Shark fishing in the Louisiade Archipelago, Papua New Guinea

Socioeconomic characteristics and policy options

Simon Vieira, Jeff Kinch, Luanah Yaman and William White

Contributed presentation at the 60th AARES Annual Conference,
Canberra, ACT, 2-5 February 2016

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Funded by: the Australian Centre for International Agricultural Research
Collaborators: CSIRO, PNG National Fisheries Authority, James Cook University and doMar Research

Presented by Simon Vieira
doMar Research
Friday 5th February 2016

The policy issue for PNG's small-scale sector

PNG's small-scale shark catches most likely need to be better managed…..

=> vulnerable to overexploitation

=> evidence of increasing catches

…..but the impacts of management may be significant for its small-scale fishers

=> few income and food opportunities

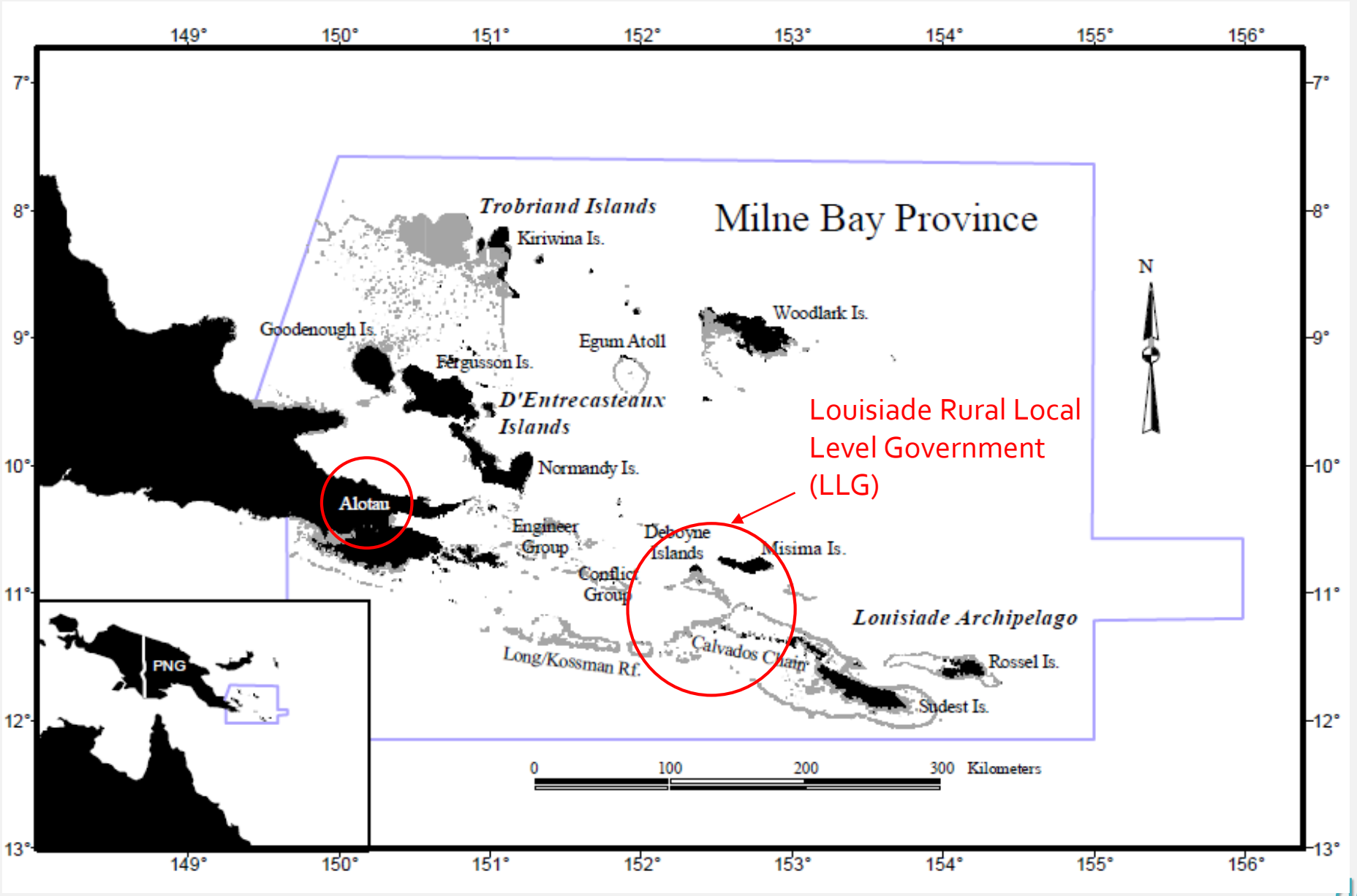
=> shark fin is the perfect commodity

=> sea cucumber fishery closure

Key research questions:

1. How dependent are PNG communities on shark fishing?
2. What management approaches might be appropriate?

Case study: Louisiade Archipelago, Milne Bay



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The research

Fieldwork data collection

- Focus group discussions with fishers
- Interviews with small-scale buyers

doMar Research

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- Interviews with large-scale buyers in Alotau

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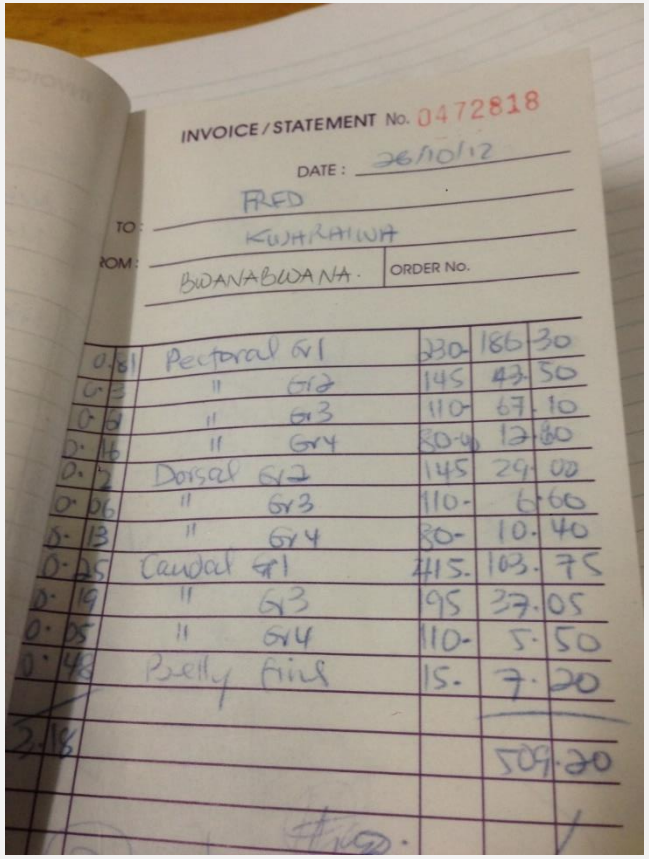


Data analysis

- Collected data: interview data, price lists and receipts
- PNG National Fisheries Authority (NFA) buyer data

Results: socioeconomic context

Communalistic values

Subsistence and trading prevalent

Cash economy is relatively new

Few sources of income

- Shark consistently cited as the most important
- Previously it was sea cucumber
- Others: trochus shell, fresh fish, copra (previously), pearl shell, crayfish

Results: the shark fishery

Family activity

2-4 week trips, camp on islands

Vessels: dinghy or "*sailaus*"

Demersal longlining

Focused on shark fin

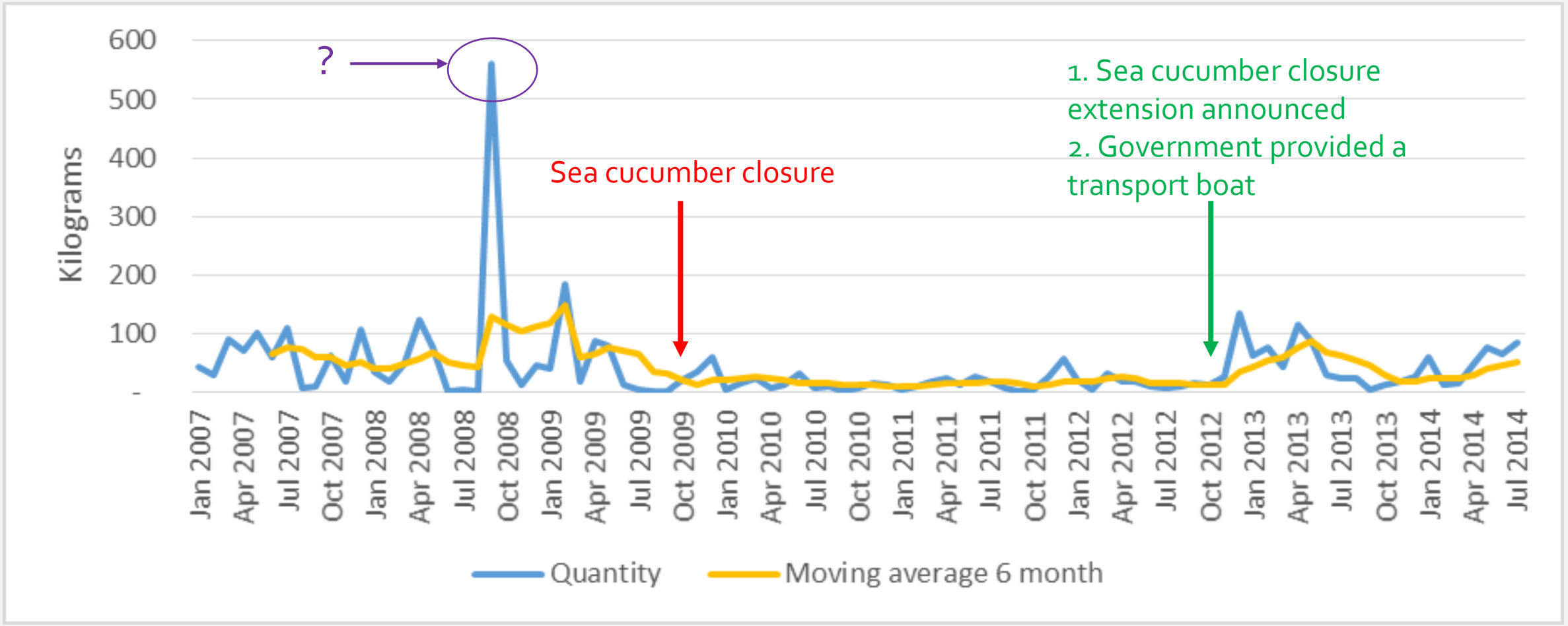
Two buyers in Alotau

Currently unmanaged

"*Shark are harder to catch*"

"*Smaller shark are now caught*"

Results: shark fin production



Kilograms of dried shark fin produced per month

Source: NFA buyer data for purchases from sellers in the Louisiade Rural LLG

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Results: shark fin production

Multiple R	0.939
R Square	0.882
Adjusted R Square	0.845
Standard Error	43.613
Observations	30.000

ANOVA	*df*	*SS*	*MS*	*F*	*Significance F*
Regression	7	313,904	44,843	23.576	0.000
Residual	22	41,846	1,902		
Total	29	355,750			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-260.8	119.388	-2.185	0.040	-508.441	-13.248
Sea cucumber open	68.1	24.804	2.745	0.012	16.655	119.534
Jan Q	63.0	23.726	2.654	0.014	13.763	112.173
Apr Q	99.7	23.797	4.189	0.000	50.325	149.029
Oct Q	49.8	24.614	2.025	0.055	-1.205	100.887
Sept 08 outlier	473.8	48.530	9.763	0.000	373.146	574.435
Fin price	1.8	0.842	2.143	0.043	0.058	3.550
Post-Dec 12	119.2	25.712	4.637	0.000	65.893	172.541

Results: shark fin production

Supply of fin increases with price

Seasonality confirmed

- Increased production at low food times

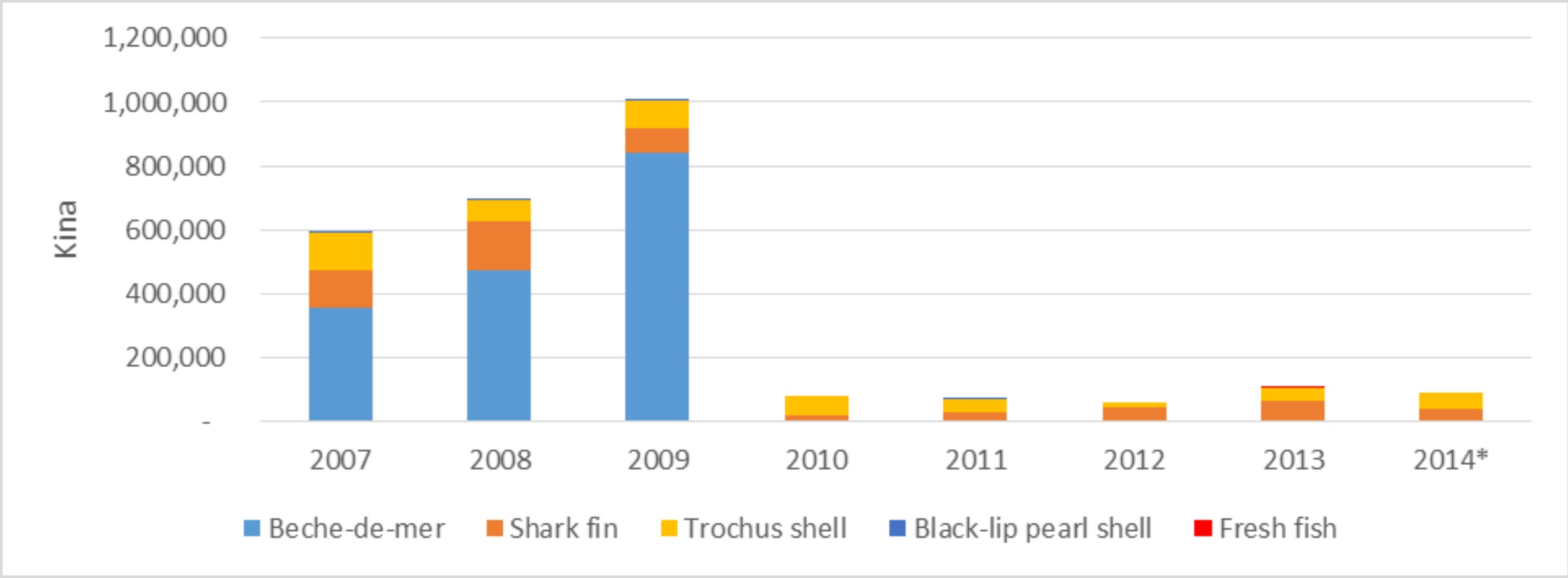
Production was higher when the sea cucumber fishery was open

- Stronger links to buyers?
- More time spent "on the water" harvesting?
- More cash to operate dinghies?

Elevated production post December 2012

- Sea Cucumber closure extension?
- Government provided transport boat?

Results: dependence on shark fin income



Income from key marine resource commodities for Louisiade LLG (real terms, 2014 forecasted)

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Key findings relevant to the policy issue

PNG's shark catches most likely need to be better managed…..

Anecdotal evidence of stock declines

Trends in shark fin production unexpected

Shark fin production is now increasing and could increase further with:

- Price increases
- Further capital investment to increase market access
- Reopening of the sea cucumber fishery

…..but the impacts of management may be significant for its small-scale fishers

Socioeconomic dependence is high

- Shark fin is now the major income source
- An integral part of risk management strategies for consumption

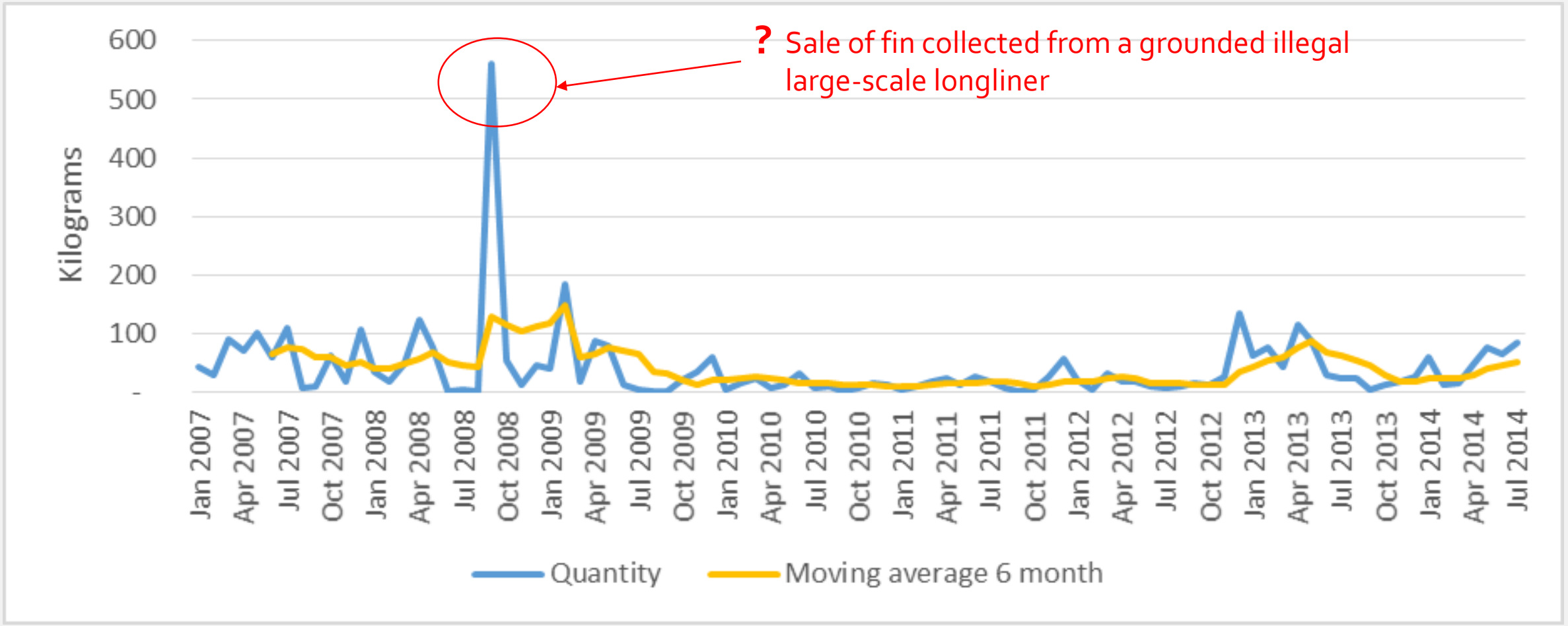
Potential policy recommendations

1. Allocate property rights to individual wards/communities
    - Practical, low cost
    - Discourages race-to-fish incentives (between islands)
    - Complements communal characteristics
    - Uses established monitoring processes
    - Encourages community based fishery management (CBFM)
    - However, shark mobility may reduce resource stewardship incentives

2. Develop alternative livelihood strategies

3. Manage/prevent illegal commercial longlining activity

Potential policy recommendations



Kilograms of dried shark fin produced per month

Source: NFA buyer data

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Thank you (or “ateoa” in Misiman)

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