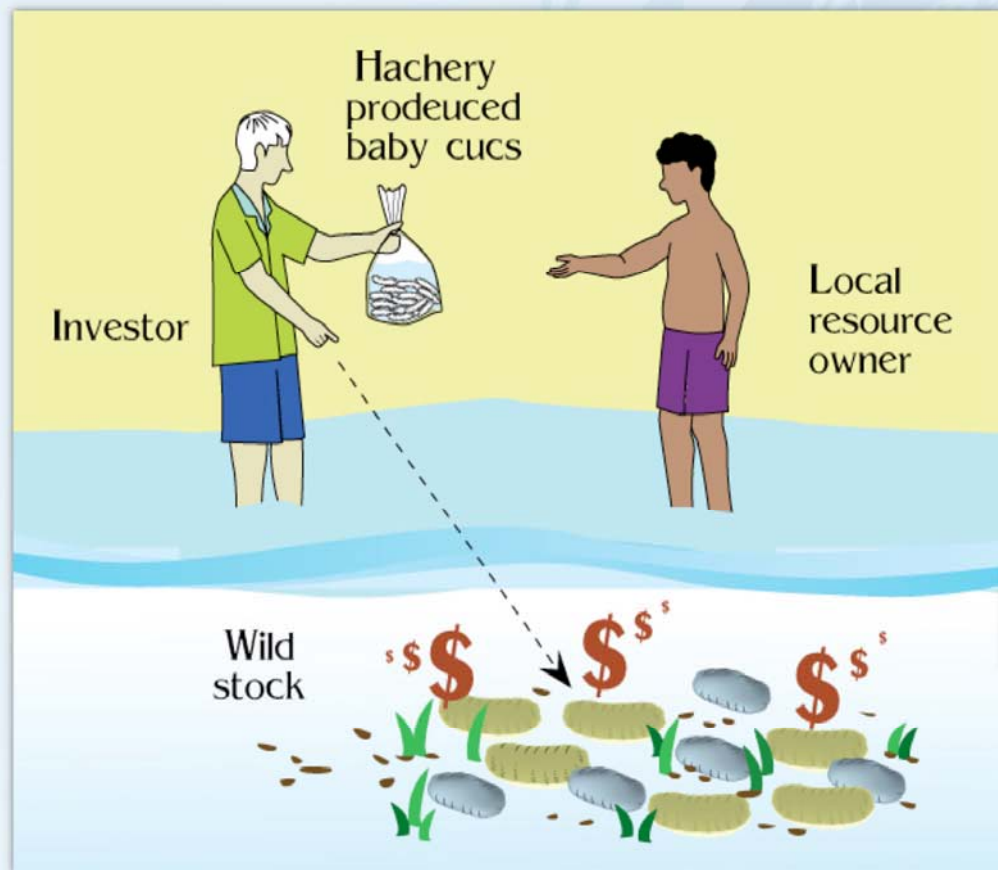
While the technologies of aquaculture and restocking or ranching are being perfected, some traders are promoting the idea for a different purpose:

as a tool to access the wild stocks which is contributing to worsen the trend of resource depletion in the PI region

Pacific Experiences

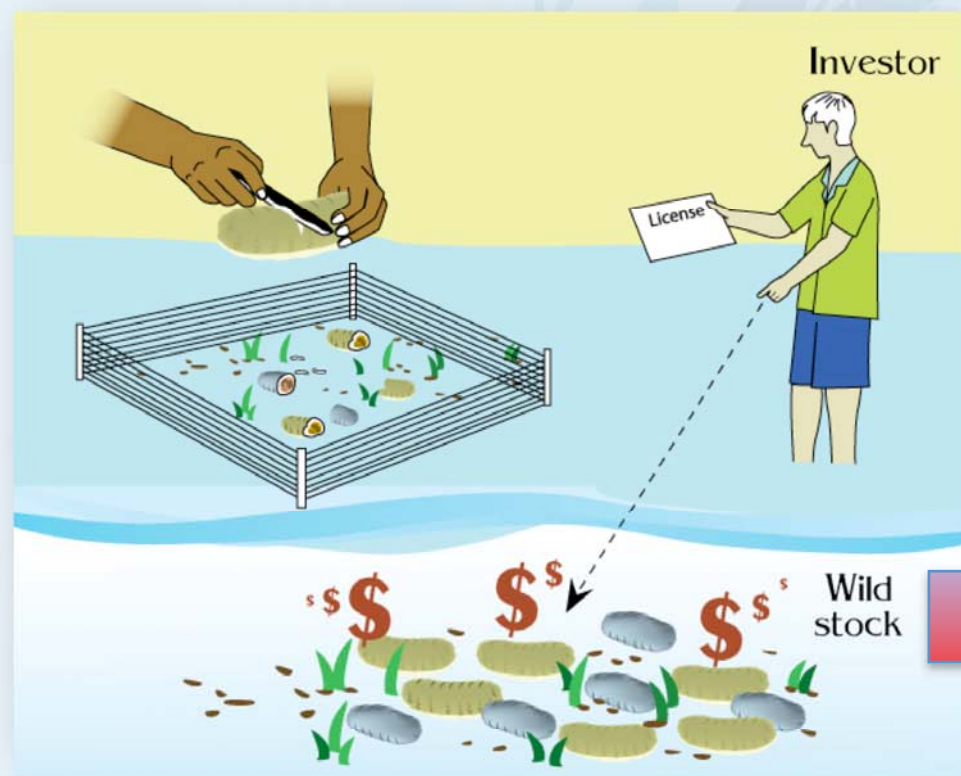
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Restocking using imported juveniles





Ranching by splitting of adult cucumbers





Hatchery development by traders

Fishery open after moratoria

Fishery moratoria re-enforced





Broodstock aggregation to promote spawning



Is it aggregation for breeding purpose or stockpiling for the next season?



Advices –SPC/WorldFish

on the aquaculture of sea cucumber in the PIC

1. Under no circumstances should investors in a hatchery and ranching be permitted to engage in fishing of the wild stock.
2. Sea ranching projects must be governed by robust partnership arrangement with resource owners
3. Investors must employ qualified hatchery staff to conduct the breeding and ranching activities
4. Hatchery-reared animals must be released into a defined areas and harvesting operations must NOT involve collection from areas outside the define areas.
5. Harvest size of ranched animals should be above the first maturity size to allow recruitment before harvest



Advices SPC/WorldFish cont..... **on the aquaculture of sea cucumber in the PIC**

- 6 Ranched sea cucumber should be clearly distinguished from wild ones
- 7 Broodstock should be sourced from local stocks
- 8 Importation of broodstock and juvenile should NOT be permitted
- 9 Investors for SC hatchery should bear the cost of proving the social and commercial viability of their operations
- 10 Investors should provide evidence of their capital commitment to do the research.
- 11 Cutting up of animals and ranching is NOT a recommended aquaculture technology and should never be promoted by all means.
- 12 Stockpiling of resources for the next harvest season should not be permitted



Actions and Support

SPC is working with countries & partners to address some of these issues

- Assist countries develop national Sea Cucumber fishery management plans and regulatory frameworks
- Capacity building- Basic skills in resource assessment, data analysis and generate correct advices to decision makers
- Education and awareness - General limited knowledge about the fishery
- Fishery threshold - no accepted threshold for Sandfish fishery
- Unlimited exemption on subsistence collection
- Regulate - domestic commercial sale activities
- Localization -export industry is still dominated by foreigners, is there any possibility for localization?
- Product quality - as part of policy/regulations
- Develop regulations to control aquaculture and ranching activities



Thank you

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