

Characterization of Recent U.S. Albacore Fishing Effort

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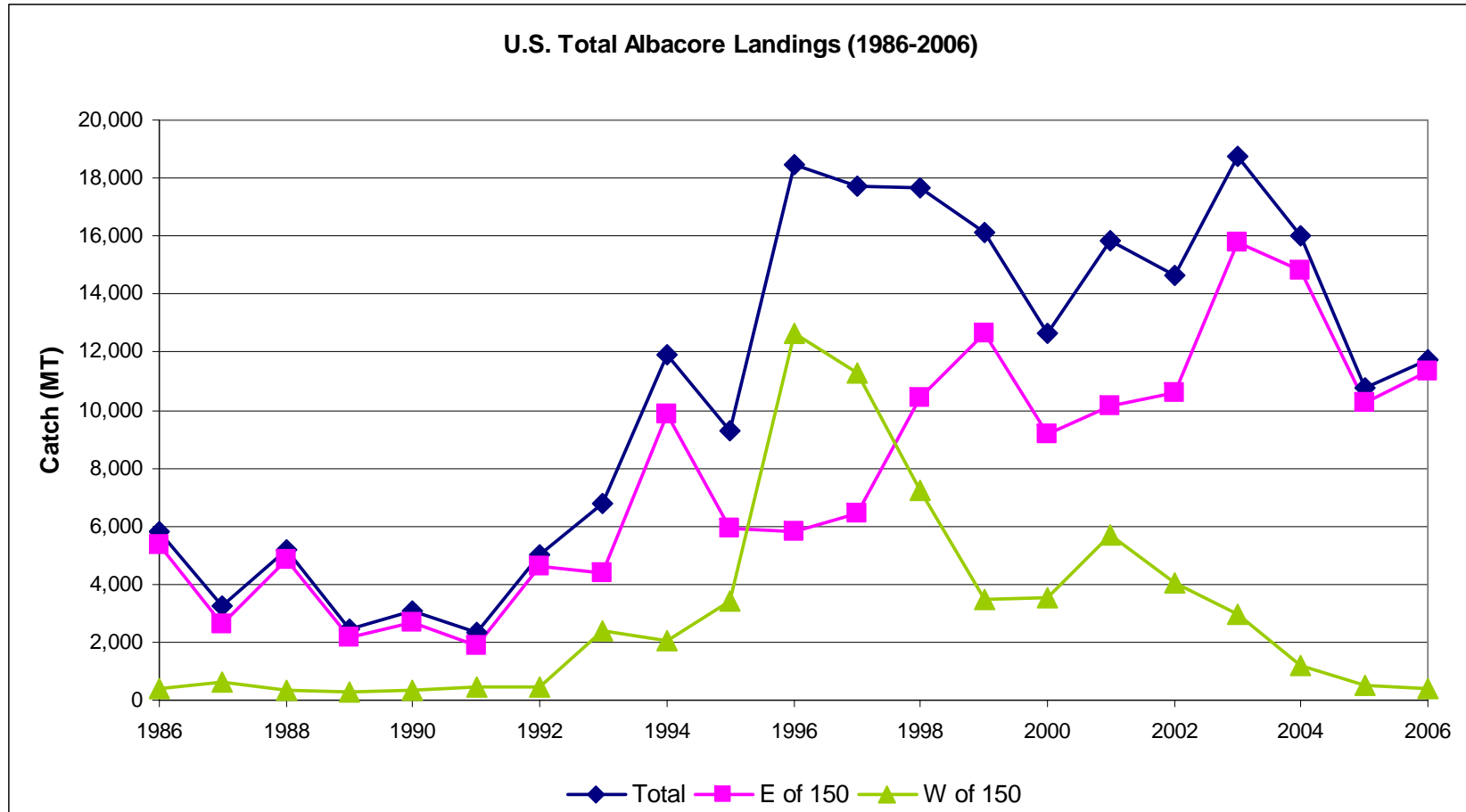
Southwest Fisheries Science Center
Highly Migratory Species Management Team

Available Fishery Data

Original data with best estimates of effort in various units

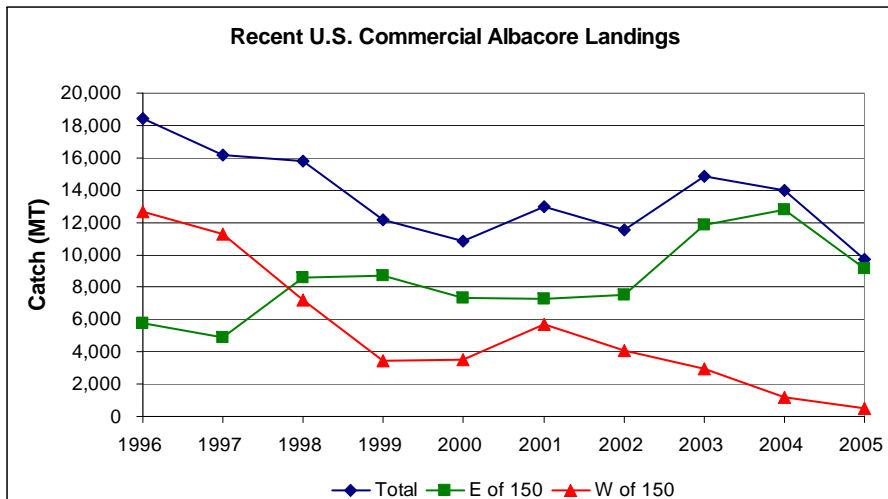
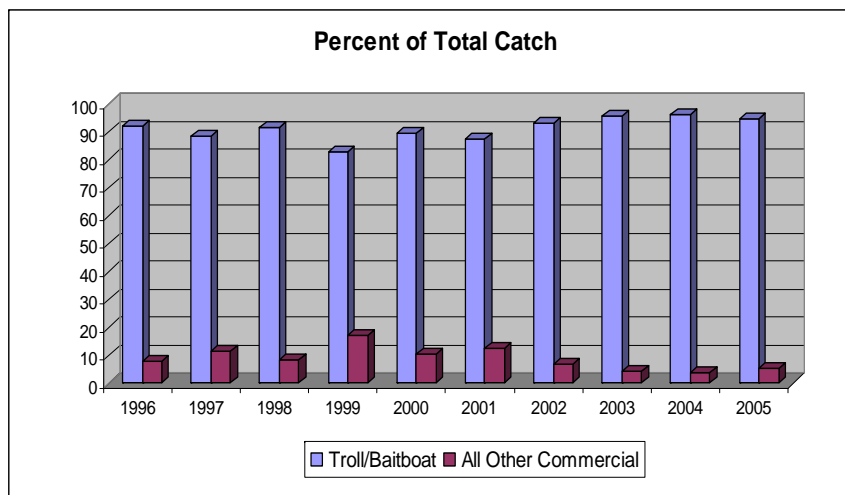
YEAR	OTHER BAITBOAT (EEZ)	GILLNET (EEZ)			LONGLINE			PURSE SEINE (EEZ)		SPORT Charter (EEZ, Mex)		SPORT Private (EEZ)		TROLL/BAITBOAT			OTHER (EEZ)	Hawaii Troll/Handline (EEZ, W of 150)			Total	West of 150 W	East of 150 W
	CATCH MT	CATCH MT	EFFORT DAYS	VESSELS NUMBER	CATCH MT	EFFORT Hooks	VESSELS NUMBER	CATCH MT	VESSELS NUMBER	CATCH MT	EFFORT DAYS	CATCH MT	EFFORT DAYS	CATCH MT	EFFORT DAYS	VESSELS NUMBER	CATCH MT	CATCH MT	VESSELS NUMBER	CATCH MT	CATCH MT	CATCH MT	
1986	432	3	10,936	216			39		15	330	20,313	315		4,708	16,277	462	0	5		5,792	425	5,368	
1987	158	5	8,685	193	150		37		5	115	9,057	39		2,766	14,732	518	0	6		3,239	646	2,593	
1988	598	15	6,185	165	308		50		4	5	1,086	10		4,212	13,880	547	10	9		5,167	320	4,848	
1989	54	4	5,950	153	249		88		3	198	20,216	31		1,860	11,482	346	23	36		2,456	292	2,163	
1990	115	29	4,493	128	177	970,394	138	71	7	37	9,918			2,603	9,538	371	4	15		3,051	346	2,704	
1991	0	17	4,713	119	313	11,441,302	144	0	0	10	1,890			1,845	9,420	179	71	72		2,328	450	1,878	
1992	0	0	4,049	115	337	10,697,683	125	0	0	4	255			4,572	17,032	603	72	54	1,977	5,038	443	4,595	
1993	0	0	5,484	128	440	12,038,774	129	0	4	4	181			6,254	21,415	518	0	71	1,987	6,769	2,374	4,395	
1994	0	38	4,627	134	546	10,859,494	156	0	1	1	113	19	3,441	10,978	26,072	686	213	90	1,948	11,885	2,047	9,838	
1995	80	52	3,773	106	883	13,039,899	132	0	0	14	1,150	46	5,027	8,045	25,650	464	1	177	2,020	9,298	3,399	5,899	
1996	24	83	3,626	108	1,187	13,797,215	118	11	1	32	2,911	14	989	16,938	32,717	640	0	188	2,166	18,477	12,675	5,802	
1997	73	60	3,019	95	1,652	14,827,349	130	2	5	717	42,319	818	88,179	14,252	45,572	1,121	1	133	2,149	17,708	11,256	6,453	
1998	79	80	2,822	88	1,120	16,647,964	147	33	15	1,108	60,584	752	93,883	14,410	21,445	755	2	88	2,135	17,672	7,221	10,451	
1999	60	149	356	41	1,540	18,332,090	130	48	5	2,667	88,551	1282	106,354	10,060	34,643	705	1	331	2,127	16,138	3,470	12,667	
2000	69	55	1,229	49	940	21,713,196	129	4	2	1,337	61,160	493	57,679	9,645	37,331	649	3	120	1,993	12,666	3,516	9,149	
2001	139	94	1,604	61	1,295	23,691,849	125	51	7	2,023	96,813	830	86,853	11,210	26,566	870	0	194	1,937	15,837	5,688	10,149	
2002	381	30	1,660	52	525	27,533,505	123	4	2	2,447	104,437	635	69,700	10,387	25,350	641	0	235	1,916	14,646	4,052	10,593	
2003	59	16	1,423	46	524	30,473,166	129	44	2	2,675	85,857	1236	127,835	14,102	23,442	836	0	85	1,650	18,741	2,972	15,769	
2004	126	12	1,099	37	355	43,254,424	125	1	1	1,661	67,204	(347)	25,941	13,346	23,979	734	0	160	1,550	16,009	1,221	14,788	
2005	(66)	(20)	1,040	38	(294)	45,649,694	125	(2)	1	1,002	39,054	(82)	13,883	(9,122)	(25,252)	549	0	183	NA	10,770	528	10,242	
2006	(11)	(2)	112	14	(251)	37,630,188	123	(0)	0	337	19,306	(145)	9,199	(10,943)	(34,860)	574	0	53	NA	11,741	376	11,365	

Landings Data



Relative Contributions of Commercial Fisheries

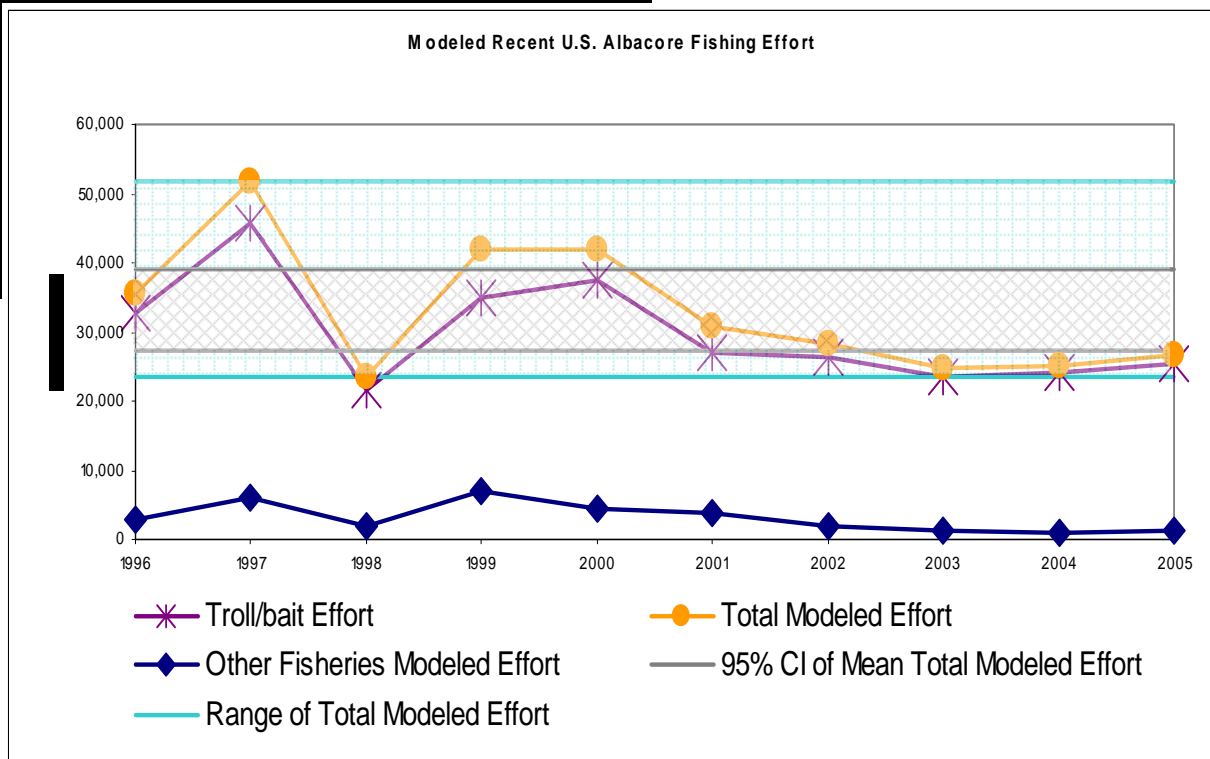
Year	Troll/Baitboat (A+G)		All Other Commercial	
	catch (MT)	rel.%	catch (MT)	rel.%
1996	16,962	92.0	1,469	8.0
1997	14,325	88.6	1,848	11.4
1998	14,489	91.6	1,323	8.4
1999	10,121	83.0	2,068	17.0
2000	9,714	89.6	1,122	10.4
2001	11,350	87.4	1,634	12.6
2002	10,768	93.1	795	6.9
2003	14,161	95.5	669	4.5
2004	13,472	96.2	528	3.8
2005	9,188	94.8	499	5.2
max	16,962	96.2	2,068	17.0
min	9,188	83.0	499	3.8
avg	12,455	91.2	1,195	8.8



Modeled Effort North Pacific-wide

Modeled Effort (Commercial Fisheries Only, 1996-2005)

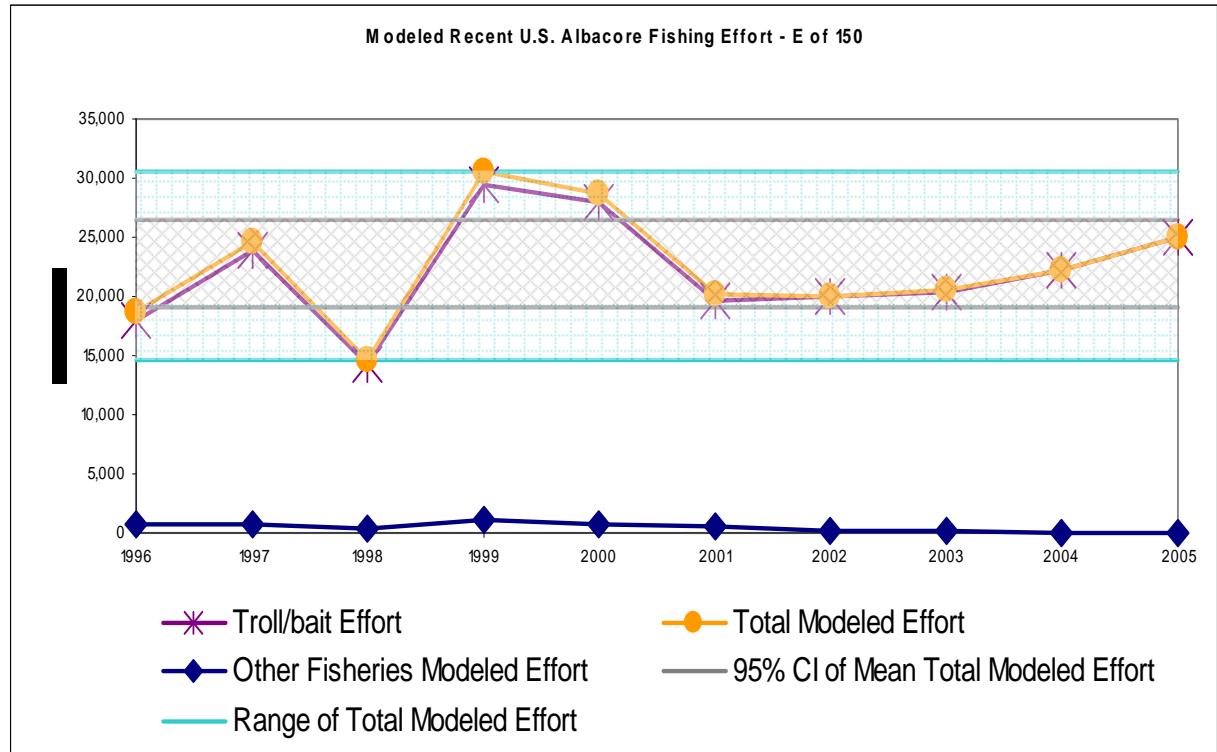
Year	Total Effort in Modeled Reference Days (Commercial Fisheries)			Band based on 95% confidence of average modeled total effort			Band based on range of total modeled effort	
	All Fisheries	Troll/bait only	Others	mean	mean - CI	mean + CI	min	max
1996	35,601	32,764	2,838	33,037	27,182	38,892	23,530	51,715
1997	51,715	45,806	5,909					
1998	23,530	21,562	1,968					
1999	41,972	34,851	7,122					
2000	41,940	37,597	4,342					
2001	30,768	26,896	3,872					
2002	28,221	26,280	1,941					
2003	24,652	23,540	1,112					
2004	25,154	24,206	949					
2005	26,816	25,435	1,381					



Modeled Effort E of 150

Modeled Effort (Commercial Fisheries E of 150 Only, 1996-2005)

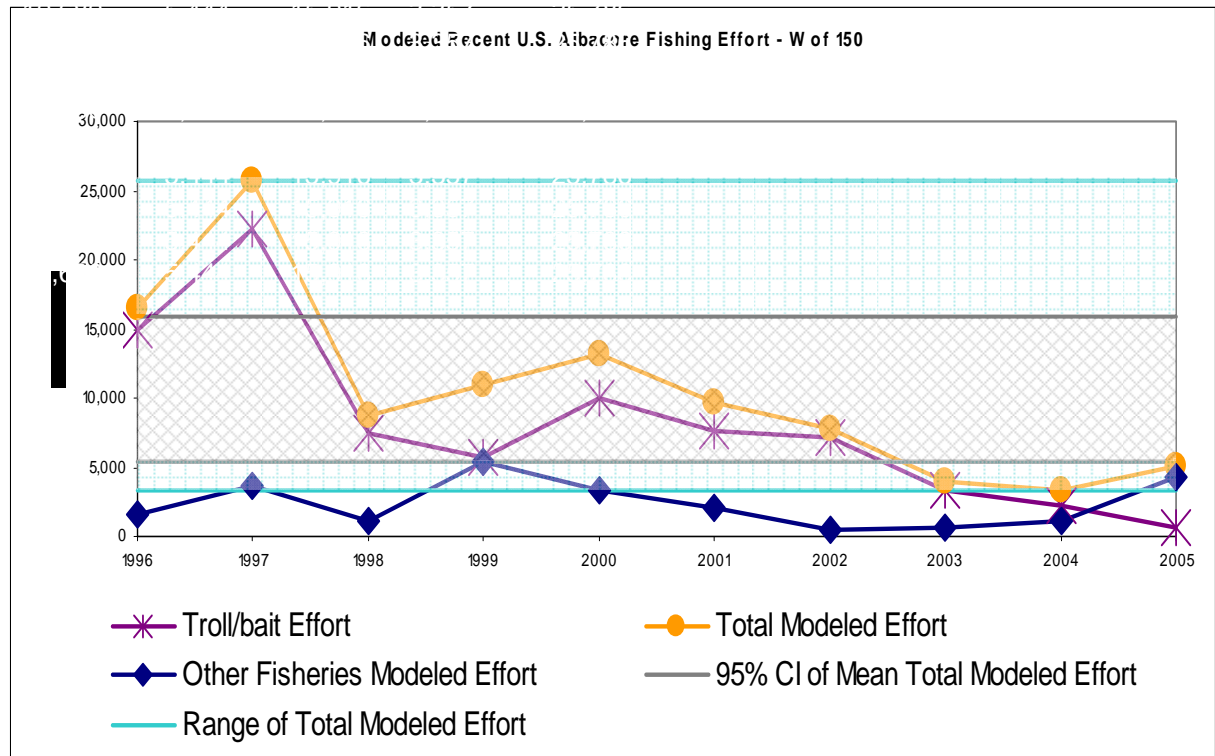
Year	Total Effort in Modeled Reference Days (Commercial Fisheries - E of 150)			Band based on 95% confidence of average modeled total effort			Band based on range of total modeled effort	
	All Commercial Fisheries	Troll/bait only	Others	mean	mean - CI	mean + CI	min	max
1996	18,616	17,957	659	22,769	19,062	26,477	14,578	30,512
1997	24,706	23,873	833					
1998	14,578	14,184	394					
1999	30,512	29,391	1,121					
2000	28,623	27,940	683					
2001	20,209	19,654	554					
2002	20,091	19,988	103					
2003	20,564	20,364	200					
2004	22,284	22,255	29					
2005	24,994	24,930	64					



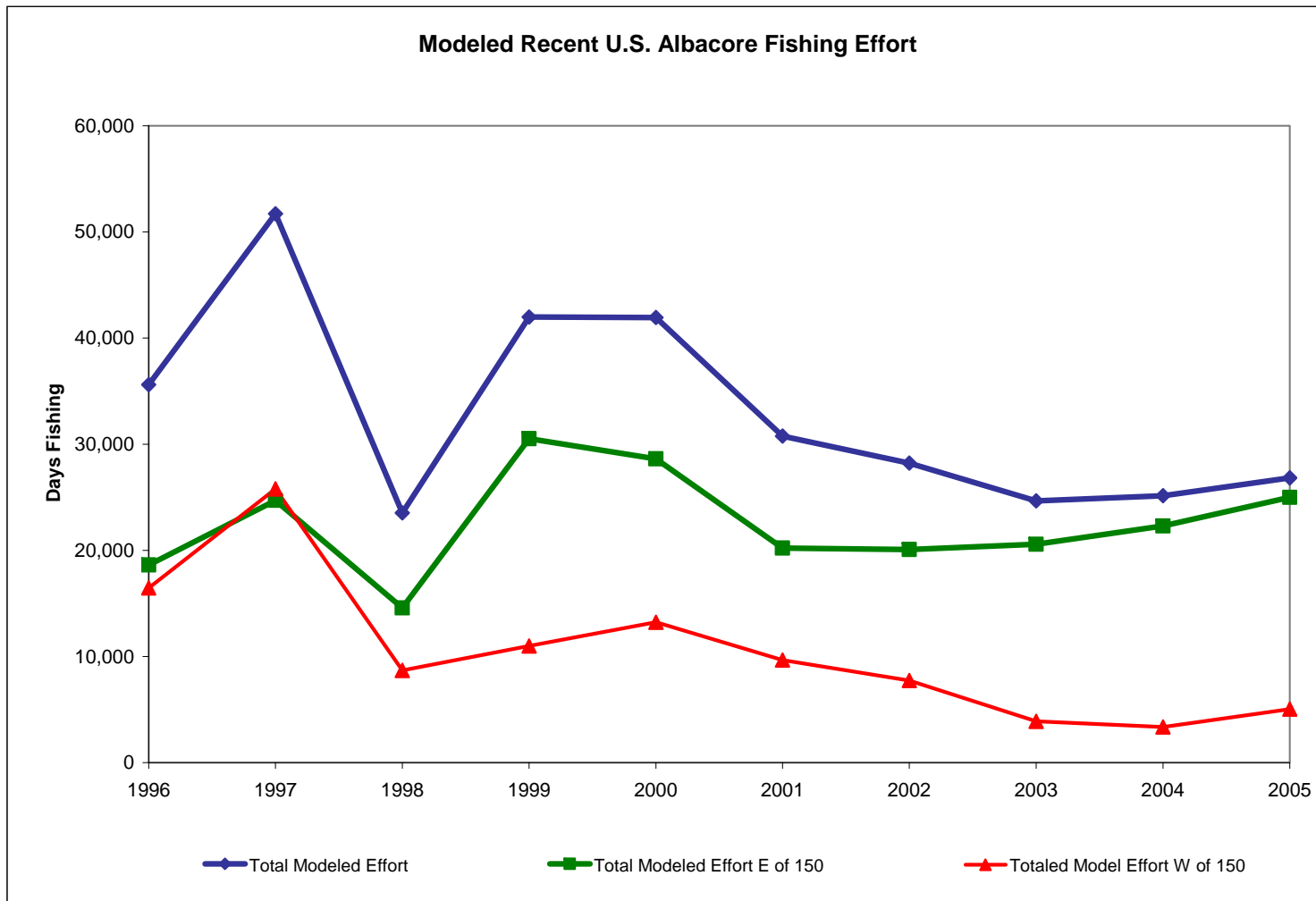
Modeled Effort W of 150

Modeled Effort (Commercial Fisheries W of 150 Only, 1996-2005)

Year	Total Effort in Modeled Reference Days (Commercial Fisheries - W of 150)			Band based on 95% confidence of average modeled total effort			Band based on range of total modeled effort	
	All Commercial Fisheries	Troll/bait only	Others	mean	mean - CI	mean + CI	min	max
1996	16,443	14,853	1,590	10,680	5,444	15,916	3,357	25,786
1997	25,786	22,166	3,620					
1998	8,685	7,495	1,189					
1999	10,994	5,667	5,327					
2000	13,217	9,924	3,293					
2001	9,667	7,572	2,095					
2002	7,737	7,222	515					
2003	3,901	3,275	626					
2004	3,357	2,177	1,180					
2005	5,040	687	4,352					

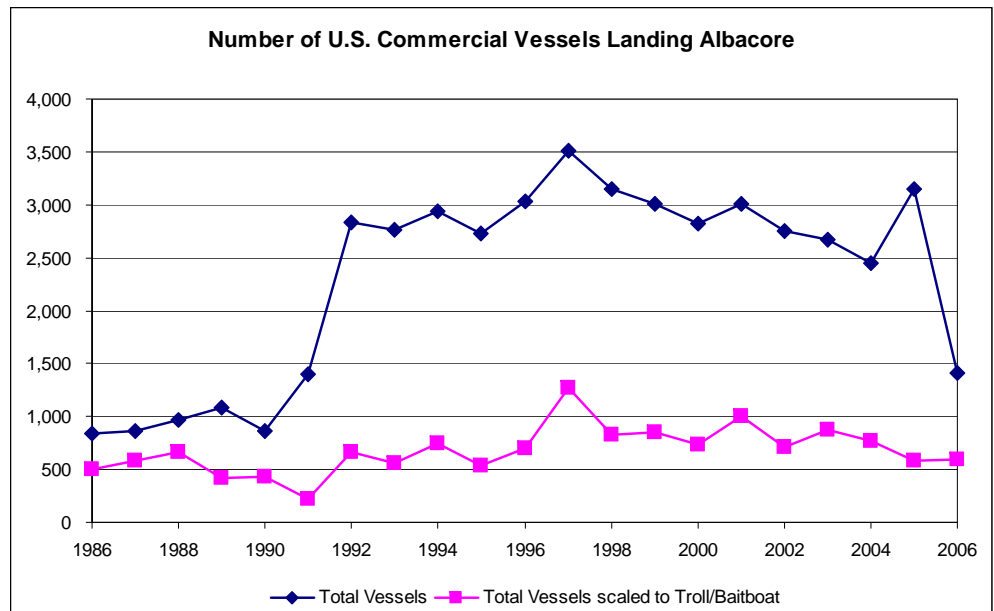


Modeled Effort by Area



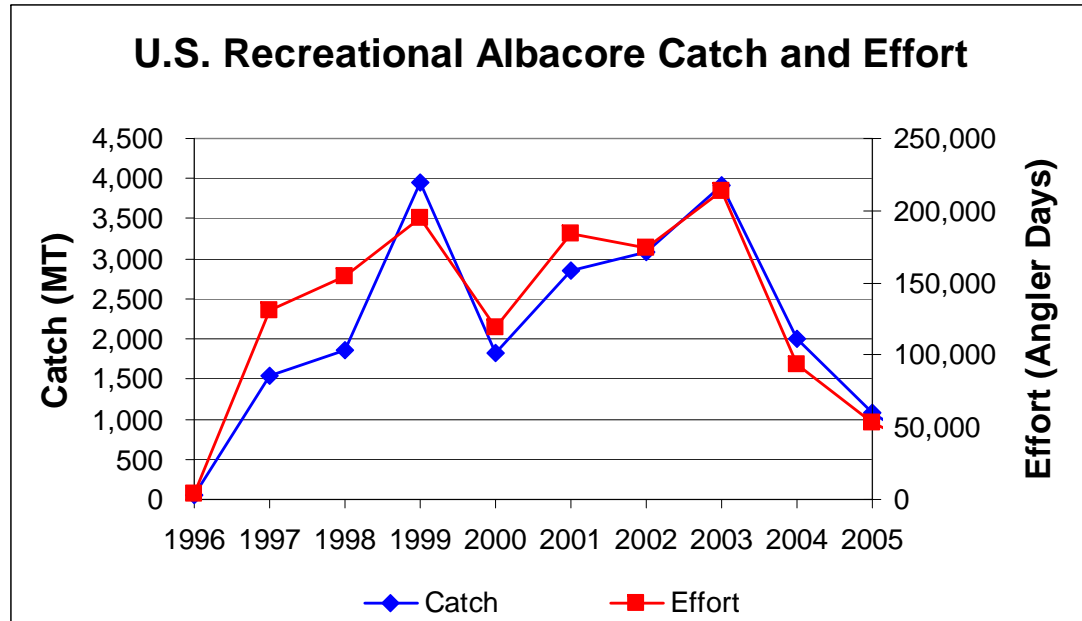
U.S. Commercial Vessels Landing Albacore

Year	Troll/Baitboat		Others			Total Commercial	
	vessels	Catch (mt)	vessels	reference vessels	Catch (mt)	vessels	reference vessels
1986	504	5,140	336	1	8	841	505
1987	548	2,924	315	30	161	862	578
1988	625	4,810	340	44	342	964	669
1989	356	1,914	726	58	312	1,082	414
1990	387	2,718	473	42	296	860	430
1991	179	1,845	1,225	46	473	1,404	225
1992	603	4,572	2,226	61	463	2,829	664
1993	518	6,254	2,248	42	511	2,766	560
1994	686	10,978	2,252	55	887	2,938	741
1995	469	8,125	2,258	64	1,113	2,727	533
1996	641	16,962	2,393	56	1,469	3,034	696
1997	1,127	14,325	2,379	145	1,848	3,506	1,272
1998	759	14,489	2,385	69	1,323	3,144	828
1999	709	10,121	2,303	145	2,068	3,012	854
2000	654	9,714	2,173	75	1,122	2,827	729
2001	881	11,350	2,130	127	1,634	3,011	1,008
2002	665	10,768	2,093	49	795	2,758	714
2003	840	14,161	1,827	40	669	2,667	879
2004	741	13,472	1,713	29	528	2,454	770
2005	553	9,188	2,592	30	499	3,145	583
2006	575	10,954	840	16	306	1,415	591



Recreational Fishery Data

Recreational (sum of private and CPFV)		
Year	Catch MT	Effort Ang. Days
1996	46	3,900
1997	1,535	130,498
1998	1,860	154,467
1999	3,949	194,905
2000	1,830	118,839
2001	2,854	183,666
2002	3,082	174,137
2003	3,911	213,692
2004	2,009	93,145
2005	1,083	52,937
2006	481	28,505
mean	2,058	122,608



Summary (and Recommendations)

- Consider commercial data only with respect to the IATTC and WCPFC resolutions
- 1996-2005 may be an appropriate time period for “recent”
- Troll/Baitboat fishery accounts for ~91% of the landings during 1996-2005
- Effort accounting for the remaining 9% of the commercial landings can be estimated based on scaling CPUEs to the Troll/baitboat CPUE
- A band encompassing the range of effort estimates should be used to describe the uncertainty associated with interannual variation and the effects of the non-target fisheries
- Additional metrics to describe recent effort include the number of U.S. vessels landing albacore and the U.S. component of North Pacific-wide fishing mortality based on the most recent stock assessment