

Global Scope of Small Cetacean By-Catches



Andrew Read



NICHOLAS SCHOOL OF THE
ENVIRONMENT AND EARTH SCIENCES
DUKE UNIVERSITY
MARINE LABORATORY

By-catch

Again, the kingdom of heaven can be illustrated by a fisherman, he casts a net into the water and gathers in fish of every kind valuable and worthless. When the net is full he drags it up onto the beach and sits down and sorts the eatable ones into crates and throws the others away.

Matthew 13



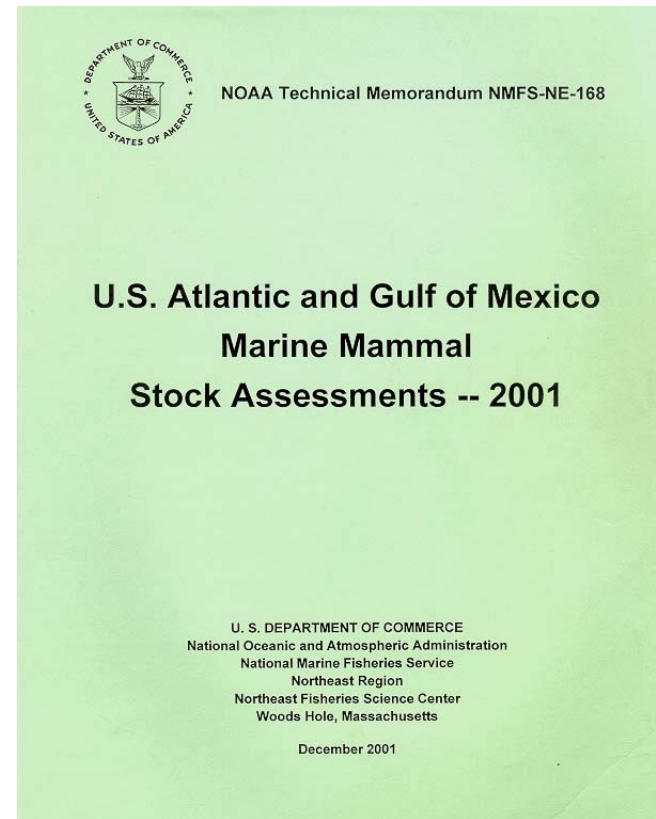
Current knowledge of by-catches in the U.S.

NOAA Stock Assessment Reports

Atlantic & Gulf of Mexico

Pacific

Alaska



http://www.nmfs.noaa.gov/prot_res/PR2/Stock_Assessment_Program/sars.html

Year	Cetaceans	Pinnipeds	Total
1990	5100	2091	7191
1991	3460	3497	6957
1992	2861	5808	8669
1993	2682	3593	6276
1994	3515	3598	7113
1995	2931	3169	6100
1996	3737	2493	6230
1997	2543	2910	5453
1998	1668	2352	4020
1999	1791	2355	4146
Mean	3029 ¹	3187	6215

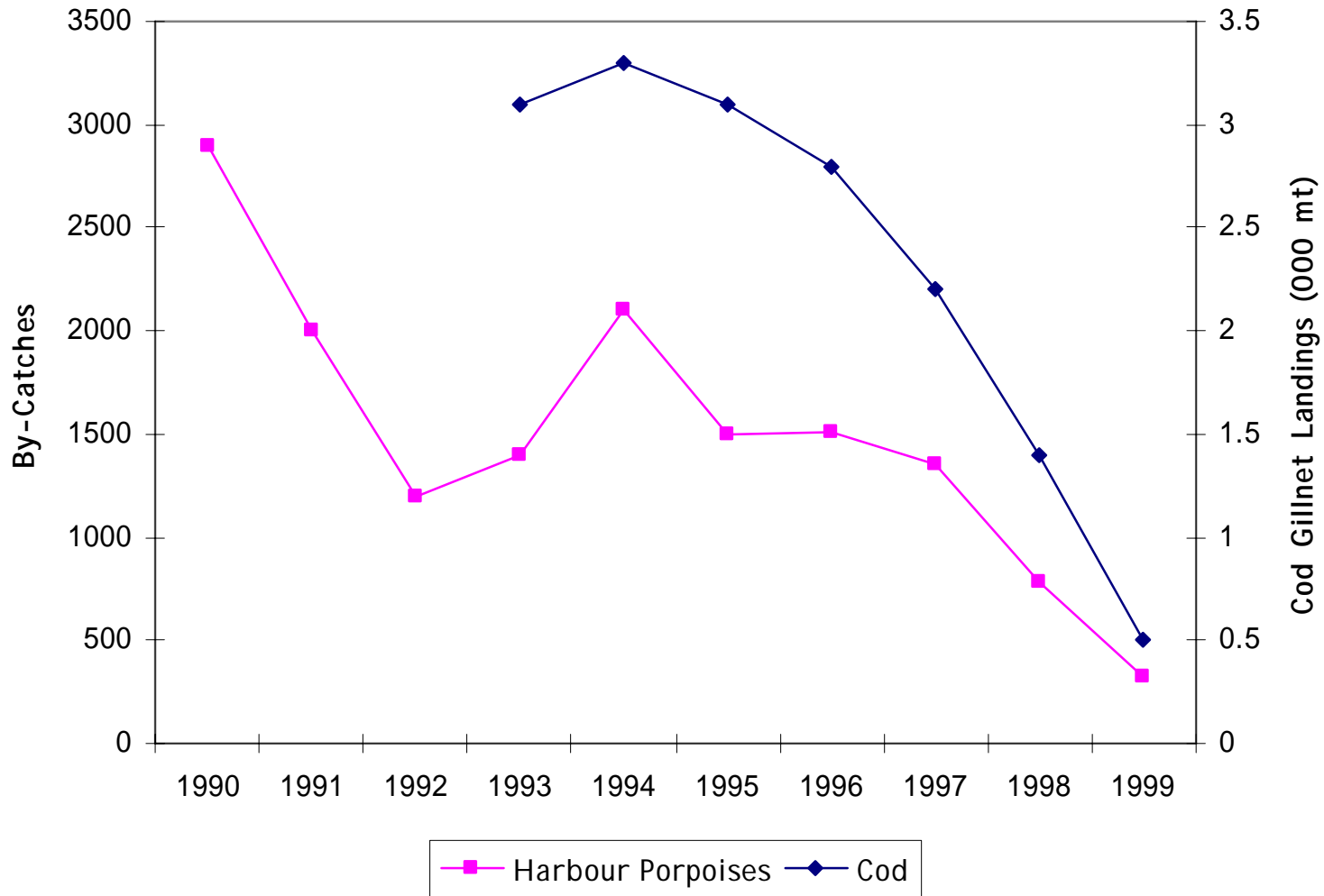
Marine
mammal
by-catches
in U.S.
fisheries

¹ Large whales = 20

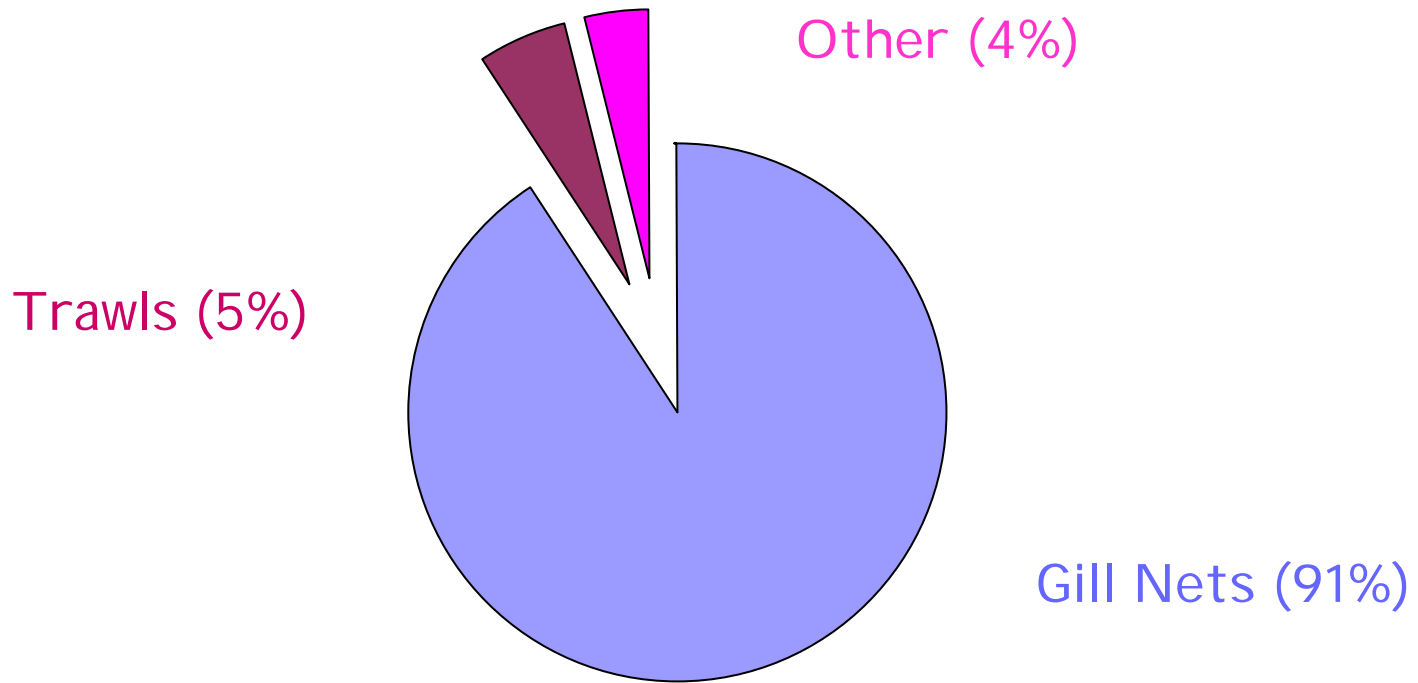
Marine mammal by-catches in U.S. fisheries

	Cetaceans	Pinnipeds	Total
1990 - 1999	3029	3187	6215
1990 - 1994	3524	3718	7241
1995 - 1999	2534	2656	5190
Significance	0.12	0.12	0.01

Harbour porpoise by-catches in New England



U.S. marine mammal by-catches by gear type



Estimating global marine mammal by-catches

(1) Use estimate of by-catches in U.S. fisheries as a sample

(2) Scale to global by-catches using some measure of fishing effort:

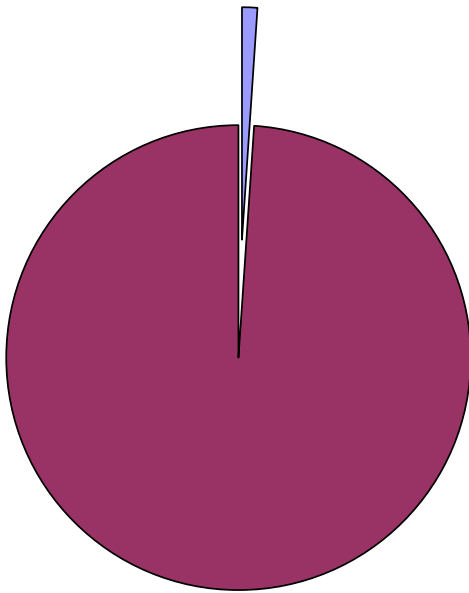
Fisheries landings

or

Number of vessels

Global cetacean by-catches ~ 1990-1994

U.S. gill net vessels



Global gill net vessels

Number of Gill
Net Vessels

Global 215,883

U.S. 2,288

U.S. Proportion 0.011

Global By-Catch 307,753

Some issues:

U.S. estimates are likely to be negatively biased

U.S. fisheries are unlikely to be representative

Scalars are poor measures of effort

Data on global fishing effort are negatively biased

Are these estimates reasonable?

Species	Country	Fishery Type	Years	Number
Dall's porpoises	Japan	Drift Net	1991	3,207
Harbour porpoises	Denmark	Gill Net	1992-4	6,785
Pelagic dolphins	IATTC	Purse Seine	1990	78,927
			1991	96,679
			1992	15,539
			1993	3,601
			1994	3,274

Opportunities for Investment of Resources

Irrawaddy Dolphins (Philippines, Vietnam & Thailand)

Indo-Pacific Humpback & Bottlenose Dolphins (East Africa)

Harbour Porpoises (Black Sea)

Atlantic Humpback Dolphins (Gulf of Guinea)

Spinner & Fraser's Dolphins (Philippines)

Franciscana Dolphins (Brazil, Uruguay & Argentina)

Burmeister's Porpoises (Peru)

Commerson's Dolphins (Argentina)

Vaquita (Gulf of California)



Conclusions

Global by-catches number in several hundreds of thousands

Gill nets appear to pose the greatest problem

Many severe, but undetected, conservation problems are likely to exist

Very little work is being conducted on possible mitigation measures

But, mitigation efforts have reduced by-catches where tried