



Implementation and Effectiveness of CMM 2008-01


Summary and Update of WCPFC-2010-15
WCPFC-2011-TTC7-31

Oceanic Fisheries Programme
Secretariat of the Pacific Community



Presentation Outline

- Implementation of key elements
 - Purse seine effort
 - FAD closure
 - High Seas Pockets closure
 - Longline catch
- Effectiveness
 - Generic projections (modifications to LL catch, PS ASS effort, IDPH catch, OTHER effort)
 - Several specific projections (2009/2010, total vs FAD closures, impact of exemptions)
 - All based on 2011 assessments – updated in WCPFC-2011-TCC7-31



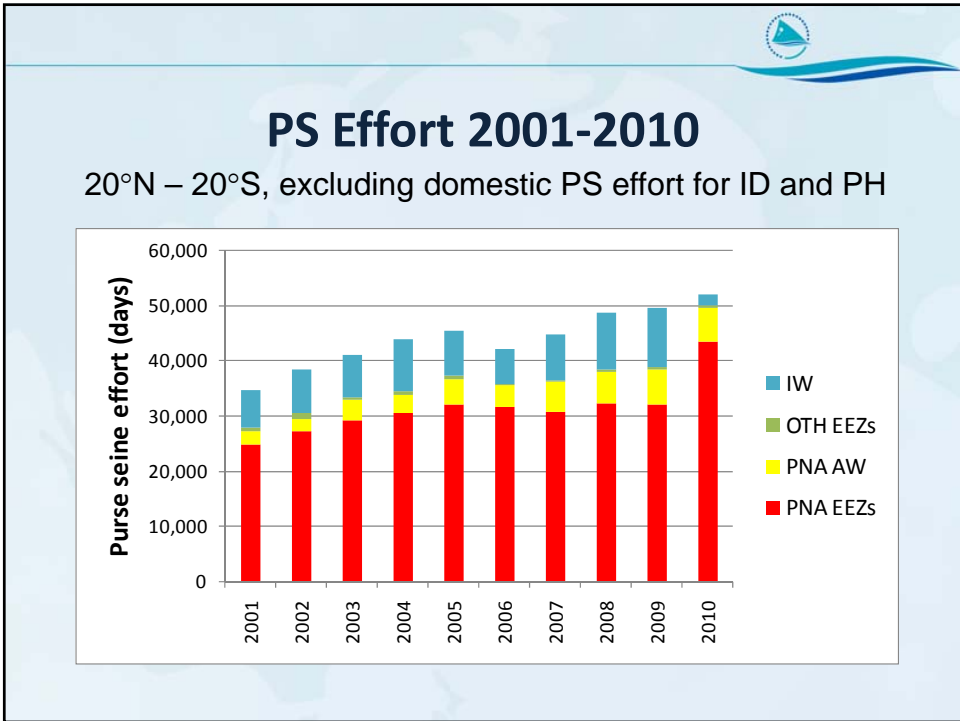
Total PS Effort Estimates


(20N – 20S, excluding PH and ID Domestic purse seiners)

Objective: Limit PS effort to 2004 levels

2001-2004 average	39,557 days
2004	43,987 days
2009	49,597 days
2010 (provisional)	52,085 days

- 2010 effort is a 18% increase on 2004
- **Conclusion – CMM has not been effective in restricting total PS effort to the 2001-2004 or 2004 levels**





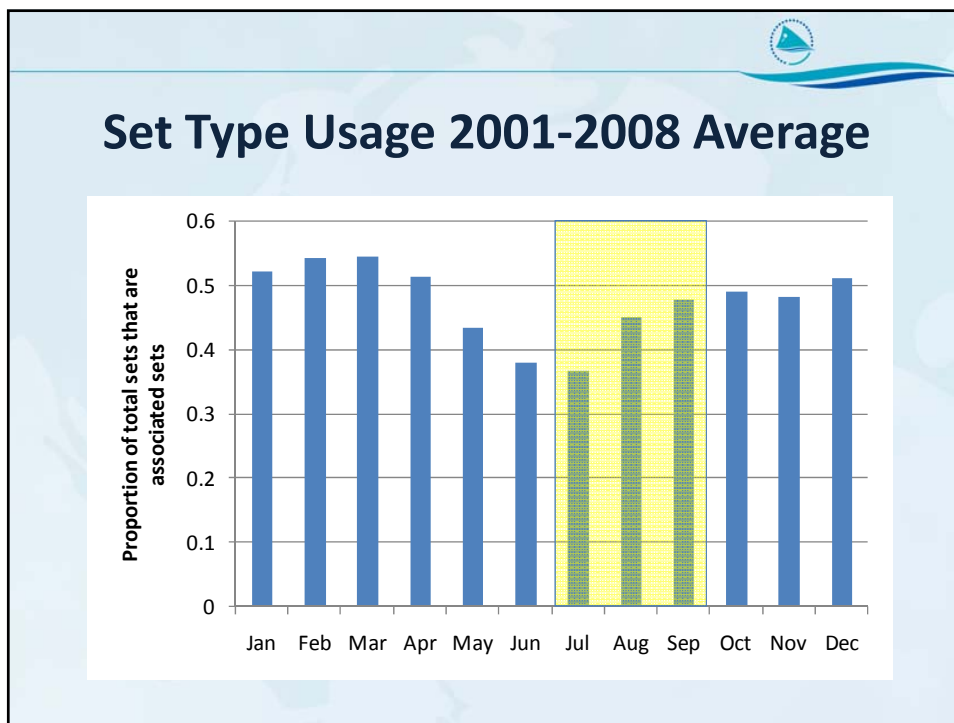
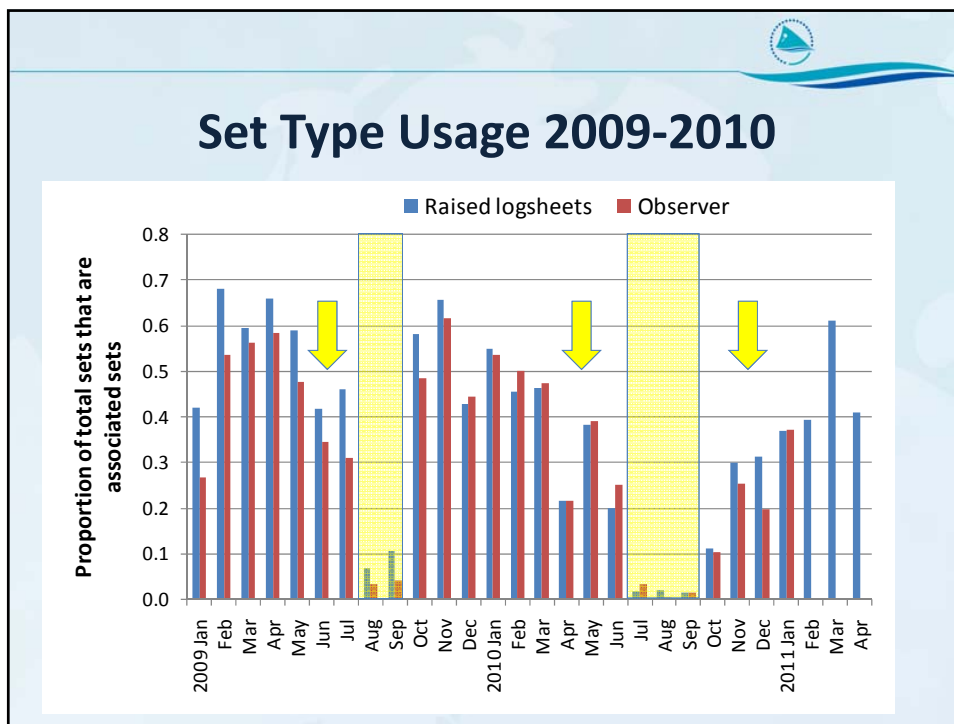
Analysis of Purse Seine Set Type Behaviour in 2009 and 2010 SC7-MI-WP-01

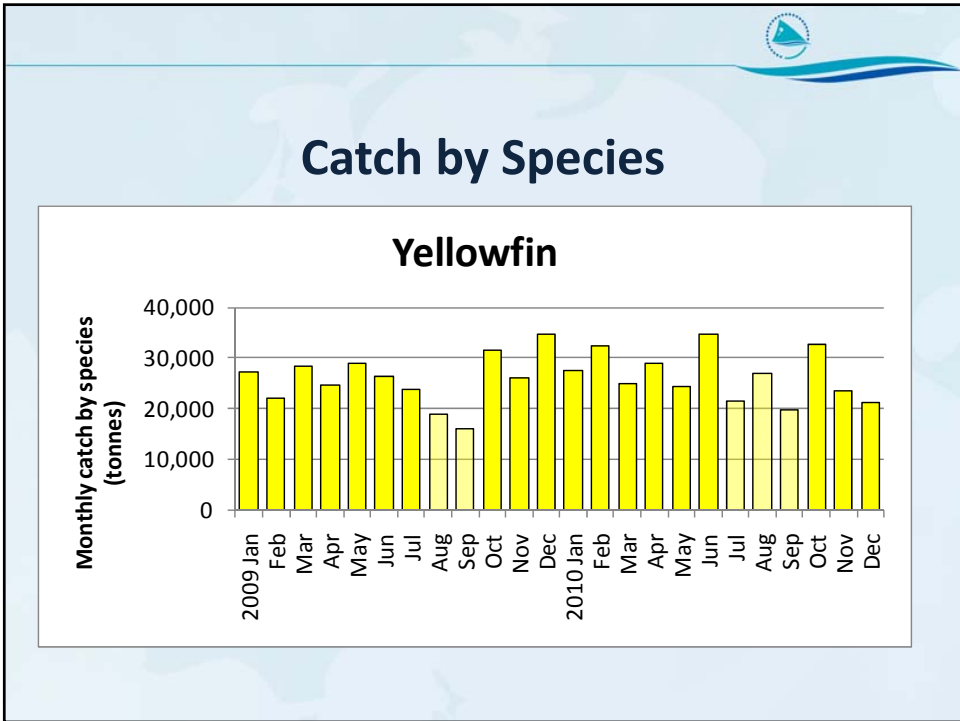
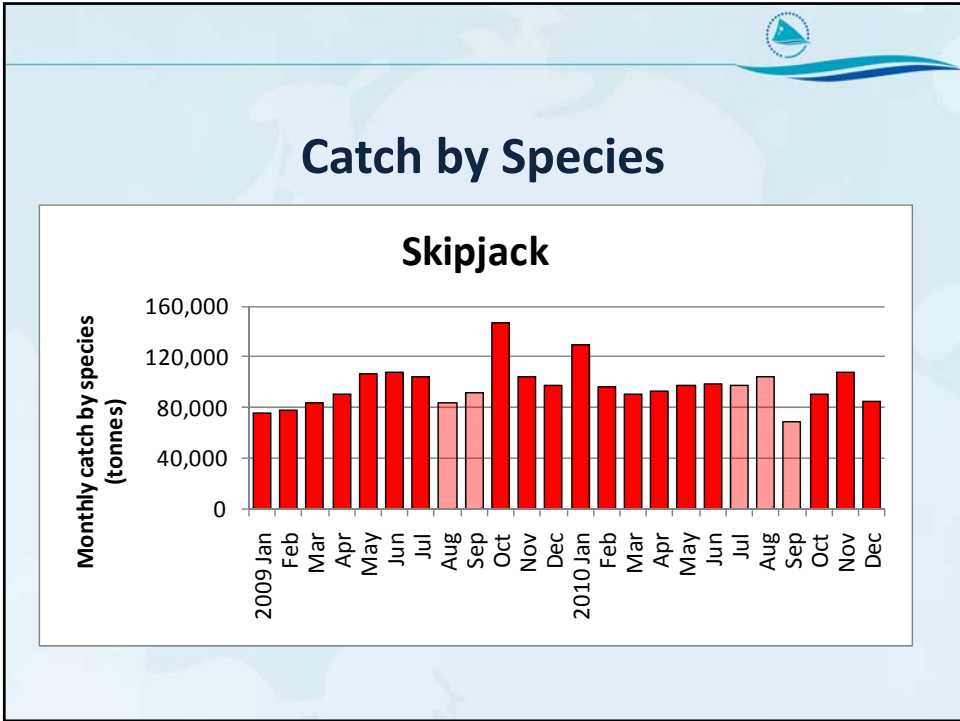
- Update on observed purse seine fishing behaviours during the 2009 and 2010 FAD closures
- Catch and effort in 2009-2010 in relation to the FAD closures
- Catch size distribution in 2009-2010 in relation to the FAD closures

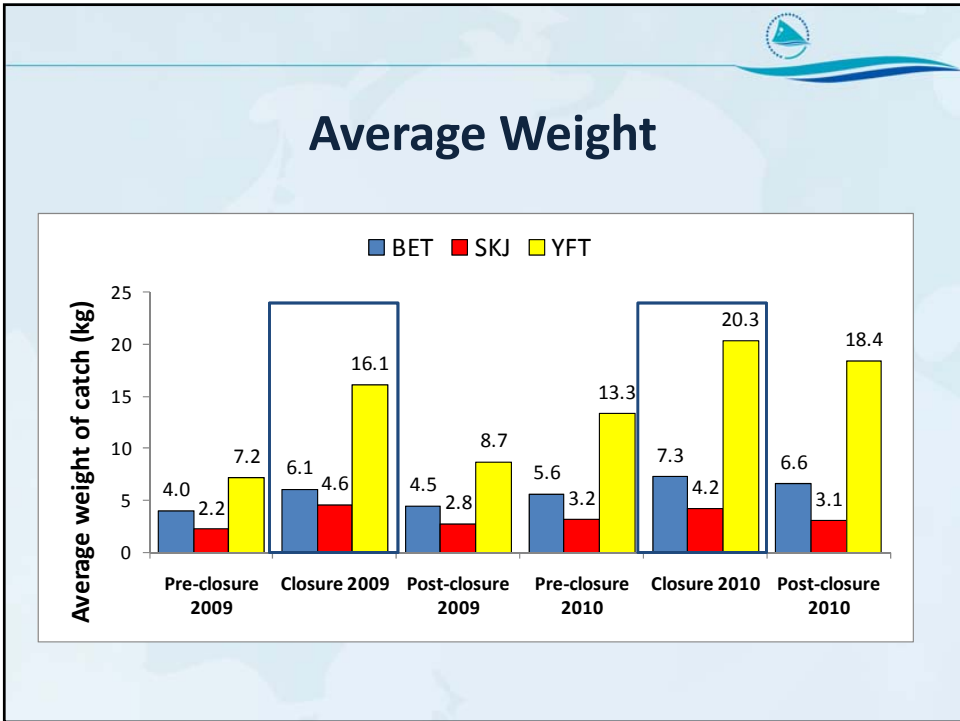
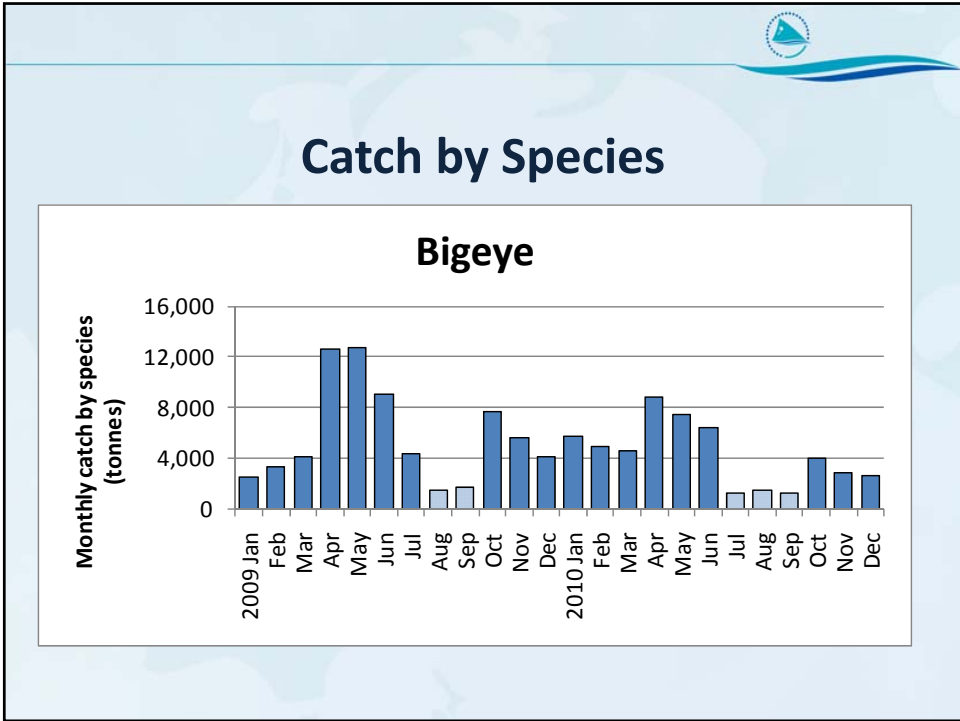


Observer Data in FAD Closures

	2009 (Aug – Sep)	2010 (Jul – Sep)
Number of observer trips processed to date	155	159
Number of observed fishing and searching days processed to date (Coverage rate)	3,045 (45.5%)	3,246 (32.5%)
Number of observed sets processed to date (Coverage rate)	3,100 (46.8%)	3,836 (32.2%)
Number of nights drifting with fish aggregation lights (activity = 14) (% of total)	68 (2.2%)	93 (2.9%)
Number of days setting or investigating Drifting FADs (SCH_ID = 4) (% of total)	118 (3.9%)	41 (1.3%)
Number of days reported with any activity related to a drifting FAD (Activity = 9,10,12,23,24,25,26) (% of total)	410 (13.5%)	165 (5.1%)
Number of days reported as “No fishing, drifting with floating object” (Activity = 12) (% of total)	170 (5.6%)	97 (3.0%)









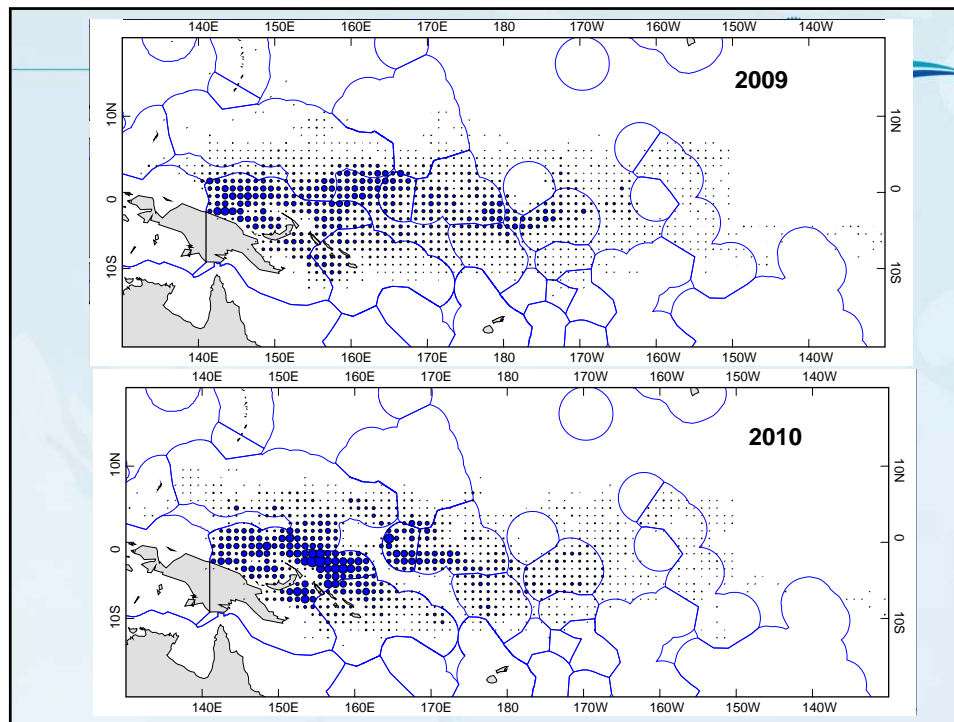
Conclusions on FAD Closures

- Incidence of FAD-related activities lower in 2010 (5.1%) compared to 2009 (13.5%)
- Effort remained close to normal levels through both 2009 and 2010 FAD closures
- Total catch below average in 2009 closure, but remained close to normal levels in 2010
- Catches of bigeye were strongly reduced during both closures
- Proportions of associated sets in 2010 closure close to zero, and compliance seems to have improved
- Appears to be reduced FAD usage in months leading up to the closures, and in 2010 following the closure – possibly associated with FAD retrieval and re-deployment
- Average size of fish of all species caught during the closures is significantly larger than in non-closure periods – higher catch value may offset whatever reductions in catch have occurred. Bioeconomic analyses planned.



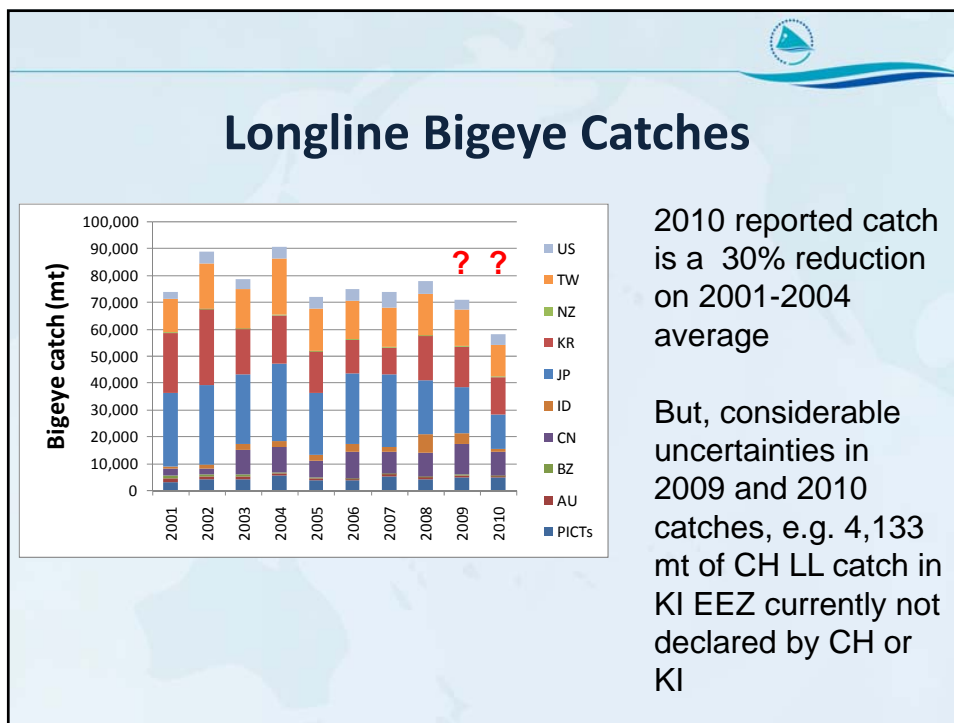
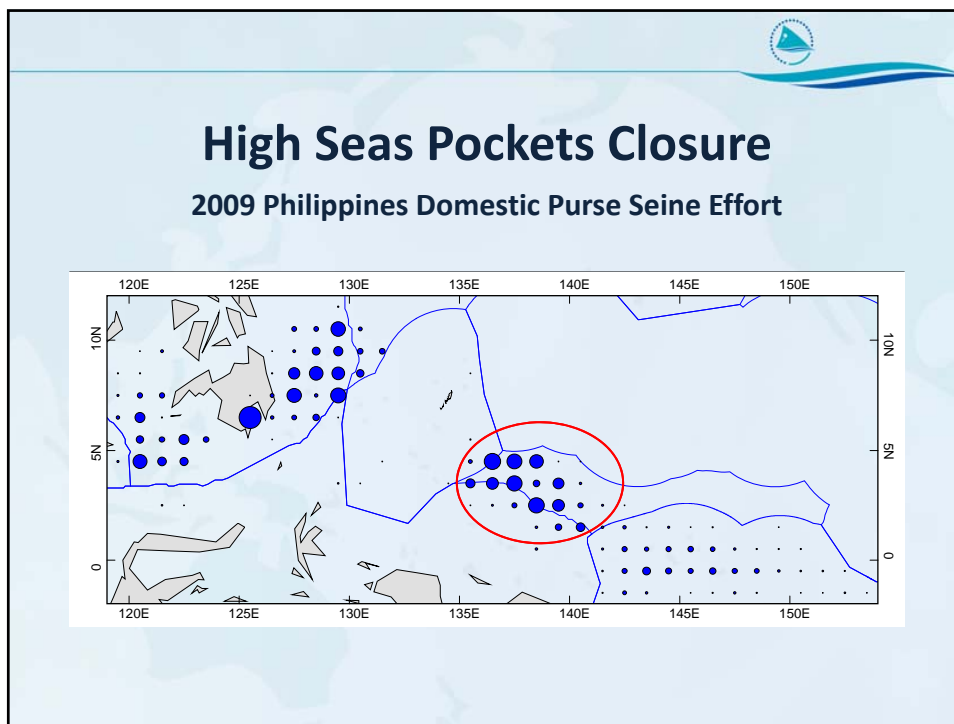
High Seas Pockets Closure

- Effective 1 January 2010
- Historically about 14% of effort occurred in HSP



High Seas Pockets Closure

- Effectiveness as a bigeye conservation measure relies on that effort being removed from the fishery (MI-WP-05 also refers)
- Purse seine effort increased in 2010 compared to 2009
- Would effort have been even higher without the closure?



Updated Projections (SC7 Request)

WCPFC-2011-TCC7-31

- Conduct updated projections using 2011 stock assessments
- Ranges of LL, PS, ID/PH and other fisheries catch or effort
- Two spreadsheets
 - Projected recruitment based on 2000-2009 average
 - Projected recruitment from the estimated SRR
- Two sets of results within each spreadsheet for PS effort changes
 - “transfer” – effort shifts between ASS and UNA (FAD closure)
 - “managed” – effort reductions same for ASS and UNA (total closure)
- SC7 suggested to use 2010 catch and effort as a base – we used 2009 due to some ongoing uncertainty in 2010 longline catches
- However, 2010 reported conditions can be identified in the matrix of projections

Projections Design

Factor	Options	Dimensions
Longline catch	1.2, 1.1, 1.0, 0.9, 0.8, 0.7, 0.6, and 0.5 times 2009 catches	8
Purse seine FAD effort 20N - 20S	1.2, 1.1, 1.0, 0.9, 0.8, 0.7, 0.6, and 0.5 times 2009 effort	8
Purse seine UNA effort 20N - 20S	Identical reduction as for FAD effort and perfect reallocation of FAD effort changes	2
Indonesia & Philippines domestic fisheries	1 and 0.7 times 2009 catch	2
Other fisheries (Pole and line, and purse seine outside 20N - 20S)	1.2, 1.0, and 0.8 times 2009 effort	3
TOTAL RUNS		768

Results

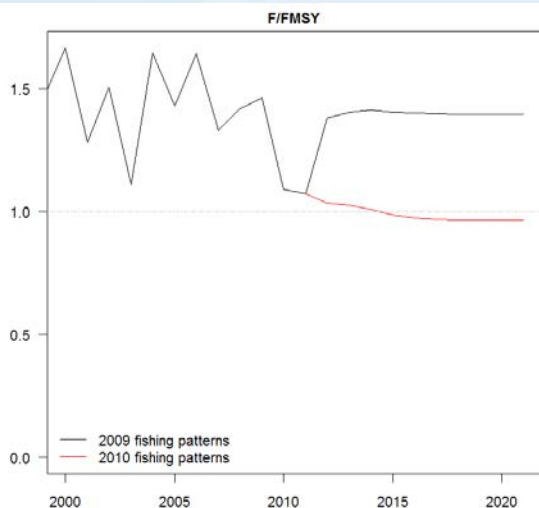
Projections - recent av recruitment.xlsx

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	LL	PSASS	PSUNAS	IDPHAV	OTH	Clatest	MSY	Fcurr.Fms	Bcurr.Bms	SBcurr.SBr	SB2009	Sf SB2011	Sf SB2021	Sf SB2009	Sf
2	10101010101	1.2	1.2	0.78	1	1.2	144,514	75,280	1.69			0.33	0.33	0.26	0.21
3	10101010102	1.2	1.2	0.78	1	1	144,206	75,080	1.68			0.33	0.33	0.27	0.21
4	10101010103	1.2	1.2	0.78	1	0.8	143,853	74,840	1.67			0.33	0.33	0.27	0.21
5	10101010201	1.2	1.2	0.78	0.7	1.2	149,151	77,200	1.53			0.33	0.33	0.3	0.21
6	10101010202	1.2	1.2	0.78	0.7	1	148,841	77,000	1.52			0.33	0.33	0.31	0.21
7	10101010203	1.2	1.2	0.78	0.7	0.8	148,487	76,840	1.51			0.33	0.33	0.31	0.21
8	10102010101	1.2	1.1	0.89	1	1.2	145,473	75,520	1.60			0.33	0.33	0.29	0.21
9	10102010102	1.2	1.1	0.89	1	1	145,164	75,360	1.59			0.33	0.33	0.29	0.21
10	10102010103	1.2	1.1	0.89	1	0.8	144,810	75,160	1.58			0.33	0.33	0.29	0.21
11	10102010201	1.2	1.1	0.89	0.7	1.2	149,622	77,520	1.44			0.33	0.33	0.33	0.21
12	10102010202	1.2	1.1	0.89	0.7	1	149,312	77,360	1.44			0.33	0.33	0.33	0.21
13	10102010203	1.2	1.1	0.89	0.7	0.8	148,957	77,160	1.43			0.33	0.33	0.34	0.21
14	10103010101	1.2	1	1	1	1.2	146,140	75,800	1.50			0.33	0.33	0.32	0.21
15	10103010102	1.2	1	1	1	1	145,839	75,640	1.50			0.33	0.33	0.32	0.21
16	10103010103	1.2	1	1	1	0.8	145,484	75,440	1.49			0.33	0.33	0.32	0.21
17	10103010201	1.2	1	1	0.7	1.2	149,830	77,920	1.36			0.33	0.33	0.36	0.21
18	10103010202	1.2	1	1	0.7	1	149,519	77,760	1.35			0.33	0.33	0.36	0.21
19	10103010203	1.2	1	1	0.7	0.8	149,162	77,600	1.35			0.33	0.33	0.37	0.21
20	10104010101	1.2	0.9	1.11	1	1.2	146,562	76,160	1.41			0.33	0.33	0.35	0.21
21	10104010102	1.2	0.9	1.11	1	1	146,251	76,000	1.40			0.33	0.33	0.35	0.21
22	10104010103	1.2	0.9	1.11	1	0.8	145,896	75,840	1.40			0.33	0.33	0.35	0.21
23	10104010201	1.2	0.9	1.11	0.7	1.2	149,795	78,400	1.27			0.33	0.33	0.39	0.21
24	10104010202	1.2	0.9	1.11	0.7	1	149,483	78,280	1.27			0.33	0.33	0.4	0.21
25	10104010203	1.2	0.9	1.11	0.7	0.8	149,126	78,160	1.26			0.33	0.33	0.4	0.21
26	10105010101	1.2	0.8	1.23	1	1.2	146,702	76,640	1.32			0.33	0.33	0.38	0.21
27	10105010102	1.2	0.8	1.23	1	1	146,390	76,520	1.31			0.33	0.33	0.38	0.21
28	10105010103	1.2	0.8	1.23	1	0.8	146,033	76,360	1.31			0.33	0.33	0.38	0.21

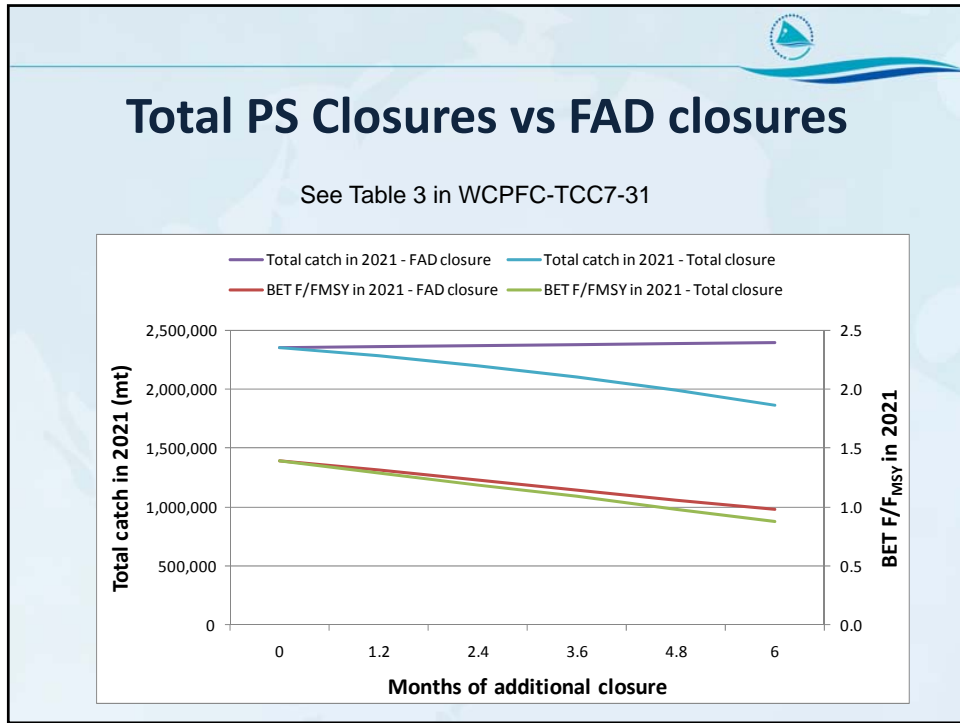
Ready | Average: 359428531.4 | Count: 33068 | Sum: 1.18698E+13 | 100%

Projecting 2009 and 2010 Conditions

Bigeye Tuna



Year	LL catch	PS FAD effort	ID/PH catch
2009	66,833	25,538	17,777
2010	55,420	17,415	11,897
%	-17%	-32%	-33%



Effect of Exemptions

Fishery group	CMM 2008-01	No exemptions
Scalars		
Longline	1.0	0.9
Purse seine	1.0	0.9
ID and PH domestic	0.9	0.8
Other fisheries	1.0	1.0
Bigeye F_{2021}/F_{MSY}	1.35	1.17

And see also WCPFC7-2010-15 p. 13



Other Scenarios?

- See the spreadsheets:
 - <http://www.wcpfc.int/doc/wcpfc-tcc7-2011-31a/projections-recent-av-recruitment>
 - <http://www.wcpfc.int/doc/wcpfc-tcc7-2011-31b/projections-srr-recruitment>
- See Peter or me if you need any assistance