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# Full Retention in Tuna Fisheries: Benefits, Costs and Unintended Consequences

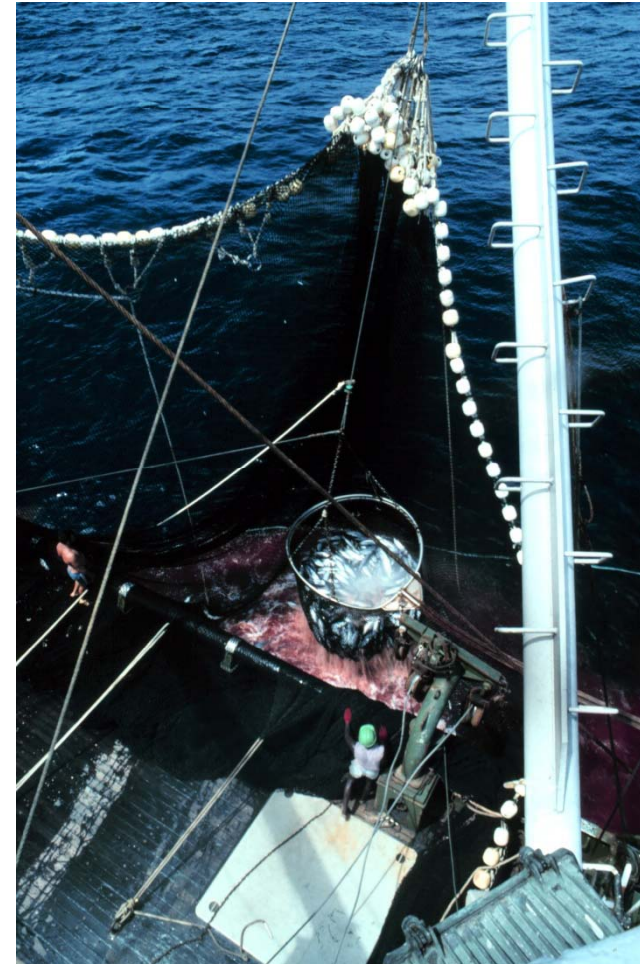
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# Retention Policies in Tuna Fisheries

- IATTC, WCPFC and IOTC have adopted resolutions requiring purse seine vessels to retain all skipjack, bigeye and yellowfin tuna caught
- ISSF and WWF have proposed expanding retention policies
  - ISSF Resolution 11-03 calls for retention of all sharks and other fish landed by purse seine vessels by 2014



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# Benefits of Full Retention

- Better understanding of ecosystem effects of fishing
- Better estimates of total catch and fishing mortality
- Incentive for fishers to develop/adopt more selective fishing methods



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# Objectives

- Consider potential impacts of a full retention policy on tuna purse seine and longline fisheries in the Western and Central Pacific Ocean (WCPO)
  - Estimate discards for the US fleet by gear type using observer data
  - Discuss possible costs and benefits to vessels, processors, and consumers



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# Estimating WCPO Discards from U.S. Tuna Fisheries

- Observer Data from 2006-2010 obtained for the U.S. purse seine and longline fleets (Hawaii Deep Set, Hawaii Shallow Set, American Samoa)
- Estimated total weight of discards of incidental and target species for each fishery in mt
- Discard estimates raised for years where observer coverage <100%
- Calculated discard ratios (mt discard/1000 mt landed catch)
- Estimated quantities of incidental fish catch that would have been unloaded had a retain all policy, retain-all except sharks policy and retain-only marketed species policy been in effect

## Average Discard Rates (mt discard/ 1,000 mt landed) from 2006-2010

Gear	Billfish	Sharks	Other Tunas	Other Fishes	Total Discard Rate
Purse Seine	0.4	0.7	0.1	4.0	5.2
Hawaii Deep Set Longline	4	286	1	74	364
Hawaii Shallow Set Longline	1	312	0	11	324
American Samoa Longline	32	52	0	47	132

# Estimated Target Species Discards (mt)

	Albacore	Bigeye	Skipjack	Yellowfin	Swordfish	Total Landings
Purse Seine (2009)	--	356	7,096	732	--	279,909
Purse Seine (2010)	--	33	1,005	76	--	247,909
Hawaii Deep Set Longline (2006-2010)	5	70	16	17	12	9,137
Hawaii Shallow Set Longline (2006-2010)	7	2	0	0	29	1,610
American Samoa Longline (2006-2010)	99	46	100	60	2	5,216

# Average Estimated Unloadings of Incidental Fish By Gear and Port if a Full Retention Policy had been in Effect

## Purse Seine

Port	US	WCPO
Honiara	84	1,332
Majuro	283	1,527
Pago Pago	341	632
Pohnpei	227	2,036
Rabaul	66	1,010
Tarawa	37	1,044
Wewak	38	564
Other Ports	50	1,955
Total	1,053	10,098

## Longline

Port	US
Honolulu	3,804
Pago Pago	683



## Estimated incidental fish discards, discards excluding sharks and non-marketed fish species

	Purse Seine	Hawaii Deep Set Longline	Hawaii Shallow Set Longline	American Samoa Longline
All Incidental Fish (mt)	1,789	3,349	684	581
All Incidental Fish Excluding Sharks (mt)	1,613	802	21	337
All Incidental Fish Excluding Sharks and Nonmarket Fish (mt)	1,019	135	10	286

# Potential Impacts to Vessels and Processors

- Vessels
  - Impacts on daily operations and vessel profitability depend on scope of policy and gear type
    - Well space and storage of incidental species
    - Crew time and safety
    - Offloading and disposal
- Processors
  - Market



# Potential Impacts to Consumers/ Communities

- Consumers/Communities
  - Source of inexpensive seafood
  - Conflicts with other domestic fisheries
  - Disposal



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# Unintended Consequences?

- If additional fish continue to be of low value, the economic incentive to develop and adopt more selective fishing methods persists
- If markets develop for some of the species, could it encourage more capture of these species



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# Conclusions

- Adopting a broader retention policy in the WCPO would minimize waste and discards by increasing landings of incidental species
- Quantities of incidental fish landings would vary depending on whether the policy would extend to longline vessels and whether retention policies included sharks and non-market species.



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