



Licensed to kill: can we use quota markets to conserve seabirds?

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And others

Overview

- Background
 - Previous work on seabird offsets
- Potential for bycatch quotas
 - Experiences elsewhere
- Who should own and manage the quota?
 - Fishers?
 - Conservation groups?
 - Perverse incentives for ongoing conservation
- Quotas vs taxes for conservation

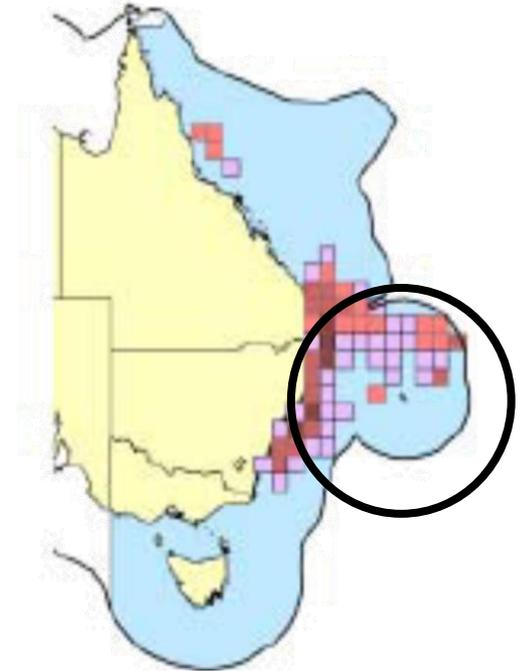
Background



- Bycatch of seabirds common problem in tuna fisheries
- Technical measures in place that reduce the problem but do not eliminate it
- Area closures very expensive to industry
- Potential for compensatory measures (e.g. predator reduction) may be a solution to declining seabird populations
- But how do we pay for these?
- Want a mechanism to:
 - Limit amount of bycatch
 - Provide funds for compensatory measures (offsets)
 - Provide incentives for technological solutions

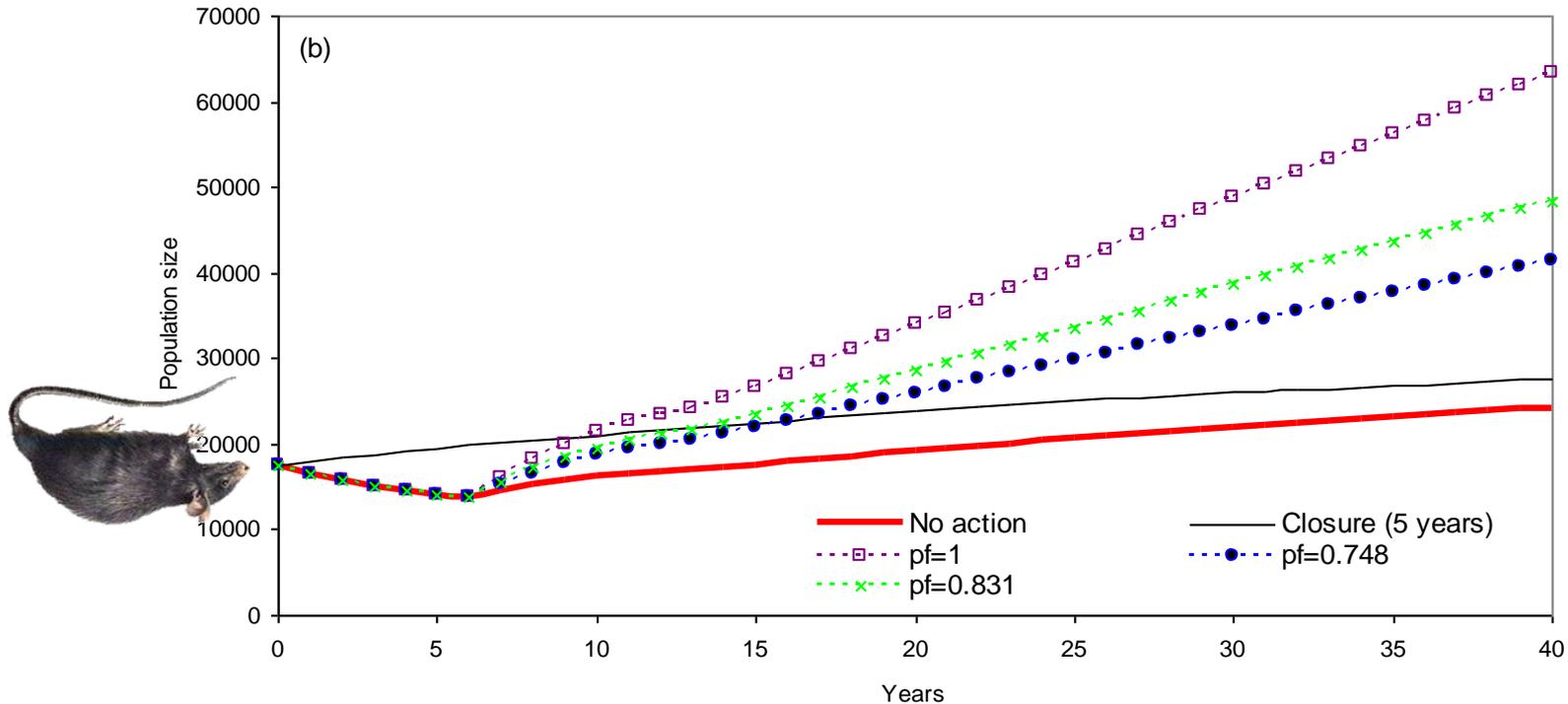
Management targets and options

- Conservation objective of 0.05 birds/1000 hooks set by Environment Department
 - Mid 1990s ago was 0.779 shearwaters per 1000 hooks in waters surrounding Lord Howe Island
- Range of technical measures introduced
 - Underwater chutes
 - Weighted line
 - Ban on daylight trawling
- Helped but hasn't "fixed" the problem
 - Still more than double the target rate
- Area closure proposed
 - Keep boats away from the problem
 - Potential cost to the industry



Changes in population

bycatch reduction technology: 5 years



Pascoe, S., C. Wilcox, and C. J. Donlan. 2011. Biodiversity Offsets: A Cost-Effective Interim Solution to Seabird Bycatch in Fisheries? PLoS ONE 6(10):e25762.

Cost effectiveness

- Cost per additional seabird produced (relative to the do-nothing scenario)

	Closure Low cost	Closure High cost	$p_f=1$	$p_f=0.748$	$p_f=0.831$
5% discount rate					
• no gear improvement	519	1897	57	142	98
• improvements in 5 years	812	2970	24	54	38
• improvements in 10 years	784	2866	25	57	41
10% discount rate					
• no gear improvement	296	1081	57	142	98
• improvements in 5 years	711	2600	24	54	38
• improvements in 10 years	624	2281	25	57	41

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Can bycatch quotas help?

- Have been applied in a wide range of fisheries
 - E.g. Dolphin, turtles
- Normally applied as competitive quotas (TACs)
- Individual transferable quotas applied in many fisheries
 - Some for “scarce” species
 - Various issues
 - Catches highly variable
 - Fishers may be reluctant to sell/lease quota to others (insurance)
 - Quota pooling for risk sharing
- Quotas could be auctioned to provide a means for other compensatory mitigation measures
 - But once sold provide no ongoing funds as all transfer payments are internal to the fishery

What if ...



- **Conservation groups** allocated the quota, lease to fishers
- Funds can be used to undertake compensatory mitigation activities
 - Ongoing funding to maintain measures
 - Potential revenue scheme for other conservation activities

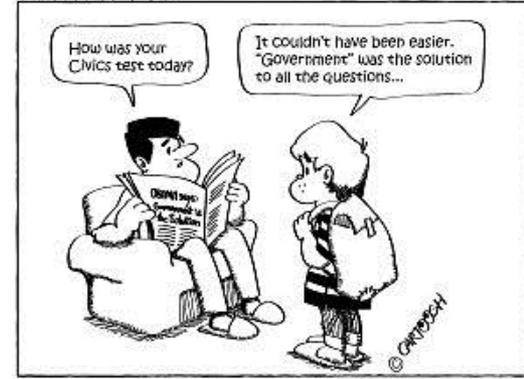
BUT ...

- If offsets successful and seabird stocks recover, then bycatch rates will increase
 - Unless TAK increased then will again become a constraint on the fishing industry
 - Would a conservation group increase a TAK?
 - Conservation groups generally opposed to killing seabirds
 - Once sufficient funds received to undertake offsets, would a conservation group use the market mechanism to try and further reduce bycatch?

What if ...

- **Government** released quota on an annual basis
 - Effectively the bycatch quota could be seen as a tax on bycatch
- Could be used to fund compensatory measures
 - Sub-contract the conservation group

Cartoosh's View



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BUT ...

- Once the offsets completed, pressure from industry to remove (or decrease) the quota fee and/or increase the TAK
- Pressure from conservation groups not to increase the TAK
 - Recent experiences suggest that conservation groups more effective in influencing policy relating to environmental issues than the fishing industry (or science)

What about a straight tax on bycatch?

- Key advantage is that any tax can directly relate to the social cost associated with the seabird mortality
 - Bycatch quota prices more associated with the opportunity cost of forgone tuna
 - More likely to result in a “socially optimal” level of bycatch
- Creates appropriate incentives to seek technical and behavioural solutions to avoid the penalty
 - e.g. better bycatch reduction technologies
- No explicit TAK required



Conclusions

- TAKs have a role in fisheries management as a bycatch management tool
 - But not really appropriate if want to link the regulation to some form of conservation fund
 - Issues also when a “rare” event
- Direct tax/penalty less popular but may have more desirable characteristics
 - Particularly as a means of funding offsets

