Improvements in bêche-de-mer fishery through sustainable harvesting in Fiji Islands: An overview

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Bêche-de-mer

Presentation Overview

* Introduction
* Study site
* Study design
* Current status of Fiji sea cucumber fishery
* Resolving current problems
* Future problems
* List of IUCN sea cucumber redlist species
* Conclusion

Introduction/Background

* Sea cucumbers have been a major source of income for Fijian communities.
* Processing methods used by the people is 2 centuries old
* Fiji's management act on sea cucumbers is old and has not been amended since 1980's
* A number of research has been conducted for improving the income, quality and sea cucumber management in the Pacific Islands (Carleton, 2013; Friedman, 2010)
* Main aim of this research is to report on the improvements of bêche-de-mer fishery in Fiji through proper management and sustainable harvesting

Location of Fiji Islands

Source: http://ngm.nationalgeographic.com/ngm/0411/feature3/images/mp_full.3.jpg

Study Design

* Data collected through online databases and through personal observations
* A number of people in the BDM trade were interviewed (fishers, exporters and Marine agents)

Current Status

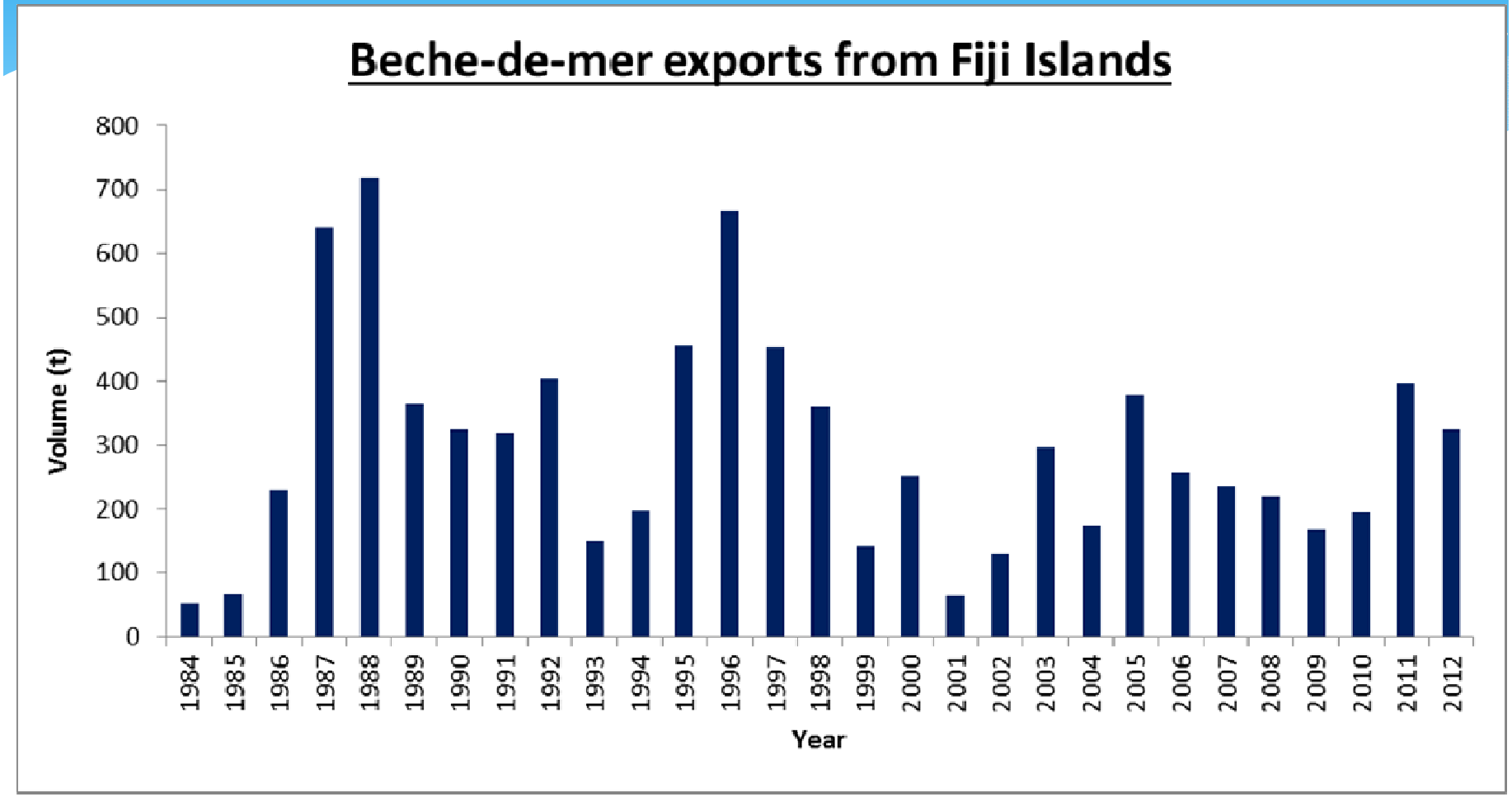
* Fijis exports 27 commercial species from Genera:
  * Holothuria sp
  * Actinopyga sp
  * Stichopus sp
  * Thelenota sp
  * Bohadschia sp
  * Pearsonothuria sp

The main target species

* Target species
  * *Holothuria scabra* (Sandfish) (US$ 16-45/kg dry/ Fiji $US 90/kg) VH
  * *Holothuria fuscogilva* (White teatfish) ($US 45-85/kg dry) VH
  * *Holothuria lessoni* (Golden Sandfish) (US$ 16-45/kg dry/ Fiji $US 60/kg) H
  * *Holothuria whitmaei* (Black teatfish) ($US 25-65/kg dry) H
  * *Thelenota ananas* (Prickly redfish) ($US 25-65/kg dry) H
  * *Stichopus chloronotos* (Greenfish) ($US 25-65/kg dry) H
  * *Actinopyga echnites* (Deep water redfish) ($US 25-65/kg dry) H
  * *Actinopyga mauritiana* (Surf redfish) ($US 25-40/ kg dry) H

  * VH – very high value H – High value M- medium value (10 species) L-Low value (4 species)

Fiji's export status



Source: Ministry of Fisheries and Forests: Fiji

Current Status

* Holothuria scabra (Sandfish) is the only banned species since 1988 due to overexploitation
  * For local consumption a decline in catch from 34t in 1986 – 1991 to 14t in 2003 – 2005.
  * Unreported data on export status has not been documented.

Current Status

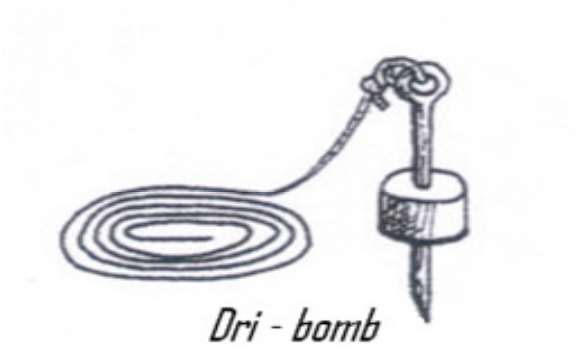
* No management plan for future
* No seasonal closure since the BDM fishery began in 1800's (recent studies indicated Fiji needs a season closure period)

Current status

* Lack of enforcement and regulations in harvesting sea cucumbers from the deep
  * Lack of community based education and awareness
  * Use of SCUBA (9 in 2010 to 25 in 2013) (> 30m)
  * Number of companies rose from 7 in 2003 to 11 in 2013 (Fiji fisheries report, 2013)

Resolving current problems

1. Complete ban on SCUBA (≥108 deaths reported)
2. Seasonal closure
3. Harvesting quotas allocated to the fishers and exporters
4. Eliminating the use of sea cucumber "bomb"



Resolving current problems

5. Adding value to the medium-low value species since there is a shift of exploitation from high value species to low valued species (since 2003 – 2012 a decline in high value species volume was recorded from 14 – 8% and medium rose from 50 – 59%.
6. Decreasing the issue of bêche-de-mer export license
7. Use of marine protected areas to start sea ranching program
8. Study needs to be done on the reproductive biology of all commercial sea cucumber species (information will help understand the actual length and weight to be harvested) current 76mm size is applied to all the species.

Future problems

* Global warming and global sea temperature rise will affect sea cucumber reproduction
* Emergence of holothurian diseases that will affect broodstock and juvenile sea cucumbers
* Overfishing (8 species in IUCN redlist)
* Ecosystem balance will be altered

List of IUCN species

	Scientific name	English common name	IUCN status	Population trend
Endangered, or at a high risk of extinction				
1	*Apostichopus japonicus*	Japanese spiky sea cucumber	Endangered A2bd ver 3.1	Decreasing
2	*Holothuria lessoni*	Golden sandfish	Endangered A2bd ver 3.1	Decreasing
3	*Holothuria nobilis*	Black teatfish [Indian Ocean]	Endangered A2bd ver 3.1	Decreasing
4	*Holothuria scabra*	Sandfish	Endangered A2bd ver 3.1	Decreasing
5	*Holothuria whitmaei*	Black teatfish [Pacific, SE Asia]	Endangered A2bd ver 3.1	Decreasing
6	*Isostichopus fuscus*	Brown sea cucumber	Endangered A2bd ver 3.1	Decreasing
7	*Thelenota ananas*	Prickly redfish	Endangered A2bd ver 3.1	Decreasing
Vulnerable, or at risk of extinction				
1	*Actinopyga echinites*	Deepwater redfish	Vulnerable A2bd ver 3.1	Decreasing
2	*Actinopyga mauritiana*	Surf redfish	Vulnerable A2bd ver 3.1	Decreasing
3	*Actinopyga miliaris*	Hairy blackfish	Vulnerable A2bd ver 3.1	Decreasing
4	*Apostichopus parvimensis*	Warty sea cucumber	Vulnerable A2bd ver 3.1	Stable
5	*Bohadschia maculisparsa*		Vulnerable D2 ver 3.1	Unknown
6	*Holothuria arenacava*		Vulnerable D2 ver 3.1	Unknown
7	*Holothuria fuscogilva*	White teatfish	Vulnerable A2bd ver 3.1	Decreasing
8	*Holothuria platei*		Vulnerable D2 ver 3.1	Unknown
9	*Stichopus herrmanni*	Curryfish	Vulnerable A2bd ver 3.1	Decreasing

Adapted from Conand et al (2014)

Conclusion

* Proper/revised sea cucumber management plan needs to established in Fiji since the ACT is old
* The harvests in Fiji is slowly shifting from high value species to medium to low value species.

References

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Thank You

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