

Summary of 2008 American Samoa-Based Longline Logbook Catch and Effort within Rose Atoll Marine National Monument¹

M. Kimberly Lowe and Craig Graham
Fisheries Monitoring and Socioeconomics Division (FMSD)
Pacific Islands Fisheries Science Center, NMFS

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Requesting Agency/Entity: Paul Dalzell, Western Pacific Regional Fishery Management Council

Purpose: The original request from Paul Dalzell was for 1996-2008 American Samoa commercial longline catch and effort by species within a 50 nautical mile radius of Rose Atoll. What was requested specifically was catch and estimated weight, going back as many years as possible, for which any of the four locations recorded in the longline logbooks (begin/end of set/haul) fell within the designated radius.

Discussions clarified the intent was to examine catch within the newly-established Rose Atoll Marine National Monument (Rose MNM), a square bounded by clearly designated coordinates. FMSD staff referenced a previous Information Report (IR-09-009, issued March 6, 2009), which provided this information for all the new marine national monuments. The report found 2000 was as far back as a reliable mean weight by species could be estimated and established rounded even-minute coordinates to be used as an approximation for Rose MNM (Figure 1), since the official boundaries include degrees, minutes *and seconds* and longline data are reported only to minutes.

Dalzell acknowledged that most of the necessary information was already in hand and modified his request to include only 2008 data, for which any of the four locations fell within the even-minute rectangular Rose MNM boundaries. The output format would be a spreadsheet showing annual numbers kept and estimated weight by species for (SETYEAR) 2008.

Data Sources:

Catch and effort was summarized directly from American Samoa federal longline logbook data. In addition to record identification fields (set and haul date and time, vessel, logbook and permit number), the database includes location (latitude and longitude degrees and minutes) at the beginning and end of each set and haul, number of hooks, and catch by species (number kept and released). Mean weight by species was derived separately, using the best available weight sampling data for American Samoa.

Methods and Assumptions:

Degrees and minutes for begin/end set and haul locations from logbook data were converted to decimal degrees and plotted using ArcGIS². The resulting point layers were intersected with the even-minute Rose MNM polygon³, selecting records within the Rose MNM. The four selected datasets (Begin and End Set, Begin and End Haul locations) were pared down to unique records, using SAS⁴ to summarize the number of sets, hauls and hooks per even-minute area, and the catch (kept and released) by species within the Monument. Mean weight by species was estimated for each record as a function of vessel size, based on the best available weight and numbers sampled at the cannery or via small boat survey. The mean individual weight for all records selected was multiplied by the number kept and summed in the overall SAS program.

It should be noted that using begin-or-end-set-or-haul location differs from standard data summaries (begin set location) and has the effect of maximizing the number of records selected in a given area.

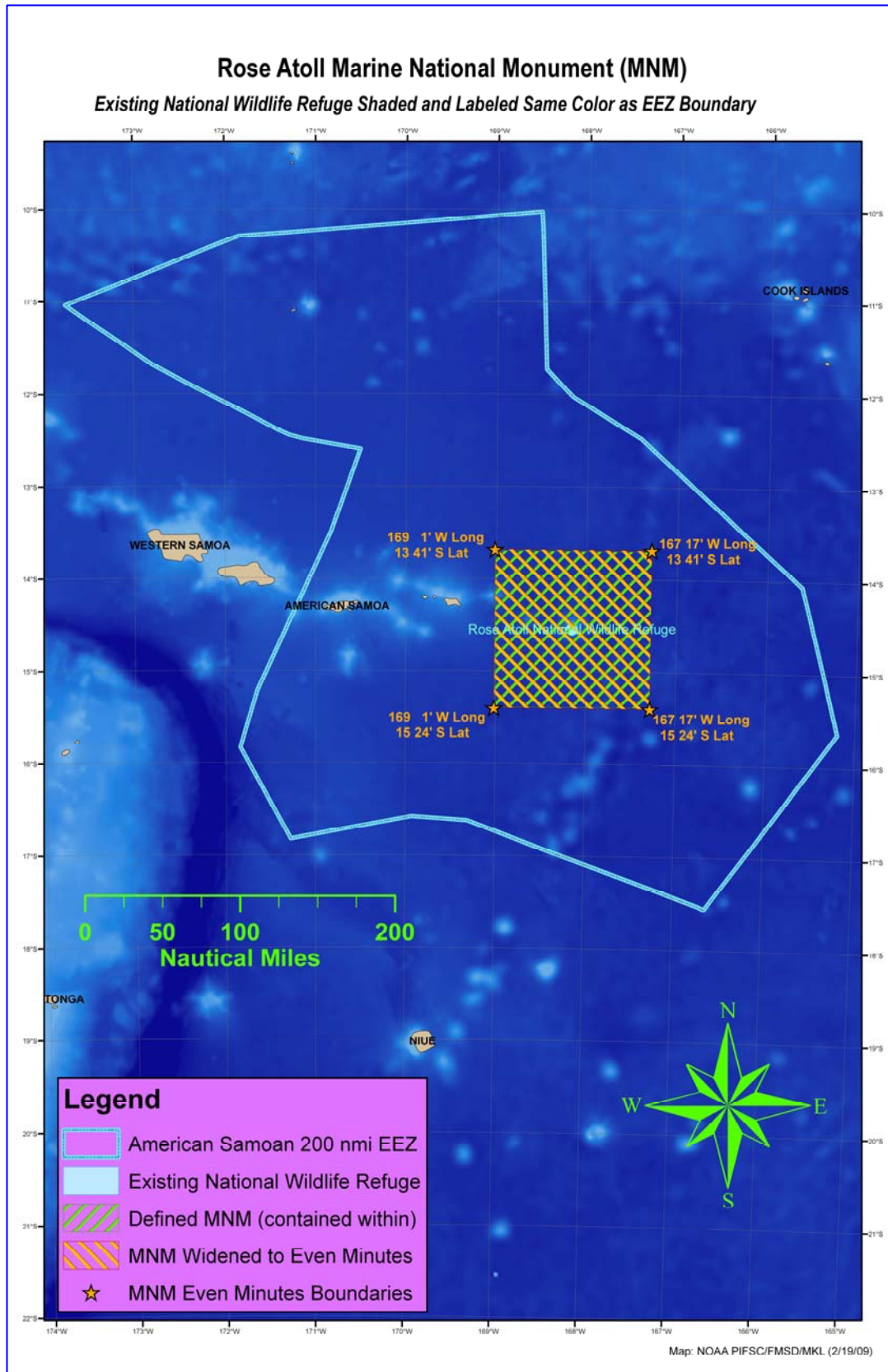
¹ PIFSC Internal Report IR-09-025. Issued 14 August 2009.
Released to public 21 October 2010.

² ESRI ArcInfo Software

³ Shapefile cited IR-09-009

⁴ Statistical Analysis System, SAS Institute Software

**FIGURE 1:
Rose Atoll MNM Showing Rounded Even-minute Boundaries**



Results:

The results are shown in the following tables (and attached Excel spreadsheets). Table 1 provides annual catch and effort within the recently designated Rose Atoll MNM from 2000-2008 (including data from the earlier report). Table 2 contains the species breakdown for set year 2008. This breakdown can be found for set years 2000-2007 in Appendix 2 of IR-09-009.

Table 1: Nonconfidential Estimated Catch & Effort 2000-2008 by American Samoa Longliners within the Newly Designated Rose Atoll Marine National Monument							
Set Year	EFFORT			CATCH			
	Vessels	Sets	Hooks	Numbers			Lbs. Kept
				Kept	Released	Total	
2000	<i>(confidential)</i>						
2001	20	120	245,296	7,724	572	8,296	309,645
2002	28	281	580,772	14,32	2,213	16,53	531,098
				5		8	
2003	23	241	570,738	11,99	2,408	14,39	427,228
				0		8	
2004	21	111	274,749	4,145	1,064	5,209	141,571
2005	18	83	227,422	3,216	754	3,970	102,263
2006	9	47	137,180	2,716	1,125	3,841	93,395
2007	18	80	241,092	5,460	349	5,809	185,782
2008	17	48	155,638	2,732	259	2,991	102,020
Total	n.a.	1,01	2,432,88	52,30		61,05	1,893,00
		1	7	8	8,744	2	3
Annual Avg.2001-2008	19	126	304,111	6,539	1,093	7,632	236,625
Non-confidential years	8	8	8	8	8	8	8

Table 2: American Samoa Longline Catch & Effort (By Set Year for All Sets with Begin-or-End Set-or-Haul Within Rose Atoll MNM (wide even-minute boundaries))

EFFORT					CATCH			Estimated Weight (Lbs)	
Species		Vessels	Sets	Hooks	Numbers			Mean Individual	Total Kept
Common name	Code				Kept	Released	Total		
ALBACORE / TOMBO	15	17	48	155,638	2,327	0	2,327	38.13	88,719
BARRACUDAS (MISC)	28				0	10	10	10.41	0
BIGEYE TUNA	16				51	5	56	40.86	2,084
BLUE MARLIN	1				6	16	22	135.93	816
BLUE SHARK	7				0	49	49	84	0
MAHIMAHI	11				5	4	9	22.51	113
MAKO SHARK	8				0	1	1	90.43	0
MOLA / SUNFISH	29				0	12	12	41.63	0
MOONFISH / OPAH	12				0	7	7	49.39	0
OCEANIC WHITETIP SHARK	24				0	7	7	90.43	0
OILFISH / ESCOLAR / WALU	20				0	63	63	18.93	0
OTHER (PELAGIC FISH)	14				0	13	13	48.07	0
OTHER (SHARKS)	10				0	3	3	90.43	0
POMFRET / MONCHONG	21				0	15	15	8.8	0
SAILFISH	4				0	4	4	70.91	0
SKIPJACK TUNA / AKU	22				140	7	147	10.66	1,493
SPEARFISH	5				0	15	15	46	0
STRIPED MARLIN	2				0	1	1	68.8	0
SWORDFISH	6				1	1	2	127.26	127
THRESHER SHARK	9				0	4	4	193.9	0
WAHOO / ONO	13				104	21	125	34.24	3,561
YELLOWFIN TUNA	17				98	1	99	52.12	5,108
TOTALS					2,732	259	2,991		102,020