Ocean Hauling Fishery shares & shareholdings

December 2016

Ocean Hauling Garfish Net Hauling

Blue= Hold minimum for access, not enough to maintain previous viability.
Red= Under minimum, stop work in July 2017

Shareholdings as 4 November 2016 by shareholder

	162.3kg	324.6kg	649.2kg	811.5kg	973.8kg	1.1t	1.3t	1.6t	1.8t	1.9t	2.1t	2.6t	2.9t	5t	6.8t		
OH Region	**10**	**20**	**40**	**50**	**60**	**70**	**80**	**100**	**110**	**120**	**130**	**160**	**180**	**310**	**420**	**Total**	**Total no. of shares**
1	1															1	10
3								1		1						2	220
4	2		1	2		1	2						2	1		11	1,060
5	4										1					5	170
6	2	3	2	1	1		2					1				12	590
7	2		1			1	2		1						1	7	750

Ocean Hauling General Ocean Hauling

Green= Enough shares to access fishery after July 2017, will predatory scope be a possibility once shares are linked to un-endorsed crew.
Red= Under minimum, stop work in July 2017

Shareholdings as at 4 November 2016 by shareholder

OH Region	20	30	40	60	80	90	100	120	140	160	180	200	220	240	300	Total	Total no. of shares
1			6	1			2	1								10	620
2	2		10	8	1		1		1							23	1,240
3	2		13	7	3		1							1	1	28	1,860
4	8	1	42	18	6	1	4	2			1	1				84	4,540
5	3		3	3	1		1		1							12	680
6	1		10	7	1		1	1		1			1			23	1,520
7	2		8	7				3	3	1						24	1,720

Ocean Hauling - Hauling Net General Purpose

Green= Enough shares to access fishery after July 2017.
Red= Under minimum, stop work in July 2017

Shareholdings as at 4 November 2016 by shareholder

OH Region	10	20	30	40	50	60	70	80	90	100	110	120	122	130	140	160	170	256	370	390	Total	Total no. of shares
1	1	1	1					2		1											6	320
2	2			7				1													10	380
3		1		2	1	2	2	1		1		1	2				2	1			16	1,680
4	7	2	1	4	8	5	3	2		2	1				2						37	1,960
5	3			4																	7	190
6	2		1	2	5					1											11	480
7	1				1			1	1	1		1		1		2	1		1	1	12	1,830

Ocean Hauling Pilchard Anchovy and Bait Net Hauling

Green= Enough shares to access fishery after July 2017.
Red= Under minimum, stop work in July 2017

Shareholdings as at 4 November 2016 by shareholder

OH Region	10	30	40	60	120	Total	Total no. of shares
1	2	1		1	1	5	230
2	3					3	30
3		4	1			5	160
4	1	1	1			3	80
5	3	2				5	90
6	2	1				3	50

Ocean Hauling Purse Seine Net

Blue= Enough shares to access fishery after July 2017, future viability will depend on allocation of quota in 2018.

Shareholdings as at 4 November 2016 by shareholder

OH Share Class	40	50	60	80	90	100	130	180	230	270	540	Total	Total no. of shares
OH Purse Seine	3	2	1	2	1	1	1	1	1	1	1	15	1,980

Estuary General Fishery shares & shareholdings

December 2016

Tables illustrate number of shareholders holding particular number of shares as per DPI figures referenced from;
http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0010/691039/Shares-and-Shareholdings-Estuary-General-November-2016.pdf

Figures have been entered to illustrate what will be allocated to each shareholding as per DPI figures referenced from; http://www.dpi.nsw.gov.au/fishing/commercial/reform/decisions.

Each fishery difers and is dependent on linkage decision.

Historical access is the current amount of days allowed to work, allowing fishers flexibility to diversify effort between fisheries, maintaining sustainability, viability and work safe practices.

Estuary General Category One Hauling

Shareholdings as at 4 November 2016 by shareholder

Green= Possibly enough for historical access.
Yellow= Possibly enough for viability but still lose historic access.
Blue= Hold minimum for access, not enough to maintain previous viability.
Red= Under minimum, stop work in July 2017

Linkage decision announced by minister is days/ effort.

- **Figures that aren't highlighted are the number of shareholding holding a particular number of shares.**
- **Figures that are highlighted is the days allocated to that shareholding.**

EG Region	50		100		125		250		375		500		625		Total	Total no. of shares
1					6	74	1	148							7	1,000
2					24	96	1	192							25	3,250
3					10	60									10	1,250
4			1	0	30	60	5	120			1	240	1	300	38	6,225
5	1	0	1	0	13	85									15	1,775
6	1	0			10	60			2	180					13	2,050
7			2	0	7	60			1	180					10	1,450

Estuary General Category Two Hauling

Shareholdings as at 4 November 2016 by shareholder

Green= Possibly enough for historical access.
Yellow= Possibly enough for viability but still lose historic access.
Blue= Hold minimum for access, not enough to maintain previous viability.
Red= Under minimum, stop work in July 2017

EG Region	50		75		100		125		200		225		250		275		Total	Total no. of shares
1					1	0	5	5					1	10			7	975
2					4	0	13	9	1	14	1	16	3	18			22	3,200
3							14	5					1	10	1	11	16	2,275
4	1	0	1	0			39	5			2	9	3	10			46	6,200
5	1	0			1	0	6	7			1	10		14			9	1,125
6					1	0	9	12			2	16	1	24			13	1,925
7							7	5					1	14			8	1,125

Estuary General Eel Trapping

Shareholdings as at 4 November 2016 by shareholder

Green= Possibly enough for historical access.
Yellow= Possibly enough for viability but still lose historic access.
Blue= Hold minimum for access, not enough to maintain previous viability.
Red= Under minimum, stop work in July 2017

The linkage decision in this fishery is quota which is equally allocated regardless of what you have contributed to the overall catch being used for the quota. Aggregation of shares also allows the use of more traps which will see predatory scope occur in this fishery.

			803 Kg 10 Traps	1.4 tonne 20 Traps	1.6 tonne 22 Traps	2 tonne 30 Traps	2.4 tonne 35 Traps	3.2 tonne 47 Traps	3.8 tonne 57 Traps	7 tonne 107 Traps		
EG Region	**50**	**100**	**125**	**225**	**250**	**325**	**375**	**500**	**600**	**1100**	**Total**	**Total no. of shares**
1			6								6	750
2	1		29	1	3	1					35	4,975
3		1	16		2		1		1		21	3,575
4		1	36	1	1	1				1	41	6,500
5			9		1						10	1,375
6	1		12		1			1			15	2,300
7	1	2	11	1							15	1,850

Estuary General Handline and Hauling Crew

Shareholdings as at 4 November 2016 by shareholder

Green= Enough shares to continue after July 2017.
Red= Under minimum, stop work in July 2017

EG Region	1-10	25	50	75	100	124	125	126	174	190	200	225	226	250	300	325	349	350	375	475	500+	Total	Total no. of shares
1					3		17							6					1		1	28	4,800
2	2	1		1	5	1	72			1	2	2	1	9	1	1	1		3		2	105	16,350
3					1		30							1					2	1	3	38	8,125
4			2		6		106	1	1		2	6		11				1	7		3	146	23,800
5			1		8		31					4		2						1		47	6,600
6			1		2		23							4	2			2	1		1	36	6,300
7			1				18					1		2	1				4			27	4,825

Estuary General Meshing

Shareholdings as at 4 November 2016 by shareholder

Green= Enough for historical access.
Yellow= Enough for viability but still lose historic access.
Blue= Hold minimum for access, not enough to maintain previous viability.
Red= Under minimum, stop work in July 2017

Linkage decision announced by minister is days/ effort.

- **Figures that aren't highlighted are the number of shareholding holding a particular number of shares.**
- **Figures that are highlighted is the days allocated to that shareholding.**

EG Region	50	100	125	162	175	200	225	250	275	300	325	338	350	375	400	450	500+	Total	Total no. of shares
1			18	55	1 77			7	110					1 165				27	4,550
2	1	1	60	73		1 116	1	12	146	2 175			2 204	1 219		1 262		82	13,200
3		1	24	90				2	180					3 270			2 360	32	6,725
4		7	105	93		1 148	3	167 11	186	1 204	1 223			2 279			2 372	133	20,425
5	1	7	20	64			3	115	1	140			1	179 2 192				35	5,300
6	1	1	23	75				5	150 1				1	210 2 225	1 240			35	6,050
7			14	78 1 101			1	140			1	202 1	210 1	218 1	234		1 312	21	4,025

Estuary General Mud Crab Trapping

Shareholdings as at 4 November 2016 by shareholder

Green= Enough for historical access.
Yellow= Enough for viability but still lose historic access.
Blue= Hold minimum for access, not enough to maintain previous viability.
Red= Under minimum, stop work in July 2017

Linkage decision announced by minister is days/ effort.

- **Figures that aren't highlighted are the number of shareholding holding a particular number of shares.**
- **Figures that are highlighted is the days allocated to that shareholding.**

- **Tonnes rounded to the nearest hundred.**
- **Kilos rounded to the nearest kilo.**

	10 Traps			16 Traps		17 Traps	20 Traps		22 Traps		32 Traps	35 Traps		40 Traps		45 Traps		60 Traps		67 Traps		100 Traps		
EG Region	**1**	**50**	**100**	**125**	**187**	**200**	**225**	**250**	**350**	**375**	**425**	**475**	**625**	**700**	**1025**	**Total**	**Total no. of shares**
1				6 **1.6t**				5 **3.2t**		1 **4.8t**						12	2,375
2		1		24 **735Kg**		1 **1.2t**		1 **1.4t**		2 **2.2t**	1 **2.5**		1 **3.7t**	1 **4.1t**		32	6,000
3				23 **1.4t**				2 **2.8t**		2 **4.2t**		1 **5.3t**			1 **11.5t**	29	5,625
4	1		2	50 **673Kg**	2 **1t**	1 **1.1t**	2 **1.2t**	6 **1.3t**		1 **2t**		1 **2.6t**	1 **3.4t**			67	10,450
5			3	7 **283Kg**				1 **566Kg**								11	1,425
6				1 **28.9Kg**					1 **81Kg**							2	475
7				4 **68.9Kg**												4	500

Estuary General Prawning

Shareholdings as at 4 November 2016 by shareholder

Green= Above new minimum to work after July 2017.
Red= Under minimum working under clause, stop work in July 2017

Ministers decision for linkage was minimum shareholding.

- **Minimum rose from 125 to 150 in all but region 5.**
- **Aggregation of shares could result in predatory scope in this fishery.**
- **Additional shares allows un-endorsed crew and extra nominations in prawn draw.**
- **N = Nominations in prawn draw.**
- **UC= Un-endorsed crew.**

EG Region	25	50	100	125	150 1N	151 1N	163 1N	175 1N	200 1N	225 1N	250 UC 2N	275 UC 2N	325 UC 2N	337 UC 2N	350 UC 3N	375 UC 3N	425 UC 3N	437 UC 3N	587 UC 5N	625 UC 5N	650 UC 6N	1125 UC 10N	2375 UC 13N	Total	Total no. of shares
1				7						1	5					1								14	2,725
2			4	57	1	1		1	1	1	9							1	1		1			78	12,350
3	1		1	17				2			2					1	1							25	3,900
4		1	2	66	23			2			9	1								1		1	1	107	18,950
5		1	1	4																				6	650
6		1	1	19							5		1		1	1								29	4,825
7	1			13	1		1	2			3	1		1		1								24	4,050

Estuary General Trapping

Shareholdings as at 4 November 2016 by shareholder

Green= Retain ability to work after July 2017.
Red= Under minimum, stop work in July 2017.

Predatory scope a possibility in this fishery since the Ministers announcement.

	10 Traps		15 Traps	20 Traps	22 Traps	32 Traps	35 Traps	40 Traps	42 Traps		
EG Region	**50**	**100**	**125**	**175**	**225**	**250**	**350**	**375**	**425**	**450**	**Total**	**Total no. of shares**
1			2			1					3	500
2			18			1					19	2,500
3			22			2				1	26	3,950
4	1	4	55		1	3	1	3	1		69	10,200
5		2	12		1	2	1				18	2,775
6			2	1							3	425
7			2			2					4	750

Blue Swimmer Crab quota allocation to trapping

Green= Enough for historical access.
Yellow= possibly enough for viability but still likely to lose historic access.
Blue= Hold minimum for access, not enough to retain previous viability.
Red= Under minimum, stop work in July 2017

	10 Traps		15 Traps	20 Traps	22 Traps	32 Traps	35 Traps	40 Traps	42 Traps		
EG Region	**50**	**100**	**125**	**175**	**225**	**250**	**350**	**375**	**425**	**450**	**Total**	**Total no. of shares**
1			2 **9kg**			1 **18kg**					3	500
2			18 **51kg**			1 **102kg**					19	2,500
3			22 **700kg**			2 **1.4t**				1 **2.5t**	26	3,950
4	1	4	55 **1.7t**		1 **3t**	3 **3.4t**	1 **4.7t**	3 **5.1t**	1 **5.7t**		69	10,200
5		2	12 **39kg**		1 **69kg**	2 **78kg**	1 **108kg**				18	2,775
6			2 **281kg**	1 **394kg**							3	425
7			2 **36kg**			2 **72kg**					4	750

Ocean Trap & Line Fishery shares & shareholdings

December 2016

Shareholdings as at 4 November 2016 by fishing business

Yellow= Hold minimum for access, access only certain until 2024.
Blue= Hold minimum for access, amount of access determined by Independent Allocation Panel in 2018.
Red= Under minimum, stop work in July 2017

Shareholdings as at 4 November 2016 by shareholder

OTL Share Class	5	10	15	20	25	30	40	45	50	55	60	65	70	75	80	85	90	95	100-150	151-300	Total	Total shares
Line Fishing Eastern				1	1		62	3				2			2				1	1	73	3,220
Line Fishing Western	1	3		2	10		162	14	21	1	23	13	1	1	13	2	2		7	2	278	13,515
Demersal Fish Trap		1		4	6	1	104	3	23		3	5	2		9		1		8		170	8,180
School & Gummy Shark					2		10	1	1		1									1	16	765
Spanner Crab North	3	1	2	1			2	1	1	1		2			1	2		1	4	2	24	1,760
Spanner Crab South					1		6								1						8	345

Highlighted Green= On or above new minimum shares required in July 2017.

Highlighted Yellow= Hold current minimum shares, will have to stop working July 2017.

Highlighted Red= Under current minimum shares, stop work in July 2017.

Estuary Prawn Trawl Fishery shares & shareholdings

December 2016

Shareholdings as at 4 November 2016 by fishing business

EPT Share Class	60	100	110	120	130	140	150	160	200	220	225	240	250	275	280	300	350	360	370	375	390	700	1070	Total	Total no. of shares
Clarence River		2	3	2	3		38	1				1	3	1	1	12	1		1	1	1	1	1	73	15,420
Hawkesbury River	1					2	25		12	2	4					1		1						48	8,490
Hunter River		15					2		5															22	2,800

Shareholdings as at 4 November 2016 by shareholder

EPT Share Class	60	100	110	120	130	140	150	160	200	220	225	240	250	275	280	300	350	360	370	375	390	1070	1150	Total	Total no. of shares
Clarence River		2	3	2	3		35	1				1	3	1	1	12	1		1	1	1	1	1	70	15,420
Hawkesbury River	1					2	19		12	2	4					4		1						45	8,490
Hunter River		8					2		7							1								18	2,800

Likely scenario

Red = MUST buy more shares or leave industry.

Yellow = MUST buy more shares or leave industry.

Green = Still want more shares due to lack of faith in department.

Ocean Trawl Fishery shares & shareholdings

December 2016

Yellow= Enough shares to access fishery post July 2017 but access threatened in 2018 by Independent Allocation Panel.
Blue= This particular figure depends on actual shares 50 becomes minimum shares.
Red= Under minimum, stop work in July 2017.

Shareholdings as at 4 November 2016 by shareholder

OT Share Class	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-150	151-200	201-250	251-453	Total	Total no. of shares
Deepwater Prawn	10	8	8	4	3											33	656
Fish Northern Zone	2			2	17	9	3		2		3	1				39	2,169
Inshore Prawn	6	7	6	2	16	24	49	2	3	3	14	6	1	6	3	148	11,034
Offshore Prawn	10	4	2	3	18	16	50	2	3	4	10	4	4	3	3	136	9,797

Blue Swimmer Crab

http://www.fish.gov.au/report/15-Blue-Swimmer-Crab-2016?jurisdictionId=5

Just released.December 2016

Portunus armatus

- **Danielle Johnston** (Department of Fisheries, Western Australia) **Anna Garland** (Department of Agriculture and Fisheries, Queensland) **Crystal Beckmann** (South Australian Research and Development Institute) **Daniel Johnson** (Department of Primary Industries, New South Wales)

South-Eastern Australia

Blue Swimmer Crabs occur in coastal and estuarine waters along the length of the New South Wales coastline. New South Wales Blue Swimmer Crab populations are at the southern end of the species distribution along the east coast and have a limited spawning period (November–February), rather than the year-round spawning that occurs in more northern latitudes[14]. A LMS of 60 mm carapace length is enforced for both male and female crabs. Female crabs close to the LMS are sexually mature, and are capable of producing one–three batches of eggs within a season[14].

The most recent estimate of the recreational harvest of Blue Swimmer Crabs in New South Wales was approximately 51 000 crabs (27 t) during 2013–14[15]. The annual recreational harvest of Blue Swimmer Crabs in New South Wales was previously estimated to lie between 150 and 310 t based on the results of the offsite National Recreational and Indigenous Fishing Survey[16] and onsite surveys undertaken by New South Wales Department of Primary Industries. Commercial catches of this species have tended to fluctuate around a long-term average of about 144 t over the period 2000–15. Nominal catch rates of Blue Swimmer Crabs by the main fishing methods in the Estuary General Fishery have remained relatively steady and have been above long-term averages for the past 5 years. Five estuaries account for 95 per cent of commercial Blue Swimmer Crab landings in New South Wales (192 t in 2015), the

most important being Wallis Lake (167 t in 2015). Catch rates in Wallis Lake appear stable and within historic levels indicating a stable level of biomass in this area. Since the transition to daily reporting in 2009–10, annual commercial catch rates (kg per day) for fish trapping, the method that accounts for around 95 per cent of commercial landings (159 t in 2015) have fluctuated between 16.5 and 40.1 kg per day, but have generally remained above 23 kg per day. In 2015, total landings from Wallis Lake (167 t) and CPUE (40.1 kg per day) were 75 and 36 per cent higher than 5-year averages, respectively. The length compositions of the commercial landings for this species have been stable since monitoring commenced in 2009[17]. Nominal effort levels (in the number of fisher days) over the past 5 years have remained steady, and are well below historical levels. The minimum legal length for both commercial and recreational fishers and spatial closures in New South Wales reduces fishing pressure on the spawning stock.

The above evidence indicates that the biomass of this stock is unlikely to be recruitment overfished and the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, the South-eastern Australian (New South Wales) biological stock is classified as a **sustainable stock**.

BIOLOGY

Species	Longevity / Maximum Size	Maturity (50 per cent)
Blue Swimmer Crab	3 - 4 years; ~ 200 mm CW	Varies among locations; 6–14 months; 86–98 mm CW

Comment ; Five estuaries account for 95 per cent of commercial Blue Swimmer Crab landings in New South Wales (192 t in 2015), the most important being Wallis

Lake (167 t in 2015). Catch rates in Wallis Lake appear stable and within historic levels indicating a stable level of biomass in this area.

The above evidence indicates that the biomass of this stock is unlikely to be recruitment overfished and the current level of fishing pressure is unlikely to cause the stock to become recruitment overfished.

On the basis of the evidence provided above, the South-eastern Australian (New South Wales) biological stock is classified as a ***'sustainable stock'.***

SARC Page 47 0f 82 States September 2015

Blue swimmer crabs 'Undefined' risk of inaction is 'medium'

Comment. Why is the Exploitation status for Blue Swimmers different yet again ???

Page153 SAFS 2014 states

"Blue Swimmer Crab occurs in coastal and estuarine waters along the New South Wales coastline. Recreational landings are not well documented but are thought to be significant, and occur throughout the range15. Five estuaries account for 95 per cent of commercial landings (the most important being Wallis Lake). New South Wales Blue Swimmer Crab populations are at the southern end of the species distribution along the east coast and have a limited spawning period (November–February), rather than the year-round spawning that occurs in more northern latitudes16. ***Commercial landings and catch rates from crab trapping have declined in recent years, and the majority of the catch is now reported from fish traps. Recreational landings are likely to be greater than the commercial catch, but no recent estimates are available. Insufficient information is available to confidently classify the status of this stock."***

"On the basis of the evidence provided above, the biological stock is classified as an undefined stock."

But in 2008/2009 NSW DPI stated the Status of fisheries resources in NSW 2008/09 that the Blue Swimmer exploitations status was 'Fully Fished'

Status of Australian Fish Stocks 2012 states Blue Swimmers Crabs Recreational landings are not well documented but are thought to be significant, Recreational landings are likely to be greater than commercial catch, but no recent estimates are available.

Insufficient information is available to confidently classify the status of this biological stock; as a result, the biological stock is classified as an 'Undefined stock.'

Then in April 2014 NSW DPI technical paper .Setting the Interim total commercial access levels (ITCALS) Blue swimmer crabs exploration status was again 'Fully Fished'

HOW CAN THE ABOVE BE SO DIFFERENT . SAFS 2014 STATE "CATCH RATES HAVE DECLINED IN RECENT YEARS." REC RECREATIONAL CATCH IS GREATER THAN COMMERCIAL"

Now 2016 SAFS ***"Nominal catch rates of Blue Swimmer Crabs by the main fishing methods in the Estuary General Fishery have remained relatively steady and have been above long-term averages for the past 5 years.*** Five estuaries account for 95 per cent of commercial Blue Swimmer Crab landings in New South Wales (192 t in 2015), the most important being Wallis Lake (167 t in 2015). Catch rates in Wallis Lake appear stable and within historic levels indicating a stable level of biomass in this area." Why has Wallis lake not been given a priority as promised by SARC. Sarc stated page 48 of 80

Requirements for effective implementation Prioritise Region 4 in the exit grant as this region is heavily distorted. ***There is no priority for Region 4 Wallis lake. in the Share trading.***

Why when the Government /DPI know that the recreational sector catches between 150 to 310 ton blue swimmers anywhere between 50 to 100% more catch than the commercial sector why is the Blue Swimmer fishery going to Quota. SAFS 2014

(Page 157)state that the recreational take for the year 2000 was 223 ton and indigenous unknown . It also states 2014 that the Commercial take was 99 ton for EGF yet in 2016 it states that the commercial take in 2014 was 196 ton. And why is the quota to be implemented so low. ??? Blue swimmers are a low value product and nothing like the Lobster Industry. Blue Swimmers are affected by rainfall and drought and urban runoff , enviromental issues /water quality. Each region is different. Lobster are not affected by rainfall or drought. Lobsters are generally only in the Ocean. There is absolutely no consistency /accuracy in any of the information given to the stakeholders to be able to make sound business decisions.

So just to clarify NSW Wild Fisheries resources

2008/2009 Blue swimmers exploitation is 'Fully Fished' (which is similar to 'Sustainable').(SAFS)

SAFS 2012 state blue swimmers is 'Undefined'

April 2014 Technical papers DPI Blue Swimmers 'Fully Fished'(similar to Sustainable)

Status of Australian Fish Stocks (SAFS)2014 Blue Swimmers 'Undefined'

SARC 2015 Blue Swimmers 'Undefined'

Status of Australian Fish Stocks December 2016 'Blue swimmers' now 'Sustainable'

In addition to the above SAFS in 2012 stated Catch explanation

In New South Wales, annual commercial landings of Blue Swimmer Crab were relatively stable, at 150–200 t, from the 1970s until 2007–08. Since then, reported landings have been about 100 t per year. Since 2000, significant changes have taken place in the management of New South Wales estuarine commercial fisheries, following the creation of a number of 'recreational only' fishing areas, and the number of fishers licensed in the Estuary General Fishery (New South Wales) has declined as a result of the associated buyback of licences. Recreational landings of Blue Swimmer Crabs are now likely to be greater than commercial landings and are estimated to be 150–310 t per year18.

Again how much more can you take from active commercial fisherman.

Again there is <u>no justification for quota on Blue swimmer crabs.</u> Removal of inactive fishing businesses first. ie the two step approach as advised as the more 'desirable approach' in the Productivity Report 31st August 2016.

Just released December 2016

MUD CRABS

http://www.fish.gov.au/report/41-MUD-CRABS-2016?jurisdictionId=5

Scylla spp., Scylla olivacea, Scylla serrata

- **Mark Grubert** (Department of Primary Industry and Resources, Northern Territory) **Daniel Johnson** (Department of Primary Industries, New South Wales) **Danielle Johnston** (Department of Fisheries, Western Australia) **Megan Leslie** (Department of Agriculture and Fisheries, Queensland)

Estuary General Fishery

The Estuary General Fishery (New South Wales) (EGF) accounts for approximately 15 per cent of the commercial harvest from the East Coast 'Mud Crab' biological stock, with the catch composition by sex being very close to 1:1 (48 per cent female, 52 per cent male). A recent survey of recreational fishing in New South Wales (which may include some harvest by Indigenous fishers) suggests that the non-commercial take accounts for around 10 per cent of the overall 'Mud Crab' harvest in this state[32] (using a regional weight multiplier estimated at 0.70 kg per crab).

Part of the 'Mud Crab' population in New South Wales is protected through a minimum size limit (85 mm carapace length) although the effectiveness of this measure is uncertain as the size at maturity of *S. serrata* in this jurisdiction has not

been described. A number of "no take" zones (applying to all marine organisms) along the New South Wales coast afford some protection to 'Mud Crabs' and result in higher crab densities and larger mean sizes (within the protected area), as well as spill over of crabs into adjacent fished areas[8]. However, these spatial closures are relatively small and fragmented, and their cumulative benefit on a fishery-wide scale has not been quantified.

The catch by the EGF increased 70 per cent between 2013 and 2015 (111 t and 189 t, respectively). Uncertainties regarding the accuracy of catch and effort reporting by this fishery mean that it is not appropriate to infer the status of the stock from catch rate data. There are no estimates of the biomass within, or the fishing mortality rate exerted by, the EGF and so there is insufficient information to confidently classify the status of this stock.

On the basis of the evidence provided above, the Estuary General Fishery (New South Wales) management unit is classified as an '**undefined stock**.'

Jurisdiction	Stock	Fisheries	Stock status	Indicators
Northern Territory	Arafura-West Mud Crab Fishery	AWMCF	Sustainable	Catch, effort, catch rate
Queensland	East Coast	MCF	Sustainable	Catch, effort, catch rate, fishing mortality

Queensland	Gulf of Carpentaria	MCF	Sustainable	Catch, effort, catch rate, fishing mortality
Western Australia	Kimberley Developing Mud Crab Fishery	KDMCF	Sustainable	Catch, effort, catch rate
New South Wales	Estuary General Fishery	EGF	Undefined	Catch
Northern Territory	Western Gulf of Carpentaria Mud Crab Fishery	WGOCMCF	Transitional-depleting	Catch, effort, catch rate, fishing mortality

1 Commercial catch rates generally show positive correlations with environmental factors such as rainfall and sea surface temperature, depending on location[21]. Catch rates are more strongly linked to sea surface temperatures at higher latitudes and rainfall at lower latitudes.

2 Juvenile 'Mud Crabs' prefer to settle on seagrass rather than mud or sand[43] and also utilise mangrove forests[7]. Therefore, any significant reduction in these

habitat types (through human or natural disturbances, including cyclones) could affect recruitment success.

3 Mud Crabs may potentially benefit from moderate climate change in some areas[44]. Increased water temperatures at higher latitudes might increase growth rates and reproductive activity. Greater rainfall in the tropics might increase primary and secondary productivity, thereby providing more food for juvenile crabs. Any such benefits will, of course, only occur within the physiological tolerances of the particular developmental stage affected.

BIOLOGY

Species	Longevity / Maximum Size	Maturity (50 per cent)
MUD CRABS	3–4 years; 230 mm CW, but rarely exceeds 200 mm CW in most areas	Varies by sex and location but generally 120–150 mm CW

Page 167 SAFS 2014

11. Mud Crab Scylla serrata, S. olivacea Mark Gruberta, Megan Leslieb and Daniel Bucherc

Giant Mud Crab density is significantly higher inside than outside marine reserves6,22, and the mean size of crabs is also greater in some instances19,22. Thus the reproductive output of Mud Crabs within reserves is predicted to exceed that of crabs exposed to fishing pressure22. Considering the moderate fishing mortality rate along the eastern seaboard and the protection afforded to large, fecund crabs inside

marine reserves, the current level of fishing pressure is unlikely to cause the east coast Giant Mud Crab biological stock to become recruitment overfished.

There is no clear stock–recruitment relationship for Mud Crabs in the Northern Territory15, and the same may also be true in Queensland and New South Wales. Recruitment in all jurisdictions appears to be driven by environmental variables such as rainfall and water temperature17. Recent annual catches and catch rates in eastern Queensland are among the highest ever recorded and follow a series of high-rainfall years. Although other factors can also influence these catch statistics, the current high apparent productivity suggests that the east coast Giant Mud Crab biological stock is unlikely to be recruitment overfished.

On the basis of the evidence presented above, the entire biological stock is classified as a '**sustainable stock.'**

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Stock status of target species: Mud crab is 'Uncertain'

Status of Australian Fish stocks 2012 Mud crab exploltation status is **' Undefined'**
states Latency in the Mud Crab trapping component of the New South Wales Estuary General Fishery in 2010 was comparatively high, with roughly half of the 217 endorsed fishing businesses accounting for 95 per cent of the gross value of production.

Page 19 Technical Paper: Setting the Interim Total Commercial Access Levels (ITCALs)April 2014

Significant commercial and recreational fisheries occur in NSW which is at the southernmost extent of the species' range. ***Local biological information has not been analysed in detail. Exploitation status 'Undefined'***

2007 MUD CRAB WORKSHOP: REVISION OF THE NATIONAL STRATEGY FOR MUD CRAB RESEARCH FISHERY REPORT NO. 93 FRDC PROJECT NO. 2007/026 catch and effort study from 1997/1998 2005/2006
Crustacean research in New South Wales D Johnson and Dr S. Montgomery NSW Wild harvest Fisheries

Stated that the stock Status for Mud crabs 2007 was **'Undefined'** -Catch data available but no reasonable attempt has been made to determine exploitation status.

Aim is for an assessment based on estimates of mortality and growth,relative abundance and size information

Comment as above; ***In 2007 now ten years ago we have the high value species in Estuary General fisheries in NSW 'The Mud Crab' with 'NO harvest statergy but an 'AIM' by the DPI to get one. Meanwhile the SIAC/DPI Richard Stevens is deciding to go to Quota and trap numbers with the Mud crabs but does not tell anyone. In particular does not inform the majority of the Commercial Fisherman in the state of NSW.***

In 2014 DPI set the ITCALS but still have no harvest strategy. state "Local biological information has not been analysed in detail". Exploitation status 'Undefined'

How can this be acceptable for going to Quota. The Government closed Cronulla Fisheries Centre of Excellence. Professor Steven Kennelly witness statement "But I am very concerned about the recent loss of our head crustacean scientist," he goes on to say "<u>but all our other crustacean fisheries, which are really quite substantial and are the most valuable in the State—king prawns and school prawns and so on and all our crab fisheries. We are going to fall down on that</u>, I think, because we have lost some pretty significant expertise". Dr John Stewart stated " page 6 of his submission "for those flow-on effects. Furthermore, the future lack of knowledge on the sustainability of the State's resources will result in more precautionary management measures being implemented with the likely outcome of <u>hampering viability of commercial fisheries, leading to a negative impact on the communities that rely on commercial fishing for employment and tourism. More precautionary management arrangements will also minimise the amount of the resource that can be shared.</u>

Note that a number of themes presented here are also related to ToR 1f below and we recommend that you also refer to that ToR when considering how the loss of scientific expertise will affect this ToR.

Please refer to the documents already submitted re Closure of Crounulla.

Comment above So just to Clarify Mud crabs in NSW

2006/2007 Mud Crabs 'Undefined
2009/2010 Mud crabs 'Undefined'
SAFS 2012 Mud crabs 'Undefined'
SAFS 2014 Mud crabs 'Sustainable'

SARC 2015 Mud crabs 'Uncertain'
SAFS Dec 2016 Mud crabs 'Undefined'

We now have Mud Crabs 'Undefined' SAFS 2016 . 'Sustainable' in SAFS 2014 and 'Uncertain' in 2015 by SARC How can you have any confidence in the above inconsistent exploitation status of Mud Crabs. Why is the quota for region 4 so low.? If more than half of inactive endorsements in mud crab fishery why has DPI reactivated inactive licences. Why was the two step approach not used as advised in the Productivity report 2016.

SARC page 51

Requirements for effective implementation

A cost---effective quota monitoring regime, including effective compliance of both the commercial and recreational sectors, to maintain the integrity of the TAC and protect access rights.

What does the recommendation deliver for NSW fisheries?

The strongest, most secure form of access right which usually manifests in higher asset values.

More certainty that the management arrangements can address any future resource sharing or resource sustainability issues, which is crucial for a long---term viable fishery

an incentive to optimise quota usage and maximise returns by retaining higher grade/value crabs

a method to reduce the illegal sale of recreational catch.

Provides operational flexibility by allowing for increase traps for additional shares.

Comment Note above ***"A cost---effective quota monitoring regime,"*** *How can this happen when the DPI and Government clearly have no harvest strategy outlined above.??*

Comment Note above ***"The strongest, most secure form of access right which usually manifests in higher asset value". The word 'usually' manifests itself . This is all semantics . There has been no clear evidence given to the industry that this will be the case. Given the history of all the above the opposite is the fact. The lobster industry has been used as an example but is totally different to the Estuary general and Crab Fishery.***

As stated by Professor Steven Kennelly witness statement Page 52 "The lobster and abalone fisheries are simple fisheries; they are mono-specific. They catch one species without a lot of bycatch or no bycatch with the abalone and very little bycatch with the lobster fishery. They are targeted and they are high priced, low volume fisheries. Trying to extend that model into fisheries that are high volume, relative to lobster and abalone, but very, very low value like every other species such as bream, mullet, flathead, whiting, all those other fish species, in the estuary general, estuarine prawn trawl, and ocean, trap and line fisheries, does not fit that sort of model because you have high diversity that is also caught by a very large recreational sector that also catches that same species. That sort of management model just does not apply."

Comment. Note above ***"More certainty that the management arrangements can address any future resource sharing or resource sustainability issues, which is crucial for a long---term viable fishery" Again how can this happen with no harvest strategy.***
Professor Kennelly stated in his submission page 52 "As to the current arrangements for the assessment of fisheries by the Department of Primary Industries, Fisheries Resources Assessment Unit, there was a recent review done of that by McCoy and Stokes, who are pretty good operators, and that document, which you should have a copy of, is fairly pointed in criticising the availability of the science, et cetera, and the ability of the department to do the fisheries assessments that are required to inform the current structuralist adjustment program." professor Steven Kennelly also stated

Comment Not above. ***"Provides operational flexibility by allowing for increase traps for additional shares".***
But right underneath this statement ("Issues for further consideration by Government") ***Review the need for ongoing restrictions on trap numbers over time. So increasing trap numbers now for more shares but planning on reducing trap numbers and reducing quota after the reform is implemented.***

Sea Mullet

http://www.fish.gov.au/report/57-Sea-Mullet-2016

Mugil cephalus

- **John Stewart** (Department of Primary Industries, New South Wales) **Andrew Prosser** (Department of Agriculture and Fisheries, Queensland) **Kim Smith** (Department of Fisheries, Western Australia)

Eastern Australia

This cross-jurisdictional biological stock has components in Queensland and New South Wales. Each jurisdiction assesses the part of the biological stock that occurs in its waters. The status presented here for the entire biological stock has been established using evidence from both jurisdictions.

The Queensland component of the Eastern Australian biological stock has a long history of stable commercial landings. In 2015, 1982 t was reported landed, which is close to the long-term average of around 2000 t. Length frequency information from routine monitoring shows stable distributions of fish sizes harvested by the Queensland fishery5. Age frequency information shows fish from three to five years old dominate catches, but older fish are present. Recruitment has been consistent, with evidence of recent strong year classes. The above evidence indicates that the

biomass of the Queensland component of this stock is unlikely to be recruitment overfished.

Nominal effort in the Queensland component of the fishery has reduced from 8850 days in 2013 to 7505 in 2015, and the number of fishers reporting mullet (unspecified) catch has reduced from 287 fishers to 248 fishers over the same period. This decline is attributed to recent Queensland government funded buybacks of net fishing licences. Length frequency information shows stable patterns, and catch is well above minimum legal size. Age frequency information shows continued recruitment to the fishery and evidence of strong year classes. Estimates of fishing mortality are high compared with estimates of natural mortality, but they show a stable trend in combination with consistent catches. The above evidence indicates that the current level of fishing pressure is unlikely to cause the Queensland component of the stock to become recruitment overfished.

The New South Wales component of the Eastern Australian biological stock is assessed annually in terms of landings and catch rates (CPUE) in both the estuary and ocean fisheries[6]. The annual spawning run fishery on ocean beaches is also assessed in terms of fish sizes and ages in landings. Commercial median catch rates have remained stable in the estuary fishery (kg per day of mesh netting) and increased slightly in the ocean fishery (kg per day of beach hauling) since the early 1980s. The size compositions of fish in ocean landings have remained stable, while the age compositions of fish in this fishery are generally between two and five years old, with some variations in year class strength. The above evidence indicates that the biomass of the New South Wales component of the stock is unlikely to be recruitment overfished.

Landings in New South Wales in 2015 (2328 t) were below the long-term annual average (around 3000 t). The reported number of fisher days in the ocean fishery in 2015 was at a historical low of approximately 350, down from around 900 days in 2010. Typical length and age frequency compositions were found in landings in 2015, with most fish being between three and seven years of age, suggesting no large changes in the stock. The above evidence indicates that the current level of fishing pressure is unlikely to cause the New South Wales component of the stock to become recruitment overfished.

On the basis of the evidence provided above, the Eastern Australian biological stock is classified as a **sustainable stock**.

BIOLOGY

ENVIRONMENTAL EFFECTS ON SEA MULLET

1 Sea Mullet penetrate far up rivers, often into fresh water, and barriers to fish passage (such as weirs and dams) can reduce the amount of habitat available to the species. Being highly dependent on riverine and estuarine habitats[12], Sea Mullet populations are vulnerable to fluctuations in water quality. Eutrophication and hypoxia can cause significant fish kill.

Comment

As above 'The above evidence indicates that the current level of fishing pressure is unlikely to cause the New South Wales component of the stock to become recruitment overfished.' Again the removal of excess latent effort by inacitive fisherman could have been implemented but instead the Dpi has now activated all the inactive shares.

Glossary From National Status of key Australian fish Stocks

Sustainable stock.' The agreed national reporting framework for the *Status of key Australian fish stocks reports* defines the term 'sustainable stock' as follows: Stock for which biomass (or biomass proxy) is at a level sufficient to ensure that, on average, future levels of recruitment are adequate (that is, not recruitment overfished) and for which fishing pressure is adequately controlled to avoid the stock becoming recruitment overfished.

'Undefined stock.' The agreed national reporting framework for the *Status of key Australian fish stocks reports* defines the term 'undefined stock' as follows: Not enough information exists to determine stock status.

Page 81 of 82 SARC ;; Exploitation status definitions

EXPLOITATION STATUS DEFINITIONS for NSW

ACRONYMS USED IN RECOMMENDATIONS

CATEGORY

FULLY FISHED

␣ Fishing mortality is approximately the same as natural mortality ␣ Estimates of the spawning biomass are greater than 30% of the estimated unfished spawning biomass ␣ Catch rates have been steady for 5---10 years and/or catch rates are greater than 30% of initial catch rates ␣ Length and age distributions are stable ␣ Species are fished throughout their entire geographic range

MODERATELY FISHED

␣ Fishing mortality is less than half of natural mortality ␣ Estimates of the biomass are greater than 70% of the estimated unfished biomass ␣ Catch rates are greater than 70% of initial catch rates ␣ Species are fished in most of their geographic range but non---fishing areas are known to exit ␣ Markets may limit catch and effort

UNCERTAIN

␣ A significant amount of evidence has been collected and considered but there are inconsistent or contradictory signals in the data that preclude determination of exploitation status

UNDEFINED

␣ Commercial catch data are available but no reasonable attempt has been made to determine exploitation status

␣ Recreational species – some data are available but no reasonable attempt has been made to determine exploitation status

FB Fishing business

GVP Gross value of production

IAP Independent allocation panel

ITCAL Interim total commercial access level
ITQ Individual transferable quota
TAC Total allowable catch
TAE Total allowable effort
VMS Vessel monitoring system

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Estuary General Fishery

Overview

The Estuary General Fishery is a diverse multi---species multi---method fishery that may operate in 76 of the NSW's estuarine systems. Around 80 species are taken in the Estuary General Fishery with the main species targeted being sea mullet, luderick, bream and school prawns. The most commonly used estuarine fishing methods are meshing and hauling nets. Other methods include

Estuary General - Meshing

	Current Situation		Risk of inaction
Sustainability	*Stock status of target species:*		
	Luderick	*Fully fished*	L
	Yellowfin bream	*Fully fished*	L
	Sea mullet	*Fully fished*	M
	Dusky flathead	*Uncertain*	H
Commercial fishers	*Many FBs own this share class. Low barriers to entry (skills, capital) means that effort can be easily activated eroding the profitability of full-time fishers. Low returns at the fishery level.*		H
Recreational fishers	*Competition over the same species and areas leads to conflict with the commercial sector. Commercial discards of juvenile high profile species such as mulloway.*		H
Social licence	*There have been many examples in past years of community and sector-based campaigns to remove commercial meshing from estuaries. Visibility of the activity gives negative perception of high impact.*		H

Share linkage recommendation

An initial enforcement of the minimum shareholdings to reduce endorsement numbers. A subsequent introduction of a total allowable effort cap and individual transferable effort days issued to each region and allocated on shares held. Catch quotas for blue swimmer and mud crabs allocated proportional to shares held.

Linkage	From July 2016	By July 2017	By July 2018	By December 2018
ENDORSEMENT NUMBERS	Enforce the current minimum shareholding of 125 shares.			
EFFORT QUOTA Days		Implement effort quota (days), with quota issued to individuals in proportion to the meshing shares held		Regional TAEs determined by TAC Committee (utilising

trapping for crabs, eels and finfish, and a small amount of hand lining and handgathering for pipis and beachworms on ocean beaches. Boats are generally small, under 6 metre in length.

The fishery comprises approximately 600 fishing businesses authorised to use 17 types of fishing gear under 9 different share classes broken down into 7 regions. Thus, there are 63 classes of share available in the fishery. It makes a significant contribution ($15.4 million p.a. Gross Value of Production) to regional and state economies, providing local NSW seafood and recreational bait to the community.

The fishery is managed through a relatively complex set of input controls, including closed seasons, times and areas, the number of endorsements and gear restrictions. These measures seek to limit the fishing capacity of fishers by indirectly controlling the amount of fish caught.

Whilst operational diversity as a strategy to optimize fishing opportunities is clearly important in this fishery, the number of fishing businesses recording effort varies considerably by share class.

Many of the share classes have a high proportion of fishing businesses which are inactive (have little or no fishing activity (effort) recorded (for the 2009/10 – 2012/13 period)).

SARC page 40 and 41 and 42

Comment ; Note above:
SARC risk of inaction is '***medium'*** for Sea Mullet but the ***National Australian Fish stocks state Sea Mullet, Luderick , yellow bream are 'Sustainable.'***

Commercial Fishers ; Many FBs own this share class. Low barriers to entry (skills, capital) means that effort can be easily activated eroding the profitability of full--- time fishers. Low returns at the fishery level. Risk of inaction is 'High'

Comment; ***The above is not correct and very very misleading . Each river/lake/ region is different. All river and lake systems offer many challenges. You are on the water at night in all weather. You have to know the system like the back of your hand. Knowledge is paramount to profitability. Meshing is just not a matter of throwing a net in the water. Weather and all the elements play an important role. As is being on the water regularly to gain the knowledge of the fish coming into the system. Nets are very specific. Nets are currently registered. Nets/ropes leads etc are expensive to buy so making your own 'mesh nets' is a very important skill not easily learned. Mending is also an important skill. Which net to use at a certain time and place.***

Social Licence; There have been many examples in past years of community and sector-based campaigns to remove commercial meshing from estuaries. Visibility of the activity gives negative perception of high impact. Risk of inaction is 'High'

Comment Because regional TAEs will be introduced into Estuary General Meshing a day will represent a 24 hour period. Fisherman will do as many shots in a day as they can. This visibility will now happen during daylight hours instead of the activity being at night. This will create problems with social license. We do not agree that this will give greater social licence. It will be exactly the opposite.

SARC state on same Page 40 of 82 Share linkage recommendation

An initial enforcement of the minimum shareholdings to reduce endorsement numbers. A subsequent introduction of a total allowable effort cap and individual transferable effort days issued to each region and allocated on shares held. Catch quotas for blue swimmer and mud crabs allocated proportional to shares held.

Response; ***The above shows the TAE (Total amount of effort ie days)is to reduce endorsement numbers in meshing. This could have been done by removing the latent effort first. (As advised in the Productivity report 31st August 2016)***

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Other proposed changes
Provide for unendorsed assistance if the fishing business holds 250 shares or more by July 2017.

Page 42 of 82
Greater operational flexibility by allowing unendorsed assistance which is an additional benefit for acquiring more shares.

Social licence will be improved through reduced numbers of fishers and better control of catch.

Response; ***How will the Social License be improved. The TAE will remove endorsed fisherman but you can have 'unendorsed crew' Note; No limit on the unendorsed crew.***

SARC still page 42 of 82

Issues for further consideration by Government
'Prioritisation' of this share class in the exit grant process due to the number of shareholders impacted by linkage as meshing is the backbone of the Estuary General fishery.

Response; SARC state that the Meshing is the ***'backbone of the Estuary General Fishery'***

How do we know that active fisherman that catch 80% of the GVP in the share trading will get prioritisation. The DPI have made everyone 'Active' just by buying a business whether it is 'inactive' or 'active'. Latent effort has now been activated and will make it impossible for those fisherman that are very active in meshing to get the shares they need. Again Region 4 has been the hardest hit by these impending changes. Meshing days allocation does not take into consideration weather and going meshing to catch bait for your traps. No consultation no consideration for the one man's effort in a multiple species fishery. Every estuary lake and river is different you cannot have a one size fits all approach.

In response to concern that fishing days have been underreported, DPI should seek to undertake some verification of fishing days and review the ITCAL, prior to the linkage announcement by the Minister.

Comment <u>NO</u> verification has been undertaken This was not done with all the active fisherman. Region 4 were given an extra 5 days. Region 4 has again hit the hardest by these decisions. NO consultation with the fishers in Region 4 Wallis lake. ocean haulers on Tuncurry Beach will stay on the beach to catch the travelling mullet rather than chase them up the river. This will create enormous safety issues when the beach is washed away with bad weather. Everyone will suffer fisherman will risk their lives (those fisherman who do not Ocean haul on a calm bay)ie Region 4 Tuncurry beach. Absolutley no sensible meaningful conversation about the implications of these impending reforms have taken place regarding the Travelling mullet and the implications of the TAE's.

SARC Page 42 Background

An estuary fishery where 143 out of 444 FBs account for 80% of the GVP.

Comment Note Above ; from the above, 156 endorsements are in Region 4 with 44% catching 80% of GVP and 50 % catching 20% GVP . There is only 6% of inactive so there is little chance of getting the necessary shares required to continue at your current level. What is the Plan "B" Again latent effort could have been bought out before allocation of effort.

NSW GOVERNMENT | Department of Primary Industries

Combined 2011 and 2012 Annual Report for NSW Estuary General, Ocean Hauling and Estuary Prawn Trawl Fisheries, as per Appendix B of the *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*

This document is being provided to the Department of Sustainability, Environment, Water, Population and Communities (SEWPaC) in accordance with either the relevant condition or recommendation of the export approvals for the NSW Estuary General, Ocean Hauling and Estuary Prawn Trawl Fisheries that require NSW Department of Primary Industries (NSW DPI) to present reports annually as per Appendix B of the *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*.

Estuary General Fishery

1. Description of Fishery

Species

As per *Submission to the Department of the Environment, Heritage, Water and the Arts on behalf the NSW fishing industry seeking ongoing export approval for the NSW Estuary General Fishery -February 2008* (herein after called the 2008 report).

The *Fisheries Management (Estuary General Share Management Plan) Regulation 2006* prescribes the species (permitted species) that may be taken in the Estuary General Fishery (EGF) (Table 1).

Table 1: Species of fish permitted to be taken in the EGF

Common name	Scientific name	Designation
Yellowfin bream	*Acanthopagrus australis*	Primary species
Mud crab	*Scylla serrata*	Primary species
Longfin river eel	*Anguilla reinhardtii*	Primary species
Shortfin river eel	*Anguilla australis*	Primary species
Dusky flathead	*Platycephalus fuscus*	Primary species
Luderick	*Girella tricuspidata*	Primary species
Sea mullet	*Mugil cephalus*	Primary species
Pipi	*Donax deltoides*	Primary species
Eastern king prawn	*Melicertus plebejus*	Primary species
School prawn	*Metapenaeus macleayi*	Primary species
Sand whiting	*Sillago ciliata*	Primary species
Beachworm spp.	various (Class: *Polychaeta*)	Key secondary species
Cockle spp.	various (Family: *Arcidae*/*Veneridae*)	Key secondary species
Blue swimmer crab	*Portunus pelagicus*	Key secondary species
River garfish	*Hyporhamphus regularis*	Key secondary species
Flat-tail mullet	*Liza argentea*	Key secondary species
Mulloway	*Argyrosomus japonicus*	Key secondary species

Common name	Scientific name	Designation
Greasyback prawn	*Metapenaeus bennettae*	Key secondary species
Silver biddy	*Gerres subfasciatus*	Key secondary species
Trumpeter whiting	*Sillago maculata*	Key secondary species
Anchovy	*Engraulis australis*	Secondary species
Australian bonito	*Sarda australis*	Secondary species
Australian salmon	*Arripis trutta*	Secondary species
Blue mackerel	*Scomber australasicus*	Secondary species
Black bream	*Acanthopagrus butcheri*	Secondary species
Catfish spp.	*various (Family: Ariidae/Plotosidae)*	Secondary species
Sand crab spp.	*various (Family: Portunidae)*	Secondary species
Cuttlefish spp.	*various (Family: Sepiidae)*	Secondary species
Pike eel	*Muraenesox bagio*	Secondary species
Short-finned conger eel	*Conger wilsoni*	Secondary species
Southern conger eel	*Conger verreauxi*	Secondary species
Emperor	*Lethrinus spp.*	Secondary species
Sand/Blue spotted flathead	*Platycephalus caeruleopunctatus*	Secondary species
Flounder spp.	*various (Family: Pleuronectidae/Bothidae)*	Secondary species
Eastern sea garfish	*Hyporhamphus australis*	Secondary species
Shortbill garfish	*Arrhamphus sclerolepis*	Secondary species
Gurnard spp.	*various (Family: Triglidae)*	Secondary species
Hairtail	*Trichiurus lepturus*	Secondary species
Hardyhead spp.	*various (Family: Atherinidae)*	Secondary species
John dory	*Zeus faber*	Secondary species
Leatherjacket spp.	*various (Family: Monacanthidae)*	Secondary species
Longtom spp.	*various (Family: Belonidae)*	Secondary species
Mackerel tuna	*Euthynnus affinis*	Secondary species
Mangrove jack	*Lutjanus argentimaculatus*	Secondary species
Mantis shrimp spp.	*various (Family: Squillidae)*	Secondary species
Pink-eye mullet	*Myxus petardi*	Secondary species
Red mullet	*Upeneichthys lineatus*	Secondary species
Sand mullet	*Myxus elongates*	Secondary species
Mussel spp.	*various (Family: Mytilidae)*	Secondary species
Nipper spp.	*Callianassa spp.*	Secondary species
Octopus spp.	*various (Family: Octopodidae)*	Secondary species
Old maid	*Scatophagus multifasciatus*	Secondary species
Pike spp.	*Sphyraena spp.*	Secondary species
Pilchard	*Sardinops neopilchardus*	Secondary species
Tiger prawn	*Penaeus esculentus*	Secondary species
Red morwong	*Cheilodactylus fuscus*	Secondary species
Saucer scallop	*Amusium spp.*	Secondary species
Scallop	*Pecten fumatus*	Secondary species
Shell spp.	*various (Class: Gastropoda/Pelecypoda)*	Secondary species
Snapper	*Pagrus auratus*	Secondary species
Sole spp.	*various (Family: Soleidae)*	Secondary species

Common name	Scientific name	Designation
Squid spp.	*various (Class: Cephalopoda)*	Secondary species
Stingray/stingaree spp.	*various (Family: Dasyatidae/Urolophidae)*	Secondary species
Striped grunter spp.	*Pelates spp.*	Secondary species
Sweep	*Scorpis lineolata*	Secondary species
Tailor	*Pomatomus saltatrix*	Secondary species
Tarwhine	*Rhabdosargus sarba*	Secondary species
Black trevally	*Siganus nebulosus*	Secondary species
Golden trevally	*Gnathanodon speciosus*	Secondary species
Silver trevally	*Pseudocaranx dentex*	Secondary species
Whaler shark spp.	*Carcharhinus spp.*	Secondary species
Whitebait spp.	*various (Family: Clupeidae/Galaxiidae)*	Secondary species
School whiting	*Sillago bassensis*	Secondary species
Yellowtail scad	*Trachurus novaezelandiae*	Secondary species
Yellowtail kingfish	*Seriola lalandi*	Secondary species

Part 2 of the *Fisheries Management (General) Regulation 2010* lists fish that are protected from fishing by all sectors and from commercial fishing only.

Management Arrangements

As per the 2008 report. The EGF is managed under the *Fisheries Management Act 1994* and regulations made under this Act (refer to 'Governing legislation' below). The EGF is predominantly managed by input controls including:

Limited entry
The EGF is a category 1 share management fishery and access is limited to shareholders in the fishery, and/or their nominated fisher, who hold shares above any minimum shareholding level established in the *Fisheries Management (Estuary General Share Management Plan) Regulation 2006*.

Controls on fishing gear and boats
Refer to 'Fishing methods and gear types' below. Boat capacity restrictions are regulated in the *Fisheries Management (Estuary General Share Management Plan) Regulation 2006*.

Time and area closures
The *Fisheries Management (Estuary General Share Management Plan) Regulation 2006, the Fisheries Management (Supporting Plan) Regulation 2006* and the *Fisheries Management (General) Regulation 2010* give effect to most fishing closures that were previously notified under Section 8 of the *Fisheries Management Act 1994.*

Some fishing closures authorised under Section 8 of the *Fisheries Management Act 1994* remain and can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/info/closures

Fishing methods and gear types

As per the 2008 report. Refer also to the *Fisheries Management (Estuary General Share Management Plan) Regulation 2006.*

Fishing area

As per 2008 report. The *Fisheries Management (Supporting Plan) Regulation 2006* outlines waters closed permanently to all commercial fishing or class of commercial fishing. The *Fisheries Management (Estuary General Share Management Plan) Regulation 2006* outlines waters in which EGF is permitted to operate and waters that are closed to all or some methods / gear types in the EGF. Other closures authorised under Sections 8 and 11 of the *Fisheries Management Act 1994* that are specific to the EGF can be found on the NSW DPI website at: www.dpi.nsw.gov.au/fisheries/info/closures

Number of Fishers

As at December 2011 there were 607 fishing businesses with shares in the EGF with 556 fishers endorsed to operate and as at December 2012 there were 605 fishing businesses with shares and 555 fishers endorsed to operate in the fishery. The number of shareholders and endorsed fishers for each endorsement type in the EGF for these years are shown in Table 2.

Access to the fishery is limited to shareholders in the fishery and/or their nominated fisher who hold a fishing licence with the appropriate endorsements. There are 63 types of endorsement available in the fishery as prescribed in cl. 6 of the *Fisheries Management (Estuary General Share Management Plan) Regulation 2006*.

Table 2: **No. of shareholders and endorsed fishers () for each endorsement type in the EGF for 2011 and 2012 (shaded)**

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7
Handlining and Hauling Crew	38(35)	132(119)	65(62)	191(179)	54(49)	50(43)	40(37)
2012	38(35)	132(119)	65(62)	190(179)	54(48)	50(43)	40(36)
Meshing	36(34)	104(96)	53(51)	167(160)	45(38)	48(42)	34(32)
2012	36(33)	104(96)	54(52)	166(160)	45(38)	47(41)	33(30)
Prawning	21(19)	97(92)	31(30)	153(148)	6(5)	39(34)	32(30)
2012	21(19)	98(93)	31(30)	151(146)	6(5)	39(34)	32(30)
Trapping	4(4)	20(20)	29(28)	84(82)	23(21)	4(4)	6(5)
2012	4(4)	20(20)	29(28)	84(82)	23(21)	4(4)	6(5)
Eel Trapping	6(6)	39(36)	28(27)	52(51)	11(10)	19(16)	17(16)
2012	6(6)	39(36)	28(27)	52(51)	11(10)	19(16)	17(16)
Mud Crab Trapping	19(17)	47(43)	45(42)	84(82)	12(11)	4(4)	4(4)
2012	19(17)	47(43)	45(42)	83(81)	12(11)	4(4)	4(4)
Hand Gathering	15(13)	3(3)	27(26)	34(34)	1(1)	12(10)	5(5)
2012	15(14)	3(3)	26(25)	33(33)	1(1)	12(10)	5(5)
Category 1 Hauling	8(8)	26(24)	10(10)	51(49)	15(15)	17(15)	13(12)
2012	8(8)	26(24)	10(10)	51(51)	15(15)	17(15)	13(12)
Category 2 Hauling	8(8)	26(25)	19(18)	51(49)	10(9)	15(15)	9(9)
2012	8(8)	26(25)	19(18)	51(49)	10(9)	14(14)	9(9)

Allocation between sectors

As per 2008 report. Refer to Status of Fisheries Resources in NSW 2008/09[1], for landings of EGF primary and key secondary species by other NSW commercial fisheries and, where available, estimated catches from the National Recreational and Indigenous Fishing Survey[2] and Recreational Fishing Surveys in the Greater Sydney region[3].

Governing legislation

Relevant current legal instruments include:

- *Fisheries Management Act 1994*
- *Fisheries Management (General) Regulation 2010*
- *Fisheries Management (Supporting Plan) Regulation 2006*
- *Fisheries Management (Estuary General Share Management Plan) Regulation 2006*

Status of export approval under the EPBC Act

The EGF was granted a five year exemption from the export regulations under the *Environment Protection and Biodiversity Act 1999* in 2008. This exemption expires on 25 July 2013.

2. Management

As per 2008 report, noting legislative and licensing reforms referred to in the '2010 Annual Report for NSW Estuary General, Ocean Hauling, Estuary Prawn Trawl and Ocean Trawl Fisheries as per Appendix B of the *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*' (herein after called the 2010 report).

Changes to management arrangements

Licensing arrangements
For relevant licensing arrangements refer to the NSW Commercial Fisheries Administration Guide, January 2012, which can be found on the NSW DPI website at: www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/370818/NSW-Commercial-Fisheries-Administration-Guide-Ver-1.pdf

Legislative Review
Further to the legislative changes noted in the 2010 report, the *Fisheries Management (General) Regulation 2002* (the 2002 Regulation) made under the *Fisheries Management Act 1994* was automatically repealed on 1 September 2010 pursuant to section 10 of the *Subordinate Legislation Act 1989*. The *Fisheries Management (General) Regulation 2010* remade with amendment, the 2002

[1] Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp.

[2] Henry, G.W. and Lyle, J.M., 2003. The National Recreational and Indigenous Fishing Survey. Final Report to the Fisheries Research & Development Corporation and the Fisheries Action Program. Project No. 1999/158. NSW Fisheries Final Report Series No. 48. ISSN 1440-3544. 188pp.

[3] Steffe, A.S. and Murphy, J.J., 2011. Recreational fishing surveys in the Greater Sydney Region. Fisheries Final Report Series No. 131 (ISSN 1837-2112). Cronulla, NSW, Australia. 122pp.

Regulation with improved efficiency, effectiveness and consistency, and came into effect on 1 September 2010.

The following are key amendments contained in the *Fisheries Management (General) Regulation 2010:*

- Revision of a number of minimum fish sizes for commercial and recreational fishers, and bag limits for recreational fishers;
- Revision of fishing gear specifications to take into consideration current practices;
- Simplification of the marking of set (unattended) recreational fishing gear and setting consistent penalties for breaches of gear marking requirements;
- Introduction of greater flexibility for the master or a crew member of a NSW licensed charter fishing boat to fillet and section fish on board a boat prior to the completion of a charter trip;
- Reduction of the number of classes of commercial fishing licences from three to two;
- Revision of penalty notice amounts and amending the number of offences for which a penalty notice can be issued;
- Prescription of additional activities that are presumed to be harmful to marine
- vegetation;
- Creation of an offence for using a chemical substance for the purpose of taking, disturbing, injuring or harming fish;
- Conversion of temporary fishing closures in inland waters into permanent recreational fishing prohibitions;
- Adoption of Australian Standard Fish Names (Australian Standard Fish Names – AS SSA 5300);
- Establishment of a schedule of fees so that all the fees prescribed throughout the Regulation are in one place and can be readily found.

Refer to: www.legislation.nsw.gov.au/sessionalview/sessional/sr/2010-105.pdf and www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/351317/Factsheet-2010-Regulation-commercial-v3.pdf

In March 2011 changes to fisheries rules were introduced via amendments to the *Fisheries Management (General) Regulation 2010* and a number of the Share Management Plan Regulations. Specific changes to the EGF include:

- Requirement for crab, fish and eel trap marking, that the buoy is moored so that no rope is floating on the surface of the water and removal of requirement to have suspended weight.
- Up to 2 hauling lines that are not more than 2 m in length may now be attached to a Hand-hauled prawn net
- The restriction on being able to use only one dip or scoop net (prawns) and push or scissors net (prawns) net at any one time has been removed for both nets. The requirement for the push or scissors net (prawns) to be operated by only one person has also been removed.

Refer to *March 2011 Commercial Fishers Information Paper: Changes to NSW Fisheries Legislation* on the NSW DPI website for further information: www.dpi.nsw.gov.au/fisheries/commercial/info/march-2011commercial-fishers-information-paper-changes-to-nsw-fisheries-legislation

Harvesting of pipis (Donax deltoides)
To ensure the sustainability and viability of the pipi harvesting component of the EGF, a series of management arrangements were implemented in 2011 and 2012. Specifically, a short-term closure was introduced between March and June 2011 and a new minimum commercial size limit of 4 cm and catch limit of 40 kg per endorsement holder was implemented from June 2011. A further closure was implemented for six months from December 2011 to May 2012. These closures were implemented by way of fishing closure notifications in accordance with section 8 of the *Fisheries Management Act 1994*. Following the expiry of that closure, the minimum commercial size limit was increased from 4 to 4.5 cm and a per person daily and possession limit of 40 kg, was implemented by way of endorsement condition in accordance with Section 68(6B) of the *Fisheries Management Act 1994*. For further information refer to the NSW DPI website:
www.dpi.nsw.gov.au/fisheries/info/closures/commercial/eg

Reform Programs
The aim of the reform programs detailed below is to develop a structure that provides a stronger future for commercial fisheries and provide industry with long-term viability and increased certainty whilst ensuring sustainability of the State's fisheries resources.

❖ Pyrmont Pact
As per the 2010 report. A number of initiatives of the [reform program] *Pyrmont Pact* are complete or in progress including:

- An exit grant program funded by the Commercial Trust was introduced in late 2010.The program involved payment of $15,000 to fishing business owners upon transfer of all shares to other shareholders and dissolution of the business, and resulted in the removal of 17 fishing businesses.
- The development of a comprehensive package of reforms for the spanner crab component of the Ocean Trap and Line Fishery, including the introduction of quota, is in progress.
- Following significant licensing related reforms implemented in connection with the introduction of share management in 2007, NSW DPI is building FishOnline. FishOnline is a $3.6 million government funded initiative to streamline administration through the provision of online services for the commercial fishing and charter boat sectors.
- The commercial fishing industry also identified a number of fishing closures for review; these have been prioritised and will be considered in light of the current reform program described below.

❖ Independent Review of NSW Commercial Fisheries Policy, Management and Administration
Building upon the [reform program] *Pyrmont Pact*, in September 2011 the NSW Government commissioned an independent review of NSW commercial fisheries policy, management and administration. The Terms of Reference for the review included:

- Examine current and alternative fisheries management models;
- Review the stakeholder consultation framework;
- Review the current legislation to ensure effective resource management;
- Examine the fisheries sharing arrangements relating to commercial fisheries access;
- Review alternative fisheries management opportunities;

- Provide advice on the most appropriate commercial fishing industry structural adjustment program.

The review was completed in March 2012. The final report and the Government's response, where the vast majority of the recommendations were supported, can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/commercial/reform

The review has established the platform for further and continued reform within the NSW commercial fishing industry and implementing the subsequent recommendations will be undertaken over the next two years to allow for extensive consultation with industry. The program will:

- Create a management system that provides the opportunity for fishers (particularly inactive fishers) to exit the industry while at the same time assisting active fishers who wish to remain acquire additional shares at a subsidised rate;
- Link shares to catch or fishing effort, thereby allowing industry to autonomously adjust – shareholders will be able to easily modify the structure of their businesses and access to the resource to meet their needs – and Government will have improved capacity to adjust commercial catch and fishing effort;
- Restore confidence in decision making processes, including the consultation structures;
- Deliver a more efficient industry operating in an environment with reduced red tape;
- Provide added community confidence that NSW commercial fisheries are managed and operating at sustainable levels;
- Provide certainty that the non-fishing public and seafood consumers can continue to enjoy fresh, local NSW seafood.

A further initiative to be rolled out in conjunction with this program is the creation of a peak industry body to deliver consultation services to industry, as well as developing a fisheries resource sharing policy and a cost recovery policy which have been identified as two key priority areas for the new Ministerial Fisheries Advisory Council[4].

For further information on the reform programs for NSW commercial fishing can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/commercial/reform

Performance of the EGF against indicators and triggers points

Refer to Table 3 for a statement of the performance of the EGF against performance indicators and trigger points detailed in the Estuary General Fishery Management Strategy based on data for 2010/11 and 2011/12.

3. Research and monitoring

Research priorities

Refer to *Planning Strategic Research for Wild Fisheries Aquatic Ecosystems and Aquaculture in NSW – Table of Research Priorities May 2011* available at www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/168369/Tables-of-research-priorities.pdf

[4] The Ministerial Fisheries Advisory Council will replace the former Seafood Industry Advisory Council.

Results of any research completed relevant to the fishery

Descriptions of current research projects, scientific outputs and any completed research results by NSW DPI Fisheries Research – Wild Fisheries Unit relevant to the fishery can be found on the NSW DPI website at:
www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/184931/Current-Project-Summaries-for-Web_WILD-FISH_UPDATED-6-FEB12.pdf

Monitoring Programs

As per the 2010 report. The NSW DPI fishery monitoring program includes stock assessment work on the key commercial species; the use of scientific observers to record information on catches of target species and by-catch; the collection of catch and effort data; and port monitoring of landed fish products (e.g. collecting data on fish length and age).

4. Catch data

Refer to Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp. for EGF primary and key secondary species catch information.

5. Status of target stock

Refer to Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp. for exploitation status of primary and key secondary species in the EGF.

6. Interaction with protected species

As per 2008 report. Mandatory reporting of protected and threatened species interactions was implemented for the EGF in 2005. Pursuant to the reporting requirements, no interactions were reported in 2010/2011or 2011/2012.

7. Impacts of the fishery on the ecosystem in which it operates

As per 2008 report. Monitoring the management of impacts of the fishery on the ecosystem, including impacts on any key conservation values, is undertaken as part of the Estuary General Fishery Management Strategy performance assessment process which includes a comparison of performance indicators against the respective trigger points provided in Table 3.

8. Progress implementing export approval recommendations

Refer to Table 4 for a report against EGF export approval recommendations.

Table 3: Assessment of the Performance Indicators and Trigger Points for the Estuary General Fishery (2010/11 and 2011/12)

Performance Indicator	Trigger Point	Status	Comment
The estimated quantity of the estuary general catch (by method) which is discarded	The quantity of discards for any observed method increases between consecutive observer surveys	-	Consecutive observer survey data not available
Response of the EGF to marine pest and disease incursions	Guidelines specified in any Marine Pest and Disease Management Program are not adopted by the EGF	✓	All relevant guidelines adhered to in the fishery. To manage the potential spread of the noxious seaweed *Caulerpa taxifolia* via both recreational and commercial fishing gear, fishing closures under Section 8 of the *Fisheries Management Act 1994* are in place in affected estuaries banning the use of all nets (commercial and recreational) other than landing nets.
Number of estuaries totally closed to estuary general fishing (through regulatory controls, marine parks and/or aquatic reserves) every two years	The number of estuaries open to estuary general fishing increases after the commencement of the management strategy or any estuary that was previously closed to commercial fishing is opened	✓	There has been no change to the number of estuaries in which the fishery is permitted to operate. These estuaries are prescribed in the *Fisheries Management (Estuary General Share Management Plan) Regulation 2006.*
Changes in the exploitation status of a primary or key secondary species in EG to 'overfished' or 'recruitment overfished'	The exploitation status of a primary/ key secondary is changed to 'overfished' or 'recruitment overfished' by I&I NSW	✓	There were no changes to the exploitation status of a primary or key secondary species to 'overfished' or 'recruitment overfished' for 2010/11 (determined at the Resource Assessment Workshop April 2012). One key secondary species (mulloway *Argyrosomus japonicus*) remains classified as 'overfished'.
Total annual landings of all secondary species (other than key secondary species) taken in the fishery as a percentage of the total annual Estuary General Fishery landings	Contribution of other secondary species to total estuary general landings exceeds 15% in any two consecutive years	✓	The analysis compared the total annual landings of all secondary species (other than key secondary species) as a percentage of the total annual landings in the EGF in 2009/10, 2010/11 and 2011/12. The trigger point was not activated. The contribution of secondary species to total annual landings in the EGF was 7.6% in 2009/10, 6.9% in 2010/11 and 8.0% in 2011/12. [Note: Analysis based on reported landings from catch return forms received and entered to 28 March 2013. Data is subject to ongoing validation.]

Performance Indicator	Trigger Point	Status	Comment
Total Estuary General landings from each estuary region	Total Estuary General landings from any estuary region changes by more than 50% between any two consecutive years	✓	The analysis compared the total annual landings from each estuary region in 2009/10, 2010/11 and 2011/12. The trigger point was not activated.
Interactions between the fishery and threatened species, populations or ecological communities that are likely to threaten the survival of a threatened species, population or ecological community	Any interactions between the fishery and a threatened species, population or ecological community reported by endorsement holders in the fishery or observed during an observer survey that are likely to threaten the survival of that threatened species, population or ecological community, as determined by the Director-General of I&I NSW on advice from relevant threatened species experts	✓	No observer data available. No interactions with threatened species reported by endorsement holders in the EGF during 2010/11 or 2011/12.
Interactions between the fishery and protected species that are likely to threaten the survival of a protected species	A biennial review undertaken by I&I NSW of interactions between the fishery and a protected species reported by endorsement holders in the fishery or observed during an observer survey is likely to threaten the survival of that protected species as determined by the Director-General of I&I NSW on advice from relevant threatened species experts	✓	No observer data available. No interactions with protected species reported by endorsement holders in the EGF during 2010/11 or 2011/12.
Change in the distribution of landings between the commercial sector and non-commercial sectors (combining recreational and Indigenous) for each primary species in the EGF	Maximum absolute difference in the distribution of landings between the commercial and non-commercial sectors is greater than 15 percentage points when compared every five years	-	This performance indicator can only be measured if updated estimates of non-commercial catch become available between comparison years.

Performance Indicator	Trigger Point	Status	Comment
Change in the distribution of landings among NSW commercial fisheries for each primary species in the EGF	Maximum absolute difference in the distribution of landings between the assessment and reference years is greater than 15 percentage points	N/A	Not applicable to this year's assessment. In accordance with the EG FMS, this assessment is to occur on a five year cycle. The last assessment year was 2007/08 and the next assessment year is 2012/13.
Change in the distribution of landings among estuary general endorsement types for each primary species	Maximum absolute difference in the distribution of landings between the assessment and reference years is greater than 20 percentage points	N/A	Not applicable to this year's assessment. In accordance with the EG FMS, this assessment is to occur on a five year cycle. The last assessment year was 2007/08 and the next assessment year is 2012/13.
Change in the distribution of landings among estuary general regions for each primary species	Maximum absolute difference in the distribution of landings between the assessment and reference years is greater than 25 percentage points	N/A	Not applicable to this year's assessment. In accordance with the EG FMS, this assessment is to occur on a five year cycle. The last assessment year was 2007/08 and the next assessment year is 2012/13.
Net economic returns to the EGF	The Director-General is satisfied that the gross value of production of the fishery has not exceeded the sum of indicative industry operational costs and government management costs relevant to the fishery for three consecutive years	-	A process to determine indicative industry operational costs has yet to be developed. The Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012) recommended that the task of developing a formal cost recovery policy (which would consider government management costs) be undertaken as a priority activity by the new Ministerial Fisheries Advisory Council. This Council is expected to be established in 2013.
Average market value of EGF shares when traded	Trigger to be determined within two years of the commencement of the share management plan	-	Share management plans for the EGF commenced on the 5 February 2007. Trigger yet to be determined.

Performance Indicator	Trigger Point	Status	Comment
Percentages of total annual inspections in the EGF which result in the detection of minor or major offences.	Percentage of inspections resulting in the detection of offences exceeds either of the following: (i) 20% for minor offences; (ii) 10% for major offences. Differentiation between major and minor offences is yet to be finalised. In the interim, an overall compliance rate of less than 85% will be used as the trigger point.	✓	2006/07 - 93% 2007/08 - 89% 2008/09 - 91% 2009/10 - 86% 2010/11 - 87% 2011/12 - 85%
Number of Estuary General MAC meetings held each year	Less than two meetings for each fishery held in a calendar year, unless otherwise agreed by the MAC	-	No longer applicable. The Estuary General MAC, like most other MACs, has not operated formally since late 2009 (although it was used as an informal consultation tool up until 2011), initially pending the outcome of an internal review of consultative bodies. Subsequently the Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012) examined, amongst other issues, the effectiveness of current commercial fishery consultation arrangements. Based on the Review recommendations, the MACs are to be replaced by non-statutory, issue- or task-based working groups reporting to the Executive Director, Fisheries NSW. Thus the performance indicator needs to be revised. Non-statutory industry and cross-sector working groups comprising Estuary General fishers and other stakeholders were established in 2011 and 2012 including an Eastern Sea Garfish Resource Planning Group, a Mulloway Resource Planning Group and a working group to discuss options for the future management of pipis in NSW. In addition, as part of the Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012), the Review Team held a number of regional port meetings, consulted with a broad range of commercial fishery shareholders individually or as groups, and established a Stakeholder Reference Group (comprised of commercial fishery shareholders from each fishery) which met in October and December 2011.

Performance Indicator	Trigger Point	Status	Comment
Reviews and outcomes of strategic plan for compliance in the EG fishery	The compliance strategic plan expires without being reviewed by I&I NSW, or the strategic plan is not modified consistent with approved outcomes of a review	✓	Compliance strategic plans for NSW commercial and recreational fisheries and aquaculture are established in Annual District Compliance Plans (ADCPs), which are reviewed biannually. The Statewide Fisheries Compliance Plan was implemented in 2010 but is currently under review and will be replaced with a supporting plan that aligns with the new Fisheries Strategic Plan 2012-15. Fisheries NSW compliance plans are regularly reviewed for progress against the objectives of the Australian Fisheries National Compliance Strategy (AFNCS) which underwent review after 5 years in 2009 and was recommenced for the 2010-2015 period. The AFNCS 2010-2015 is managed by the National Fisheries Compliance Committee, under the auspices of the Australian Fisheries Management Forum, and guides Australian fisheries jurisdictions in achieving the objectives of the National Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing - which in turn helps achieve the objectives of the International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing (FAO).
Number of primary and key secondary species in EGF with an 'uncertain' or 'undefined' exploitation status	The number of primary/ key secondary species with an 'uncertain' or 'undefined' exploitation status has not decreased between two consecutive odd-numbered years [e.g. 2006/07 is considered an odd-numbered year and 2007/08 is considered an even-numbered year]	×	Number of primary and key secondary species harvested in the EGF with an exploitation status "uncertain' or 'undefined': 2006/07 – 6 2007/08 – 6 2008/09 – 6 2009/10 – 7 2010/11 – 8 The number of species being assessed as part of the Resource Assessment System has increased due to the addition of priority recreational species and the splitting of species groupings (e.g. sharks) into more refined categories (e.g. whalers, tiger, hammerhead, mako sharks). This indicates that a change to the performance indicator and trigger point is needed.

Performance Indicator	Trigger Point	Status	Comment
The difference between the current and target resource assessment class for primary and key secondary species of the EGF	The sum of the difference between the current and target assessment class for primary/ key secondary species has not decreased between two consecutive odd-numbered years [e.g. 2006/07 is considered an odd-numbered year and 2007/08 is considered an even-numbered year]	×	The sum of the difference between the current and target assessment class: 2006/07 – 13 2007/08 – 12 2008/09 – 13 2009/10 – 15 2010/11 – 18 As above, the number of species being assessed as part of the Resource Assessment System has increased over time. In addition, target classes may be reviewed and occasionally changed, for instance where research projects or other jurisdictions' assessments suggest the risks are greater or less than previously thought. These factors can affect the sum of differences even where there is no change to the current assessment class for individual species, and indicates that a change to the performance indicator and trigger point is needed.
The number of research projects underway which have a flow of benefits to the fishery and fill information gaps identified by the environmental impact assessment for the fishery	The number of relevant research projects relevant to identified information gaps falls to less than two during any one year	✓	Refer to 'Current Research Projects - Wild Fisheries'[5]

[5] Available at www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/184931/Current-Project-Summaries-for-Web_WILD-FISH_UPDATED-6-FEB12.pdf

Performance Indicator	Trigger Point	Status	Comment
Accuracy of catch return data (in terms of quantity of product, record completeness and species identification)	The accuracy of catch return data has not improved when reviewed every two years	✓	A strategy to improve compliance by fishing industry participants with fish records legislation was initiated in 2010. This strategy has been successful in improving the compliance rate for Sections 121 and 122 [of the *Fisheries Management Act 1994*] fish records submission for the 2009/10 fishing period from 70% to 98%. The strategy has also been successful for the 2010/11 fishing period (97%) however, for the 2011/12 fishing period compliance was 84% which is below the strategy's target of at least 95%.

Table 4: Report against Estuary General Fishery Export Approval Recommendations (2010/11 and 2011/12)

Recommendation	Progress
Operation of the EGF will be carried out in accordance with the NSW *Fisheries Management (Estuary General Share Management Plan) Regulation 2006* in force under the NSW *Fisheries Management Act 1994*.	Operation of the fishery has been carried out in accordance with the *Fisheries Management Act 1994* and regulations made under this Act.
NSW DPI to advise DEWHA of imminent and substantive changes to the EGF management arrangements that may affect the assessment of the fishery against the criteria upon which the EPBC Act decisions are based.	SEWPaC advised accordingly.
NSW DPI to produce and present reports to DEWHA annually as per Appendix B of the *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*.	This report seeks to satisfy this recommendation.
NSW DPI to: • participate with other harvest sectors over the development of a recovery program for silver trevally and mulloway; and • for species categorised as growth overfished, such as eastern king prawn and school prawn, the status of the stocks will be reviewed and specific measures implemented, as required, within 12 months to prevent the stocks from becoming recruitment overfished; In order to ensure the ecological sustainability of the EGF.	As previously advised, “recruitment overfished" and "overfished" species have been given the highest priority as part of the fishery resource recovery program. The process takes into account interactions between fisheries as well as social and economic impacts, with the priority species identified as mulloway and eastern gemfish as well as an updated recovery program for eastern sea garfish. In prioritising the work program consideration has been given to the relative risk applicable to each species and the size of the NSW component of the overall fishery. As part of the process of consultation on each recovery program, expertise based resource planning groups are established as an initial point of stakeholder advice on the draft recovery program prior to public consultation. As part of the development of a recovery program for mulloway, a series of management options were developed in conjunction with the Mulloway Resource Planning Group which consisted of fisheries scientists, fisheries managers as well as recreational, commercial, Indigenous and conservation interests. Preferred management options to rebuild the mulloway population to a sustainable level in NSW included: • Proposal to reduce the recreational bag limit from 5 (with only 2 over 70cm) to 1 • Proposal to increase the minimum legal length from 45cm to 70cm

Recommendation	Progress
	• Proposal of a daily by-catch allowance of 10 fish between 45 and 70cm for estuarine mesh netters • Proposal of a trip limit of 500kg for ocean haul fishers Public submissions were invited on the above management options, which were accompanied by a Frequently Asked Questions paper over a 10 week consultation period (refer to Appendix 1 for Mulloway Recovery Program documents). A total of 497 submissions were received. An assessment of submissions and response to the public consultation process is currently underway. The status of school prawns has changed from 'growth overfished' to 'fully fished' (determined at the Resource Assessment Workshop May 2009 - refer to the Status of Fisheries Resources in NSW 2008/09[6]). Research is continuing on the optimum size at first capture for school prawns. The eastern king prawn status continues to be growth overfished as determined by yield-per-recruit modelling, but will be reviewed using recent data.
NSW DPI in collaboration with industry to indentify ongoing research and monitoring priorities in the EGF and incorporate these within the work plan for the cross-fishery Scientific Observer Program or other research and monitoring mechanisms. Results of any relevant research or information should inform the management of the fishery and changes made to management arrangements where required.	The document entitled '*Planning Strategic Research for Wild Fisheries Aquatic Ecosystems and Aquaculture in NSW – Table of Research Priorities May 2011*' outlines the research priorities across Fisheries NSW and includes tables of research priorities categorised across those sectors. As part of the development of this strategic research plan, consultation occurred with as many stakeholders as possible, including industry groups such as Ministerial Advisory Councils and commercial Management Advisory Committees, to determine priority research areas. The plan is regularly updated as priorities change, new research is completed and new priorities emerge.
NSW DPI to continue to develop and implement a new catch information management system for the major NSW commercial fisheries (including EGF) to introduce finer scale catch and effort reporting and improve data analysis. A robust system to validate catch and effort logbook data should be included as part of the implementation of the catch information system.	Implemented.

[6] Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp.

Recommendation	Progress
NSW DPI to continue to collaborate, where appropriate, with other jurisdictions to actively pursue consistent and/or complementary research needs and management arrangements for the target species.	Ongoing.
NSW DPI to continue to monitor and assess bycatch in the major NSW commercial fisheries (including EGF) under NSW DPI's Resource Assessment Framework and scientific observer program, to ensure that changes in quantity and/or composition can be monitored and verified over time.	Ongoing.
NSW DPI to ensure that fishery assessment processes and management arrangements, for primary and secondary EGF species, take account of all removals, including best estimates of recreational, Indigenous and illegal catch.	Ongoing. As part of the resource assessment process.

Ocean Hauling Fishery

1. Description of Fishery

Species

As per *Submission to the Department of the Environment, Heritage, Water and the Arts on behalf the NSW fishing industry seeking ongoing export approval for the NSW Ocean Hauling Fishery - February 2008* (herein after called the 2008 report).

The *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006* prescribes the species (target and conditional target species) that may be taken in the Ocean Hauling Fishery (OHF) (Table 5), and also prescribes that at least 80 percent of each hauling shot must be comprised of target or conditional target species.

Table 5: Target and Conditional Target Species for OHF methods

Type of Net	Target Species	Conditional Target Species
Hauling Net (General Purpose)	Australian salmon (*Arripis trutta*) Dart (*Trachinotus* spp.) Luderick (*Girella tricuspidata*) Sand whiting (*Sillago ciliata*) Sea mullet (or any other species of mullet included in the Family *Muglidae*) Yellowfin bream (*Acanthopagrus australis*)	Blue mackerel (*Scomber australasicus*) Australian bonito (*Sarda australis*) Leaping bonito (*Cybiosarda elegans*) Oriental bonito (*Sarda orientalis*) Mulloway (*Argyrosomus japonicus*) Diamond fish (*Monodactylus argentus*) Frigate mackerel (*Auxis thazard*) Mackerel tuna (*Euthynnus affinis*) Longtail tuna (*Thunnus tonggol*) Silver trevally (*Pseudocaranx dentex*) Spanish mackerel (*Scomberomorus commerson*) Sweep (*Scorpis lineolata*) Tarwhine (*Rhabdosargus sarba*)
Garfish net (hauling)	Sea garfish (*Hyporhamphus australis*)	Nil
Pilchard, anchovy and bait net (hauling)	Anchovy (*Engraulis australis*) Blue mackerel (*Scomber australasicus*) Pilchard (*Sardinops neopilchardus*) Yellowtail scad (*Trachurus novaezelandiae*) Whitebait spp. (Family *Clupeidae Galaxiidae*)	Nil
Purse seine net	Anchovy (*Engraulis australis*) Australian salmon (*Arripis trutta*) Whitebait spp. (Family *Clupeidae*/*Galaxiidae*) Blue mackerel (*Scomber australasicus*) Australian bonito (*Sarda australis*) Oriental bonito (*Sarda orientalis*) Jack mackerel (*Trachurus declivis*) Pilchard (*Sardinops neopilchardus*) Silver trevally (*Pseudocaranx dentex*) Sweep (*Scorpis lineolata*) Yellowtail scad (*Trachurus novaezelandiae*) Skipjack tuna (striped tuna) (*Katsuwonus pelamis*)	Nil

Part 2 of the *Fisheries Management (General) Regulation 2010* lists fish that are protected from fishing by all sectors and from commercial fishing only.

Management Arrangements

As per the 2008 report. The OHF is managed under the *Fisheries Management Act 1994* and regulations made under this Act (refer to 'Governing legislation' below). The OHF is predominantly managed by input controls including:

Limited entry
The OHF is a category 1 share management fishery and access is limited to shareholders in the fishery, and/or their nominated fisher, who hold shares above any minimum shareholding level established in the *Fisheries Management Ocean Hauling Share Management Plan) Regulation 2006*.

Controls on fishing gear and boats
Refer to 'Fishing methods and gear types' below. Net and boat capacity restrictions are regulated in the *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006*.

Time and area closures
The *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006,* the *Fisheries Management (Supporting Plan) Regulation 2006* and the *Fisheries Management (General) Regulation 2010* give effect to most fishing closures that were previously notified under Section 8 of the *Fisheries Management Act 1994*.

Some fishing closures authorised under Section 8 of the *Fisheries Management Act 1994* remain and can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/info/closures

Fishing methods and gear types

As per 2008 report. The *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006* outlines the gear that may be used in the OHF.

Fishing area

As per 2008 report. The *Fisheries Management (Supporting Plan) Regulation 2006* outlines waters closed permanently to all commercial fishing or class of commercial fishing. The *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006* outlines waters permanently closed to the OHF, waters that are closed to the OHF on a seasonal basis, and other restrictions on areas of operation in the OHF. Other closures authorised under Section 8 of the *Fisheries Management Act 1994* that are specific to the OHF can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/info/closures

Number of Fishers

As at December 2011 there were 282 fishing businesses with shares in the OHF and 260 fishers endorsed to operate, and as at December 2012 there were 280 fishing businesses with shares in the fishery with 259 fishers endorsed to operate. The number of shareholders and endorsed fishers for each endorsement type for these years are shown in Table 6.

Access to the fishery is limited to shareholders in the fishery and/or their nominated fisher who hold a fishing licence with the appropriate endorsements. There are 29

types of endorsement available in the fishery as prescribed in the *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006*.

Table 6: No. of shareholders and endorsed fishers () by endorsement type in the OHF for 2011 and 2012 (shaded)

	Region 1	Region 2	Region 3	Region 4	Region 5	Region 6	Region 7
Hauling net (general purpose)	6 (6)	12 (12)	25 (24)	49 (48)	7 (7)	13 (11)	14 (12)
2012	6 (6)	12 (12)	25 (25)	49 (48)	7 (7)	13 (11)	14 (12)
Garfish net (hauling)	1 (1)	0 (0)	4 (4)	21 (20)	5 (5)	13 (12)	11 (9)
2012	1 (1)	0 (0)	4 (4)	20 (19)	5 (5)	13 (12)	11 (9)
Pilchard, anchovy and bait net	5 (5)	3 (3)	6 (6)	5 (5)	5 (5)	3 (3)	0 (0)
2012	5 (5)	3 (3)	6 (6)	5 (5)	5 (5)	3 (3)	0 (0)
Purse seine net	15 (15) *Purse seine net fishery not subject to regions*						
2012	15 (15) *Purse seine net fishery not subject to regions*						

Allocation between sectors

As per 2008 report. Refer to Status of Fisheries Resources in NSW 2008/09[7], for landings of OHF target and conditional species by other NSW commercial fisheries and, where available, estimated catches from the National Recreational and Indigenous Fishing Survey[8] and Recreational Fishing Surveys in the Greater Sydney region[9].

Governing legislation

Relevant current legal instruments include:

- *Fisheries Management Act 1994*
- *Fisheries Management (General) Regulation 2010*
- *Fisheries Management (Supporting Plan) Regulation 2006*
- *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006.*

[7] Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp.

[8] Henry, G.W. and Lyle, J.M., 2003. The National Recreational and Indigenous Fishing Survey. Final Report to the Fisheries Research & Development Corporation and the Fisheries Action Program. Project No. 1999/158. NSW Fisheries Final Report Series No. 48. ISSN 1440-3544. 188pp.

[9] Steffe, A.S. and Murphy, J.J., 2011. Recreational fishing surveys in the Greater Sydney Region. Fisheries Final Report Series No. 131 (ISSN 1837-2112). Cronulla, NSW, Australia. 122pp.

Status of export approval under the EPBC Act

The OHF was granted a five year exemption from the export regulations under the *Environment Protection and Biodiversity Act 1999* in 2008. This exemption expires on 25 July 2013.

2. Management

As per 2008 report, noting legislative and licensing reforms referred to in the '2010 Annual Report for NSW Estuary General, Ocean Hauling, Estuary Prawn Trawl and Ocean Trawl Fisheries as per Appendix B of the *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*' (2010 report).

Changes to management arrangements

Licensing arrangements
For relevant licensing arrangements refer to the NSW Commercial Fisheries Administration Guide, January 2012, which can be found on the NSW DPI website at: www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/370818/NSW-Commercial-Fisheries-Administration-Guide-Ver-1.pdf

Legislative Review
Further to the legislative changes noted in the 2010 report, the *Fisheries Management (General) Regulation 2002* (the 2002 Regulation) made under the *Fisheries Management Act 1994* was automatically repealed on 1 September 2010 pursuant to section 10 of the *Subordinate Legislation Act 1989*. The *Fisheries Management (General) Regulation 2010* remade with amendment, the 2002 Regulation with improved efficiency, effectiveness and consistency, and came into effect on 1 September 2010.

The following are key amendments contained in the *Fisheries Management (General) Regulation 2010:*

- Revision of a number of minimum fish sizes for commercial and recreational fishers, and bag limits for recreational fishers;
- Revision of fishing gear specifications to take into consideration current practices;
- Simplification of the marking of set (unattended) recreational fishing gear and setting consistent penalties for breaches of gear marking requirements;
- Introduction of greater flexibility for the master or a crew member of a NSW licensed charter fishing boat to fillet and section fish on board a boat prior to the completion of a charter trip;
- Reduction of the number of classes of commercial fishing licences from three to two;
- Revision of penalty notice amounts and amending the number of offences for which a penalty notice can be issued;
- Prescription of additional activities that are presumed to be harmful to marine
- vegetation;
- Creation of an offence for using a chemical substance for the purpose of taking, disturbing, injuring or harming fish;
- Conversion of temporary fishing closures in inland waters into permanent recreational fishing prohibitions;
- Adoption of Australian Standard Fish Names (Australian Standard Fish Names – AS SSA 5300);

- Establishment of a schedule of fees so that all the fees prescribed throughout the Regulation are in one place and can be readily found.

Refer to: www.legislation.nsw.gov.au/sessionalview/sessional/sr/2010-105.pdf and www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/351317/Factsheet-2010-Regulation-commercial-v3.pdf

In March 2011 changes to fisheries rules were introduced via amendments to the *Fisheries Management (General) Regulation 2010* and a number of the Share Management Plan Regulations. Refer to *March 2011 Commercial Fishers Information Paper: Changes to NSW Fisheries Legislation* on the NSW DPI website for further information:
www.dpi.nsw.gov.au/fisheries/commercial/info/march-2011commercial-fishers-information-paper-changes-to-nsw-fisheries-legislation

Reform Programs
The aim of the reform programs detailed below is to develop a structure that provides a stronger future for commercial fisheries and provide industry with long-term viability and increased certainty whilst ensuring sustainability of the State's fisheries resources.

❖ Pyrmont Pact
As per the 2010 report. A number of initiatives of the [reform program] *Pyrmont Pact* are complete or in progress including:

- An exit grant program funded by the Commercial Trust was introduced in late 2010.The program involved payment of $15,000 to fishing business owners upon transfer of all shares to other shareholders and dissolution of the business, and resulted in the removal of 17 fishing businesses.
- The development of a comprehensive package of reforms for the spanner crab component of the Ocean Trap and Line Fishery, including the introduction of quota, is in progress.
- Following significant licensing related reforms implemented in connection with the introduction of share management in 2007, NSW DPI is building FishOnline. FishOnline is a $3.6 million government funded initiative to streamline administration through the provision of online services for the commercial fishing and charter boat sectors.
- The commercial fishing industry also identified a number of fishing closures for review; these have been prioritised and will be considered in light of the current reform program described below.

❖ Independent Review of NSW Commercial Fisheries Policy, Management and Administration
Building upon the [reform program] *Pyrmont Pact*, in September 2011 the NSW Government commissioned an independent review of NSW commercial fisheries policy, management and administration. The Terms of Reference for the review included:

- Examine current and alternative fisheries management models;
- Review the stakeholder consultation framework;
- Review the current legislation to ensure effective resource management;
- Examine the fisheries sharing arrangements relating to commercial fisheries access;
- Review alternative fisheries management opportunities;

- Provide advice on the most appropriate commercial fishing industry structural adjustment program.

The review was completed in March 2012. The final report and the Government's response, where the vast majority of the recommendations were supported, can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/commercial/reform

The review has established the platform for further and continued reform within the NSW commercial fishing industry and implementing the subsequent recommendations will be undertaken over the next two years to allow for extensive consultation with industry. The program will:

- Create a management system that provides the opportunity for fishers (particularly inactive fishers) to exit the industry while at the same time assisting active fishers who wish to remain acquire additional shares at a subsidised rate;
- Link shares to catch or fishing effort, thereby allowing industry to autonomously adjust – shareholders will be able to easily modify the structure of their businesses and access to the resource to meet their needs – and Government will have improved capacity to adjust commercial catch and fishing effort;
- Restore confidence in decision making processes, including the consultation structures;
- Deliver a more efficient industry operating in an environment with reduced red tape;
- Provide added community confidence that NSW commercial fisheries are managed and operating at sustainable levels;
- Provide certainty that the non-fishing public and seafood consumers can continue to enjoy fresh, local NSW seafood.

A further initiative to be rolled out in conjunction with this program is the creation of a peak industry body to deliver consultation services to industry, as well as developing a fisheries resource sharing policy and a cost recovery policy which have been identified as two key priority areas for the new Ministerial Fisheries Advisory Council[10].

For further information on the reform programs for NSW commercial fishing can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/commercial/reform

Performance of the OHF against indicators and triggers points

Refer to Table 7 for a statement of the performance of the OHF against performance indicators and trigger points detailed in the Ocean Hauling Fishery Management Strategy based on data for 2010/11 and 2011/12.

3. Research and monitoring

Research priorities

Refer to *Planning Strategic Research for Wild Fisheries Aquatic Ecosystems and Aquaculture in NSW – Table of Research Priorities May 2011* available at www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/168369/Tables-of-research-priorities.pdf

[10] The Ministerial Fisheries Advisory Council will replace the former Seafood Industry Advisory Council.

Results of any research completed relevant to the fishery

Descriptions of current research projects, scientific outputs and any completed research results by NSW DPI Fisheries Research – Wild Fisheries Unit relevant to the fishery can be found on the NSW DPI website at:
www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/184931/Current-Project-Summaries-for-Web_WILD-FISH_UPDATED-6-FEB12.pdf

Monitoring Programs

As per the 2010 report. The NSW DPI fishery monitoring program includes stock assessment work on the key commercial species; the use of scientific observers to record information on catches of target species and by-catch; the collection of catch and effort data; and port monitoring of landed fish products (e.g. collecting data on fish length and age).

4. Catch data

Refer to Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp. for OHF target and conditional target species catch information.

5. Status of target stock

Refer to Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp. for exploitation status of target and conditional target species in the OHF.

6. Interaction with protected species

Mandatory reporting of threatened species interactions was implemented for the OHF in 2005. Pursuant to the reporting requirements, in 2010/2011 one (1) interaction with a grey nurse shark was recorded with a general purpose hauling net, it was released unharmed. In 2012 one (1) interaction was reported with a sea bird (cormorant) using a purse seine net in the OHF.

7. Impacts of the fishery on the ecosystem in which it operates

As per 2008 report. Monitoring the management of impacts of the fishery on the ecosystem, including impacts on any key conservation values, is undertaken as part of the Ocean Hauling Fishery Management Strategy performance assessment process which includes a comparison of performance indicators against the respective trigger points provided in Table 7.

8. Progress implementing export approval recommendations

Refer to Table 8 for a report against OHF export approval recommendations.

Table 7: Assessment of the Performance Indicators and Trigger Points for the Ocean Hauling Fishery (2010/11and 2011/12)

Performance Indicator	Trigger Point	Status	Comment
The estimated quantity of the ocean hauling catch (by method) which is discarded	The quantity of discards for any observed method increases between consecutive observer surveys	-	Consecutive observer survey data not available
Response of the Ocean Hauling Fishery to marine pest and disease incursions	Guidelines specified in any Marine Pest and Disease Management Program are not adopted by the Ocean Hauling Fishery	N/A	No relevant marine pest or disease management programs applicable.
Length of beach totally closed to ocean hauling fishing (through fishing closures, marine parks and/or aquatic reserves)	The total length of beach open to ocean hauling increases above the length open at the commencement of the FMS	✓	There has been no increase in the total length of beach open to ocean hauling above the length open at the commencement of the FMS.
Changes in the exploitation status of a target or conditional target species in OHF to 'overfished' or 'recruitment overfished'	The exploitation status of a target/ conditional target species is changed to 'overfished' or 'recruitment overfished' by I&I NSW	✓	There were no changes to the exploitation status of a target or conditional target species to 'overfished' or 'recruitment overfished' for 2010/11 (determined at the Resource Assessment Workshop April 2012). One target species (eastern sea garfish *Hyporhamphus australis*) and one conditional target species (mulloway *Argyrosomus japonicus*) remain classified as 'overfished'.
Total annual landings of all conditional target and byproduct species taken in each ocean hauling method as a percentage of the total annual landings for that method	Contribution of conditional target and byproduct species for any method exceeds 5% in any two consecutive years	**2010/11** GP haul - ✓ PAB net - ✓ PS net - ✓ GF haul - × **2011/2012** GP haul - ✓ PAB net - ✓ PS net - ✓ GF haul - ×	The trigger was activated for the method garfish net (hauling). Byproduct species* accounted for approximately 8.1% of total annual landings for the method in 2009/10, approx 6.4% in 2010/11, and approx 7.1% in 2011/12. [Note: Analysis based on reported landings from catch return forms received and entered to 28 March 2013. Data is subject to ongoing validation.] * There are no conditional target species scheduled in the *Fisheries Management (Ocean Hauling Share Management Plan) Regulation 2006* for the method garfish net (hauling).

Performance Indicator	Trigger Point	Status	Comment
Interactions between the fishery and threatened species, populations or ecological communities that are likely to threaten the survival of a threatened species, population or ecological community	Any interactions between the fishery and a threatened species, population or ecological community reported by endorsement holders in the fishery or observed during an observer survey that are likely to threaten the survival of that threatened species, population or ecological community, as determined by the Director-General of I&I NSW on advice from relevant threatened species experts	**2010/11** ✓ **2011/12** ✓	No observer data available. There was one report of an interaction with a grey nurse shark (listed as critically endangered under the *Fisheries Management Act 1994)* by an Ocean Hauling endorsement holder in April 2011. The fisher reported that the shark was untangled and released unharmed.
Interactions between the fishery and protected species that are likely to threaten the survival of a protected species	A biennial review undertaken by I&I NSW of interactions between the fishery and a protected species reported by endorsement holders in the fishery or observed during an observer survey is likely to threaten the survival of that protected species as determined by the Director-General of I&I NSW on advice from relevant threatened species experts	**2010/11** ✓ **2011/12** ✓	No observer data available. There was one report of an interaction with a large seabird in September 2012, but this is outside the current reporting period.
Change in the distribution of landings between the commercial sector and non-commercial sectors (combining recreational and Indigenous) for each primary species in the OHF	Maximum absolute difference in the distribution of landings between the commercial and non-commercial sectors is greater than 15 percentage points when compared every five years	-	This performance indicator can only be measured if updated estimates of non-commercial catch become available between comparison years.
Change in the distribution of landings among NSW commercial fisheries for each target species in the OHF	Maximum absolute difference in the distribution of landings between the assessment and reference years is greater than 15 percentage points	N/A	Not applicable to this year's assessment. In accordance with the OH FMS, this assessment is to occur on a five year cycle. The last assessment year was 2007/08 and the next assessment year is 2012/13.

Performance Indicator	Trigger Point	Status	Comment
Change in the distribution of landings among ocean hauling regions for each target species	Maximum absolute difference in the distribution of landings between the assessment and reference years is greater than 50 percentage points	N/A	Not applicable to this year's assessment. In accordance with the OH FMS, this assessment is to occur on a five year cycle. The last assessment year was 2007/08 and the next assessment year is 2012/13.
Net economic returns to the OHF	The Director-General is satisfied that the gross value of production of the fishery has not exceeded the sum of indicative industry operational costs and government management costs relevant to the fishery for three consecutive years	-	A process to determine indicative industry operational costs has yet to be developed. The Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012) recommended that the task of developing a formal cost recovery policy (which would consider government management costs) be undertaken as a priority activity by the new Ministerial Fisheries Advisory Council. This Council is expected to be established in 2013.
Average market value of OH shares when traded	Trigger to be determined within two years of the commencement of the share management plan	-	Share management plans for the OHF commenced on the 5 February 2007. Trigger yet to be determined.
Percentages of total annual inspections in the OHF which result in the detection of minor or major offences.	Percentage of inspections resulting in the detection of offences exceeds either of the following: (i) 20% for minor offences; (ii) 10% for major offences. Differentiation between major and minor offences is yet to be finalised. In the interim, an overall compliance rate of less than 85% will be used as the trigger point.	✓	2006/07 - 92% 2007/08 - 97% 2008/09 - 94% 2009/10 - 96% 2010/11 - 94% 2011/12 - 97%

Performance Indicator	Trigger Point	Status	Comment
Number of Ocean Hauling MAC meetings held each year	Less than two meetings for each fishery held in a calendar year, unless otherwise agreed by the MAC	N/A	No longer applicable. The Ocean Hauling MAC, like most other MACs, has not operated formally since late 2009 (although it was used as an informal consultation tool up until 2011), initially pending the outcome of an internal review of consultative bodies. Subsequently the Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012) examined, amongst other issues, the effectiveness of current commercial fishery consultation arrangements. Based on the Review recommendations, the MACs are to be replaced by non-statutory, issue- or task-based working groups reporting to the Executive Director, Fisheries NSW. Thus the performance indicator needs to be revised. Non-statutory industry and cross-sector working groups comprising Ocean Hauling fishers and other stakeholders were established in 2011 and 2012 including an Eastern Sea Garfish Resource Planning Group, a Mulloway Resource Planning Group and a working group to review commercial fishing arrangements for Australian salmon. In addition, as part of the Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012), the Review Team held a number of regional port meetings, consulted with a broad range of commercial fishery shareholders individually or as groups, and established a Stakeholder Reference Group (comprised of commercial fishery shareholders from each fishery) which met in October and December 2011.
Public availability of information regarding the OHF	Less than two pieces of informative material relating to the OHF are published every three years	✓	Examples of publicly available informative material include information published on the NSW DPI website relating to the Commercial Fisheries Reform Program, including historical fisheries data published in January 2010 and information on the distribution of shares and shareholdings published in March 2013. A press release about changes to Australian salmon commercial fishing arrangements was also published on 25 November 2011.

Performance Indicator	Trigger Point	Status	Comment
Number of target and conditional target species in the OHF with an 'uncertain' or 'undefined' exploitation status	The number target/ conditional target species with an 'uncertain' or 'undefined' exploitation status has not decreased between two consecutive odd-numbered years [e.g. 2006/07 is considered an odd-numbered year and 2007/08 is considered an even-numbered year]	×	Number of target and conditional target species harvested in the OHF with an exploitation status "uncertain' or 'undefined' 2006/07 - 11 2007/08 - 8 2008/09 - 8 2009/10 - 8 2010/11 - 8 The number of species being assessed as part of the Resource Assessment System has increased due to the addition of priority recreational species and the splitting of species groupings (e.g. sharks) into more refined categories (e.g. whalers, tiger, hammerhead, mako sharks). This indicates that a change to the performance indicator and trigger point is needed.
The difference between the current and target resource assessment class for target and conditional target species of the OHF	The sum of the difference between the current and target assessment class for target/ conditional target species has not decreased between two consecutive odd-numbered years [e.g. 2006/07 is considered an odd-numbered year and 2007/08 is considered an even-numbered year]	✓	The sum of the difference between the current and target assessment class: 2006/07 - 19 2007/08 - 14 2008/09 - 14 2009/10 - 9 2010/11 - 10 As above, the number of species being assessed as part of the Resource Assessment System has increased over time. In addition, target classes may be reviewed and occasionally changed, for instance where research projects or other jurisdictions' assessments suggest the risks are greater or less than previously thought. These factors can affect the sum of differences even where there is no change to the current assessment class for individual species, and indicates that a change to the performance indicator and trigger point are needed.

Performance Indicator	Trigger Point	Status	Comment
The number of research projects underway which have a flow of benefits to the fishery and fill information gaps identified by the environmental impact assessment for the fishery	The number of relevant research projects relevant to identified information gaps falls to less than two during any one year	✓	Refer to 'Current Research Projects - Wild Fisheries'[11]
Accuracy of catch return data (in terms of quantity of product, record completeness and species identification)	The accuracy of catch return data has not improved when reviewed every two years	✓	A strategy to improve compliance by fishing industry participants with fish records legislation was initiated in 2010. This strategy has been successful in improving the compliance rate for Sections 121 and 122 [of the *Fisheries Management Act 1994*] fish records submission for the 2009/10 fishing period from 70% to 98%. The strategy has also been successful for the 2010/11 fishing period (97%) however, for the 2011/12 fishing period compliance was 84% which is below the strategy's target of at least 95%.

[11] Available at www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/184931/Current-Project-Summaries-for-Web_WILD-FISH_UPDATED-6-FEB12.pdf

Table 8: Report against Ocean Hauling Fishery Export Approval recommendations for the OHF (2010/11 and 2011/2012)

Recommendation	Progress
Operation of the OHF will be carried out in accordance with the management regime in force under the NSW *Fisheries Management Act 1994*.	Operation of the fishery has been carried out in accordance with the *Fisheries Management Act 1994* and regulations made under this Act.
NSW DPI to advise DEWHA of imminent and substantive changes to the OHF management arrangements that may affect the assessment of the fishery against the criteria upon which the EPBC Act decisions are based.	SEWPaC advised accordingly.
NSW DPI to produce and present reports to DEWHA annually as per Appendix B of the *Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition*.	This report seeks to satisfy this recommendation.
NSW DPI to develop and implement recovery strategies for species determined as overfished or recruitment overfished, within 6 months of the species being so classified. For species categorised as growth overfished, the status of the stocks will be reviewed and specific measures implemented, as required, within 12 months to prevent the stocks from becoming recruitment overfished.	As previously advised, "recruitment overfished" and "overfished" species have been given the highest priority as part of the fishery resource recovery program. The process takes into account interactions between fisheries as well as social and economic impacts, with the priority species identified as mulloway and eastern gemfish as well as an updated recovery program for eastern sea garfish. In prioritising the work program consideration has been given to the relative risk applicable to each species and the size of the NSW component of the overall fishery. As part of the process of consultation on each recovery program, expertise based resource planning groups are established as an initial point of stakeholder advice on the draft recovery program prior to public consultation. As part of the development of a recovery program for mulloway, a series of management options were developed in conjunction with the Mulloway Resource Planning Group which consisted of fisheries scientists, fisheries managers as well as recreational, commercial, Indigenous and conservation interests. Preferred management options to rebuild the mulloway population to a sustainable level in NSW included: • Proposal to reduce the recreational bag limit from 5 (with only 2 over 70cm) to 1 • Proposal to increase the minimum legal length from 45cm to 70cm • Proposal of a daily by-catch allowance of 10 fish between 45 and 70cm for estuarine mesh netters • Proposal of a trip limit of 500kg for ocean haul fishers

Recommendation	Progress
	Public submissions were invited on the above management options, which were accompanied by a Frequently Asked Questions paper over a 10 week consultation period (refer to Appendix 1 for Mulloway Recovery Program documents). A total of 497 submissions were received. An assessment of submissions and response to the public consultation process is currently underway.
By April 2009, NSW DPI to implement additional measures identified in the Eastern Sea Garfish Recovery Program or effective alternatives, to halt the stocks decline and further promote the rebuilding of stocks to ecologically sustainable levels.	The commercial fishery for eastern sea garfish has been operating under a recovery program, since 2006, and a set of management arrangements designed to prevent further serious declines and assist the stock to recover. Current management arrangements include limits on fishing effort (in the form of weekend/public holiday closures), limited entry and gear controls. Commercial catch levels are also monitored closely. As noted above NSW DPI will be reviewing the effectiveness of the management arrangements and making changes where appropriate.
NSW DPI in collaboration with industry to indentify ongoing research and monitoring priorities in the OHF and incorporate these within the work plan for the cross-fishery Scientific Observer Program or other research and monitoring mechanisms. Results of any relevant research or information should inform the management of the fishery and changes made to management arrangements where required.	The document entitled '*Planning Strategic Research for Wild Fisheries Aquatic Ecosystems and Aquaculture in NSW – Table of Research Priorities May 2011*' outlines the research priorities across Fisheries NSW and includes tables of research priorities categorised across those sectors. As part of the development of this strategic research plan, consultation occurred with as many stakeholders as possible, including industry groups such as Ministerial Advisory Councils and commercial Management Advisory Committees, to determine priority research areas. The plan is regularly updated as priorities change, new research is completed and new priorities emerge.
NSW DPI to continue to develop and implement a new catch information management system for the major NSW commercial fisheries (including OHF) to introduce finer scale catch and effort reporting and improve data analysis. A robust system to validate catch and effort logbook data should be included as part of the implementation of the catch information system.	Implemented.
NSW DPI to continue to collaborate, where appropriate, with other jurisdictions to actively pursue consistent and/or complementary research needs and management arrangements for the target species.	Ongoing.

Recommendation	Progress
NSW DPI to continue to monitor and assess bycatch in the major NSW commercial fisheries (including OHF) under I&I NSW's Resource Assessment Framework and scientific observer program, to ensure that changes in quantity and/or composition can be monitored and verified over time.	Ongoing.
NSW DPI to ensure that fishery assessment process and management arrangements, for primary and secondary OHF species, take account of all removals, including best estimates of recreational, Indigenous and illegal catch.	Ongoing. As part of the resource assessment process.

Estuary Prawn Trawl Fishery

1. Description of Fishery

Species

As per *Submission to the Department of Sustainability, Environment, Water, Population and Communities on behalf of the NSW fishing industry seeking ongoing export approval for the NSW Estuary Prawn Trawl Fishery – September 2011* (herein after called the 2011 report).

The *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006* prescribes the species (target and by-product) that may be taken in the Estuary Prawn Trawl Fishery (EPTF) (Table 9), and, prescribes that only target and by-product species may be taken.

Table 9: Target and By-product Species in the EPTF

Common name	Scientific name	Hawkesbury	Hunter	Clarence
School prawn	*Metapenaeus macleayi*	**Target**	**Target**	**Target**
Eastern king prawn	*Melicertus plebejus*	**Target**	**Target**	Yes
Greasyback prawn	*Metapenaeus bennettae*	Yes	Yes	Yes
Tiger prawn	*Penaeus esculentus*	Yes	Yes	Yes
Trumpeter whiting	*Sillago maculata*	Yes	No	Yes
Large-toothed flounder	*Pseudorhombus arsius*	Yes	No	No
Small-toothed flounder	*Pseudorhombus jenynsii*	Yes	No	No
Black sole	*Synaptura nigra*	Yes	No	No
Silver biddy	*Gerres subfasciatus*	Yes	No	Yes
Striped grunter	*Pelates quadrilineutus*	Yes	No	No
Whitebait spp.	Family: Clupeidae	Yes	No	No
Fork-tailed catfish	*Euristhmus lepturus*	Yes	No	Yes
Estuary catfish	*Cnidoglanis macrocephalus*	No	No	Yes
Striped catfish	*Plotosis lineatus*	Yes	No	Yes
Bullseye spp.	Family: Pempheridídae	Yes	No	No
Hairtail	*Trichiurus lepturus*	Yes	No	No
Yellowtail scad	*Trachurus novaezelandiae*	Yes	No	No
Blue swimmer crab	*Portunus pelagicus*	Yes	No	Yes
Mud crab	*Scylla serrata*	Yes	No	Yes
Octopus spp.	Family: Octopodidae	Yes	No	No
Mantis shrimp	*Erugosquilla grahami*	Yes	No	No
Mantis shrimp	*Harpiosquilla harpex*	Yes	No	No
Arrow squid	*Nototodarus gouldi*	No	Yes	Yes
Broad squid	*Photololigo etheridgei*	**Target**	Yes	Yes
Slender squid	*Loligo* sp.	**Target**	Yes	Yes
Bottle squid	*Loliolus noctiluca*	**Target**	Yes	No
Bubble squid	*Eupyrmna stenodactyla*	**Target**	No	No
Candy-striped squid	*Sepioloida lineolata*	**Target**	No	No

'Target' signifies that the species is a target species in that estuary. 'Yes' signifies that the species is a by-product species in that estuary. 'No' signifies that the species is not a by-

product species in that estuary and therefore cannot be landed by fishers.

Part 2 of the *Fisheries Management (General) Regulation 2010* lists fish that are protected from fishing by all sectors and from commercial fishing only.

Management Arrangements

As per the 2011 report. The EPTF is managed under the *Fisheries Management Act 1994* and regulations made under this Act (refer to 'Governing legislation' below). The EPTF is predominantly managed by input controls, however some output controls are also used.

Limited entry
The EPTF is a category 1 share management fishery and access is limited to shareholders in the fishery, and/or their nominated fisher, who hold sufficient shares to satisfy one or more of the minimum shareholding level established in the *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006*.

Controls on fishing gear and boats
Refer to 'Fishing methods and gear types' below. Net and boat capacity restrictions are regulated in the *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006*.

Time and area closures
The *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006* and the *Fisheries Management (Supporting Plan) Regulation 2006* establish the many prohibitions (or closures) that apply to the EPTF. Most of these prohibitions were previously established under Section 8 of the *Fisheries Management Act 1994*.

Some fishing closures remain as Section 8 notifications which can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/info/closures

Trawl seasons and operating hours
Trawl seasons and operating hours for each estuary in the EPTF are prescribed in the *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006.*

Size limits
Maximum prawn counts are implemented in the EPTF via fishing closures authorised under Section 8 of the *Fisheries Management Act 1994*. Refer to the NSW DPI website for more information:
www.dpi.nsw.gov.au/fisheries/info/closures/commercial/ept

Fishing methods and gear types

As per the 2011 report. The mesh size, amount of net (i.e. headrope length) and number of nets that may be towed behind an estuary prawn trawl vessel are restricted to limit fishing capacity and vary depending upon the waters concerned.

The *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006* prescribes the restrictions applying to estuary prawn trawl nets including the mandatory requirement that all otter trawl (prawn) nets be fitted with a bycatch reduction device that has been approved for use in the EPTF. Bycatch reduction devices approved for use in the EPTF are described on the NSW DPI

website at: www.dpi.nsw.gov.au/fisheries/info/closures/estuary-prawn-trawl-bycatch-reduction-devices

Fishing Area

As per 2011 report. The *Fisheries Management (Supporting Plan) Regulation 2006* outlines waters closed permanently to all commercial fishing or classes of commercial fishing. The *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006* outlines waters permanently closed to the EPTF, waters that are closed to the EPTF on a seasonal basis, and other restrictions on areas of operation in the EPTF. Other closures relating to EPTF pursuant to Section 8 of the *Fisheries Management Act 1994* can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/info/closures

Number of Fishers

As at December 2011 there were 170 fishing businesses with shares in the EPTF with 152 fishers endorsed to operate. As at December 2012 there were 169 fishing businesses with shares in the EPTF with 150 fishers endorsed to operate. The number of shareholders and endorsed fishers for each of the three estuaries in the EPTF is shown in Table 10.

Access to the fishery is limited to shareholders in the fishery and/or their nominated fisher who hold a fishing licence with the appropriate endorsements. There are 3 types of endorsement available in the fishery as prescribed in the *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006*.

Table 10: Number of shareholders and endorsed fishers () in each estuary of the EPTF for 2011 and 2012

Estuary	December 2011	December 2012
Hawkesbury River	56 (50)	56 (50)
Hunter River	27 (25)	27(25)
Clarence River	93 (85)	93 (84)

Allocation between sectors

As per 2011 report. Refer to Status of Fisheries Resources in NSW 2008/09[12] for landings of EPT target and by-product species by other NSW commercial fisheries and, where available, estimated catches from the National Recreational and Indigenous Fishing Survey[13] and Recreational Fishing Surveys in the Greater Sydney region[14].

[12] Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp.

[13] Henry, G.W. and Lyle, J.M., 2003. The National Recreational and Indigenous Fishing Survey. Final Report to the Fisheries Research & Development Corporation and the Fisheries Action Program. Project No. 1999/158. NSW Fisheries Final Report Series No. 48. ISSN 1440-3544. 188pp.

[14] Steffe, A.S. and Murphy, J.J., 2011. Recreational fishing surveys in the Greater Sydney Region. Fisheries Final Report Series No. 131 (ISSN 1837-2112). Cronulla, NSW, Australia. 122pp.

Governing legislation

Relevant current legal instruments include:

- *Fisheries Management Act 1994*
- *Fisheries Management (General) Regulation 2010*
- *Fisheries Management (Supporting Plan) Regulation 2006*
- *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006.*

Status of export approval under the EPBC Act

The EPTF was declared an approved Wildlife Trade Operation under the EPBC Act on 21 November 2011. The WTO expires on 27 November 2014.

2. Management

As per 2011 report.

Changes to management arrangements

Licensing arrangements
For relevant licensing arrangements refer to the NSW Commercial Fisheries Administration Guide, January 2012, which can be found on the NSW DPI website at: www.dpi.nsw.gov.au/__data/assets/pdf_file/0009/370818/NSW-Commercial-Fisheries-Administration-Guide-Ver-1.pdf

Legislative changes
As per the 2011 report. For legislative changes that occurred in 2010 refer to: www.legislation.nsw.gov.au/sessionalview/sessional/sr/2010-105.pdf and www.dpi.nsw.gov.au/__data/assets/pdf_file/0020/351317/Factsheet-2010-Regulation-commercial-v3.pdf and for changes that occurred in 2011 refer to: www.dpi.nsw.gov.au/fisheries/commercial/info/march-2011commercial-fishers-information-paper-changes-to-nsw-fisheries-legislation

Reform Programs
❖ Pyrmont Pact
As per the 2011 report. A number of initiatives of the [reform program] *Pyrmont Pact* are complete or in progress including:

- An exit grant program funded by the Commercial Trust was introduced in late 2010.The program involved payment of $15,000 to fishing business owners upon transfer of all shares to other shareholders and dissolution of the business, and resulted in the removal of 17 fishing businesses.
- The development of a comprehensive package of reforms for the spanner crab component of the Ocean Trap and Line Fishery, including the introduction of quota, is in progress.
- Following significant licensing related reforms implemented in connection with the introduction of share management in 2007, NSW DPI is building FishOnline. FishOnline is a $3.6 million government funded initiative to streamline administration through the provision of online services for the commercial fishing and charter boat sectors.
- The commercial fishing industry also identified a number of fishing closures for review; these have been prioritised and will be considered in light of the current reform program described below.

❖ Independent Review of NSW Commercial Fisheries Policy, Management and Administration

As per the 2011 report. The review was completed in March 2012. The final report and the Government's response, where the vast majority of the recommendations were supported, can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/commercial/reform

The review has established the platform for further and continued reform within the NSW commercial fishing industry and implementing the subsequent recommendations will be undertaken over the next two years to allow for extensive consultation with industry. The program will:

- Create a management system that provides the opportunity for fishers (particularly inactive fishers) to exit the industry while at the same time assisting active fishers who wish to remain acquire additional shares at a subsidised rate;
- Link shares to catch or fishing effort, thereby allowing industry to autonomously adjust – shareholders will be able to easily modify the structure of their businesses and access to the resource to meet their needs – and Government will have improved capacity to adjust commercial catch and fishing effort;
- Restore confidence in decision making processes, including the consultation structures;
- Deliver a more efficient industry operating in an environment with reduced red tape;
- Provide added community confidence that NSW commercial fisheries are managed and operating at sustainable levels;
- Provide certainty that the non-fishing public and seafood consumers can continue to enjoy fresh, local NSW seafood.

A further initiative to be rolled out in conjunction with this program is the creation of a peak industry body to deliver consultation services to industry, as well as developing a fisheries resource sharing policy and a cost recovery policy which have been identified as two key priority areas for the new Ministerial Fisheries Advisory Council[15].

For further information on the reform programs for NSW commercial fishing can be found on the NSW DPI website at www.dpi.nsw.gov.au/fisheries/commercial/reform

Performance of the EPTF against indicators and trigger points

Refer to Table 11 for a statement of the performance of the EPTF against performance indicators and trigger points detailed in the Estuary Prawn Trawl Fishery Management Strategy based on data for 2011/12.

3. Research and monitoring

Research priorities

Refer to *Planning Strategic Research for Wild Fisheries Aquatic Ecosystems and Aquaculture in NSW – Table of Research Priorities May 2011* available at www.dpi.nsw.gov.au/__data/assets/pdf_file/0006/168369/Tables-of-research-priorities.pdf

Results of any research completed relevant to the fishery

[15] The Ministerial Fisheries Advisory Council will replace the former Seafood Industry Advisory Council.

Descriptions of current research projects, scientific outputs and any completed research results by NSW DPI Fisheries Research – Wild Fisheries Unit relevant to the fishery can be found on the NSW DPI website at:
www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/184931/Current-Project-Summaries-for-Web_WILD-FISH_UPDATED-6-FEB12.pdf

Monitoring Programs

As per the 2011 report. The NSW DPI fishery monitoring program includes stock assessment work on the key commercial species; the use of scientific observers to record information on catches of target species and by-catch; the collection of catch and effort data; and port monitoring of landed fish products (e.g. collecting data on fish length and age).

4. Catch data

Refer to 2011 report. Updated total catch data for the past 3 fiscal periods including 2010/2011 and 2011/2012 financial years are provided in Table 11.

Table 11: Weight (kg) of reported landings for the EPTF#

Year	Hawkesbury	Hunter	Clarence	Grand Total
2009/10	158,281	29,837	51,866*	239,984
2010/11	146,436	54,393	221,575	422,404
2011/12	139,063	54.468	146,114	339,645

Reported gross landings as at 28 March 2013. Data is subject to ongoing validation.
* Significant reduction due to environmental/weather conditions including major flood events.

5. Status of target stock

Refer to Rowling, K., Hegarty, A. and Ives, M. 2010, Status of Fisheries Resources in NSW 2008/09, NSW Industry & Investment, Cronulla, 392 pp. for exploitation status of target and by-product species in the EPTF.

6. Interaction with protected species

As per 2011 report. Mandatory reporting of protected and threatened species interactions was implemented for the EPTF in 2005. Pursuant to the reporting requirements, in 2010/2011 one (1) interaction with a Green Turtle was recorded with an otter trawl net in the Clarence River – the turtle was released alive.

7. Impacts of the fishery on the ecosystem in which it operates

As per 2011 report. Monitoring the management of impacts of the fishery on the ecosystem, including impacts on any key conservation values, is undertaken as part of the Estuary Prawn Trawl Fishery Management Strategy performance assessment process which includes a comparison of performance indicators against the respective trigger points provided in Table 12.

8. Progress implementing export approval recommendations

Refer to Table 13 for a report against EPTF export approval conditions and recommendations.

Table 12: Assessment of the Performance Indicators and Trigger Points for the Estuary Prawn Trawl Fishery (2011/12)

Performance Indicator	Trigger Point	Status	Comment
The estimated quantity of the estuary prawn trawl catch which is incidental (i.e. by-product plus by-catch).	The quantity of incidental catch (by-product plus by-catch) for any observed estuary increases between consecutive observer surveys.	-	Consecutive observer survey data not available
Response of the EPTF to marine pest and disease incursions.	Guidelines specified in any Marine Pest and Disease Management Program are not adopted by the EPTF.	✓	All relevant guidelines adhered to in the fishery. To manage the potential spread of the noxious seaweed *Caulerpa taxifolia* via both recreational and commercial fishing gear, fishing closures under Section 8 of the *Fisheries Management Act 1994* are in place in affected estuaries banning the use of all nets (commercial and recreational) other than landing nets.
Number of estuaries totally closed to estuary prawn trawling (through regulatory controls, marine parks and/or aquatic reserves) every two years.	Estuaries closed to estuary prawn trawling become open after the commencement of the FMS.	✓	There has been no increase in the number of estuaries open to prawn trawling, which remains at 3 (Clarence, Hunter and Hawkesbury).
Changes in the exploitation status of a target or by-product species in EPT to 'overfished' or 'recruitment overfished'	The exploitation status of a target or byproduct species is changed to 'overfished' or 'recruitment overfished' by I&I NSW.	✓	There were no changes to the exploitation status of a target or by-product species to 'overfished' or 'recruitment overfished' for 2010/11 (determined at the Resource Assessment Workshop April 2012). No target or byproduct species are classified as 'overfished' or 'recruitment overfished'.

<table>
<tr><th>Performance Indicator</th><th>Trigger Point</th><th>Status</th><th>Comment</th></tr>
<tr>
<td>Total annual landings of each byproduct species as a ratio of the total annual landings of target species in each estuary in the EPTF.</td>
<td>Ratio of the landings of any byproduct species to total landings of target species exceeds the limits specified in the FMS in any two consecutive years</td>
<td>×</td>
<td>The ratio of total annual landings of the following byproduct species to total annual landings of target species exceeded the limit for the relevant estuary, as specified in the FMS (Table 13), in two consecutive years as follows ('x' indicates ratio exceeded):
<table>
<tr><th></th><th>2009/10 – 2010/11</th><th>2010/11 – 2011/12</th></tr>
<tr><td>Clarence River
Tiger prawn Penaeus esculentus</td><td></td><td>x</td></tr>
<tr><td>Hunter River
Squid (Loliginidae, Sepiolidae, Teuthoidae)*</td><td>x</td><td>x</td></tr>
<tr><td>Hawkesbury River
Silver biddy Gerres subfasciatus
Hairtail Trichiurus lepturus
Whitebait (Clupidae)
Tiger prawn Penaeus esculentus
Yellowtail Trachurus novaezelandiae</td><td>
x
x
x

x</td><td>
x
x
x
x
x</td></tr>
</table>
*Arrow squid (Nototodarus gouldi), broad squid (Photololigo etheridgei), slender squid (Loligo sp.) and bottle squid (Loliolus noctiluca) are all legal byproduct species in the Hunter River EPTF, however as the allowable ratio for squid specified in the EPT FMS is 0kg/1000kg of target species, any landings of squid automatically activates the trigger point, suggesting a review of the FMS ratios may needed.
[Note: Analysis based on reported landings from catch return forms received and entered to 28 March 2013. Data is subject to ongoing validation.]</td>
</tr>
</table>

Performance Indicator	Trigger Point	Status	Comment
Interactions between the fishery and threatened species, populations or ecological communities that are likely to threaten the survival of a threatened species, population or ecological community.	Any interactions between the fishery and a threatened species, population or ecological community reported by endorsement holders in the fishery or observed during an observer survey that are likely to threaten the survival of that threatened species, population or ecological community, as determined by the Director-General of I&I NSW on advice from relevant threatened species experts	**2010/11** ✓ **2011/12** ✓	No observer data available. There was one report of an interaction with a green turtle (listed as Vulnerable under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and NSW *Threatened Species Conservation Act 1995*) by an EPT endorsement holder in November 2010. The turtle was released alive.
Interactions between the fishery and protected species that are likely to threaten the survival of a protected species.	A biennial review undertaken by I&I NSW of interactions between the fishery and a protected species reported by endorsement holders in the fishery or observed during an observer survey is likely to threaten the survival of that protected species as determined by the Director-General of I&I NSW on advice from relevant threatened species experts.	**2010/11** ✓ **2011/12** ✓	No observer data available. There were no reports of interactions with protected species by endorsement holders in the EPT in 2010/11 or 2011/12.
Change in the distribution of landings between the commercial sector and non-commercial sectors (combining recreational and Indigenous) for each target species in the EPTF	Maximum absolute difference in the distribution of landings between the commercial and non-commercial sectors is greater than 15 percentage points when compared every five years	-	This performance indicator can only be measured if updated estimates of non-commercial catch become available between comparison years.

Performance Indicator	Trigger Point	Status	Comment
Change in the distribution of landings among NSW commercial fisheries for each target species in the EPTF	Maximum absolute difference in the distribution of landings between the assessment and reference years is greater than 15 percentage points	N/A	Not applicable to this year's assessment. In accordance with the EPT FMS, this assessment is to occur on a five year cycle. The last assessment year was 2007/08 and the next assessment year is 2012/13.
Net economic returns to the EPTF	The Director-General is satisfied that the gross value of production of the fishery has not exceeded the sum of indicative industry operational costs and government management costs relevant to the fishery for three consecutive years.	-	A process to determine indicative industry operational costs has yet to be developed. The Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012) recommended that the task of developing a formal cost recovery policy (which would consider government management costs) be undertaken as a priority activity by the new Ministerial Fisheries Advisory Council. This Council is expected to be established in 2013.
Average market value of EPT shares when traded	Trigger to be determined within two years of the commencement of the share management plan	-	Share management plan for the EPTF commenced on the 5 February 2007. Trigger yet to be determined.
Percentages of total annual inspections in the EPTF which result in the detection of minor or major offences.	Percentage of inspections resulting in the detection of offences exceeds either of the following: (i) 20% for minor offences; (ii) 10% for major offences. Differentiation between major and minor offences is yet to be finalised. In the interim, an overall compliance rate of less than 85% will be used as the trigger point.	✓	2007/08 - 95% 2008/09 - 99% 2009/10 - 92% 2010/11 - 88% 2011/12 - 92%

Performance Indicator	Trigger Point	Status	Comment
Number of EPT MAC meetings held each year	Less than two meetings for each fishery held in a calendar year, unless otherwise agreed by the MAC	N/A	No longer applicable. The Estuary Prawn Trawl MAC, like most other MACs, has not operated formally since late 2009 (although it was used as an informal consultation tool up until 2011), initially pending the outcome of an internal review of consultative bodies. Subsequently the Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012) examined, amongst other issues, the effectiveness of current commercial fishery consultation arrangements. Based on the Review recommendations, the MACs are to be replaced by non-statutory, issue- or task-based working groups reporting to the Executive Director, Fisheries NSW. Thus the performance indicator needs to be revised. Consultation with the EPTF is currently undertaken on an as-needs basis both with former members of the Estuary Prawn Trawl MAC and other EPTF shareholders. Non-statutory industry and cross-sector working groups comprising Estuary Prawn Trawl fishers and other stakeholders were established in 2011 and 2012 including a Mulloway Resource Planning Group. In addition, as part of the Independent Review of NSW Commercial Fisheries Policy, Management and Administration (2012), the Review Team held a number of regional port meetings, consulted with a broad range of commercial fishery shareholders individually or as groups, and established a Stakeholder Reference Group (comprised of commercial fishery shareholders from each fishery) which met in October and December 2011.
Public availability of information regarding the EPTF	Less than two pieces of informative material relating to the EPTF are published every three years	✓	Examples of publicly available informative material include information published on the DPI (fisheries) website relating to the Commercial Fisheries Reform Program, including historical fisheries data published in January 2010 and information on the distribution of shares and shareholdings published in January 2013.

Performance Indicator	Trigger Point	Status	Comment
Number of target and by-product species in the EPTF with an 'uncertain' or 'undefined' exploitation status.	The number of target and byproduct species with an 'uncertain' or 'undefined' exploitation status has not decreased between two consecutive odd-numbered years [e.g. 2006/07 is considered an odd-numbered year and 2007/08 is considered an even-numbered year]	×	Number of target and byproduct species harvested in the EPTF with an exploitation status "uncertain' or 'undefined': 2006/07 - 13 2009/10 - 14 2007/08 - 13 2010/11 - 15 2008/09 - 13 The number of species being assessed as part of the Resource Assessment System has increased due to the addition of priority recreational species and the splitting of species groupings (e.g. sharks) into more refined categories (e.g. whalers, tiger, hammerhead, mako sharks). This indicates that a change to the performance indicator and trigger point is needed.
The difference between the current and target resource assessment class for target and by-product species of the EPTF.	The sum of the difference between the current and target assessment class for target and by-product species has not decreased between two consecutive odd-numbered years [e.g. 2006/07 is considered an odd-numbered year and 2007/08 is considered an even-numbered year]	×	The sum of the difference between the current and target assessment class: 2006/07 - 15 2009/10 - 13 2007/08 - 13 2010/11 - 15 2008/09 - 14 As above, the number of species being assessed as part of the Resource Assessment System has increased over time. In addition, target classes may be reviewed and occasionally changed, for instance where research projects or other jurisdictions' assessments suggest the risks are greater or less than previously thought. These factors can affect the sum of differences even where there is no change to the current assessment class for individual species, and indicates that a change to the performance indicator and trigger point is needed.

Performance Indicator	Trigger Point	Status	Comment
The number of research projects underway which have a flow of benefits to the fishery and fill information gaps identified by the environmental impact assessment for the fishery	The number of relevant research projects relevant to identified information gaps falls to less than two during any one year.	✓	Refer to 'Current Research Projects - Wild Fisheries'[16]
Accuracy of catch returns data (in terms of quantity of product, record completeness and species identification).	The accuracy of catch return data has not improved when reviewed every two years	✓	A strategy to improve compliance by fishing industry participants with fish records legislation was initiated in 2010. This strategy has been successful in improving the compliance rate for Sections 121 and 122 [of the *Fisheries Management Act 1994*] fish records submission for the 2009/10 fishing period from 70% to 98%. The strategy has also been successful for the 2010/11 fishing period (97%) however, for the 2011/12 fishing period compliance was 84% which is below the strategy's target of at least 95%.

[16] Available at www.dpi.nsw.gov.au/__data/assets/pdf_file/0008/184931/Current-Project-Summaries-for-Web_WILD-FISH_UPDATED-6-FEB12.pdf

Table 13: Report against Estuary Prawn Trawl Fishery Export Approval conditions and recommendations (2010/11 and 2011/12)

Condition	Progress
Operation of the EPTF will be carried out in accordance with the NSW *Fisheries Management (Estuary Prawn Trawl Share Management Plan) Regulation 2006* in force under the NSW *Fisheries Management Act 1994*.	Operation of the fishery has been carried out in accordance with the *Fisheries Management Act 1994* and regulations made under this Act.
The NSW Department of Primary Industries to inform the Department of Sustainability, Environment, Water, Population and Communities of any proposed substantive changes to the EPTF management arrangements that may affect the criteria on which EPBC Act decisions are made.	SEWPaC advised accordingly.
The NSW Department of Primary Industries to produce and present reports to Department of Sustainability, Environment, Water, Population and Communities annually as per *Appendix B of the Guidelines for the Ecologically Sustainable Management of Fisheries – 2nd Edition.*	This report seeks to satisfy this condition.
Recommendation	**Progress**
As part of the cross-fishery scientific observer program, the NSW Department of Primary Industries to: i develop and implement appropriate data collection and reporting for bycatch quantity and composition in the EPTF.	The Fishery Management Strategies for all the major commercial fisheries (excluding lobster and abalone) require the implementation of a cross-fishery scientific observer program. The program has been implemented based on a framework that identifies the highest priority methods for observation based on a number of measures and to ensure that resources are directed towards the methods that pose the greatest risks. Ocean line fishing methods were identified as the [then] current highest priority and a three year scientific observer program for this method commenced on 1 September 2007. Ocean prawn trawl was identified as the next highest priority method for observation and a scientific observer program was scheduled to commence in 2011/12. However commencement has been delayed due to the need for further observer work in the Ocean Trap and Line Fishery, resulting in a reallocation of resources to that fishery.

Recommendation	Progress
Taking into account the results from the scientific observer program for the EPTF, the NSW Department of Primary Industries to: i ensure that the performance indicators and trigger points related to minimising bycatch, contained in the Fishery Management Strategy for the EPTF, are reviewed as appropriate to ensure that they remain relevant; and ii continue to implement appropriate management measures, as indicated by ongoing monitoring and review, to ensure sustainability of bycatch species.	To be implemented – refer to above recommendation.

Appendix 1: Mulloway Recovery Program documents

NSW GOVERNMENT | Department of Primary Industries

Mulloway Recovery Program
Frequently asked questions and options for management changes

Mulloway stocks in NSW are currently assessed as being overfished and a recovery program is required to assist with rebuilding the population to a safe level.

The term overfishing is used to capture situations where excessive fishing pressure on a stock has most likely resulted in a relatively small spawning biomass. Characteristics that can indicate overfishing include[1]:

- Recruitment being significantly suppressed as a result of a small spawning biomass (as determined by a population model or measured stock-recruitment relationship)
- Estimates of fishing mortality rates significantly greater than natural mortality rates
- Estimates of spawning biomass less than 20-30% of estimated unfished spawning stock
- The 'Spawning Potential Ratio' is less than 20-40% (depending on life history characteristics)
- Catch rates less than 30% of the initial catch rates
- Length and age distributions excessively affected by recruitment, too few age or size classes given a species' life history
- Trends in length/age compositions which indicate increasing (and/or excessive) fishing mortality.

Please note that in many cases all of the information necessary to determine the existence of every factor is not available and a determination needs to be made based on the best available information.

Further easy-to-read information on fishery stock assessment and management can be obtained from various publications available on the web such as the Guide to Fisheries Science and Stock Assessments published by the Atlantic States Marine Fisheries Commission[2] or A Guide to Fisheries Stock Assessment: From Data to Recommendations published by the University of New Hampshire[3].

Overfishing does not mean a species is endangered or threatened with extinction. Nor does it mean that any fishing is unsustainable and that seafood consumers should stop purchasing the species. It does however indicate that management action is required to stop further depletion and rebuild the population.

Why are mulloway classified as overfished?

Each year, NSW DPI fisheries scientists and other experts review the information available on key commercial and recreational species. Annual resource assessments since 2004 have identified mulloway as being overfished. This determination of mulloway as an "overfished" species is driven largely by excessive estimated rates of mortality on juveniles and adults, with too few old fish in the population to provide resilience and optimize recruitment[4].

Estimates of total mortality are derived from the age composition of commercial landings and the available estimates of recreational fishing catches. In the mid 2000s the age composition of commercial landings was indicative of a heavily fished stock (98% < 5 years old) and there is no evidence that this situation has changed. More information is available in the mulloway status report[5].

Please note that a broad estimate of the total recreational harvest is available from past surveys, but no current accurate information is available. Knowledge of the size and age composition of recreational catches is a significant information gap which adds risk to the assessment of mulloway and is considered a high priority for future monitoring.

What is a resource recovery program?

All fishing sectors that impact on mulloway during its lifecycle have a role to play in assisting with stock recovery. Given the diversity of sectors and gear types involved, there is no simple "one size fits all" approach to management of the resource and it is prudent to employ different strategies depending on the characteristics of each sector.

A resource recovery program is a plan for rebuilding the stock of a particular species (or group of species). It should include a recovery objective and performance indicator/s, and specify the actions needed to ensure recovery of the resource. It operates across the various harvest sectors which cause impacts on the species, so it does not rely on the provisions of each different fishery management plan or strategy. It also potentially covers non-fishing threats to the species, if they are prominent enough to be preventing the recovery of the species.

The process of developing a resource recovery program for an overfished species involves reviewing the available information and identifying a range of potential management options. Generally a recovery program seeks to proportionally reduce fishing mortality in the sectors which have an impact, either directly or indirectly, on the stock. The recovery program could include:

- Action to reduce targeted fishing mortality rates
- Reducing bycatch and discarding
- Protection of key habitat areas
- Fishery structural changes
- Compliance and monitoring programs

A successful recovery program would see an increase in the spawning biomass.

Isn't the spawning size for mulloway 70 cm and why wouldn't preventing fishers retaining small fish stop overfishing?

Like most animals, mulloway become mature over a range of ages and sizes. Males reach maturity at around 3 years of age and females at 4 to 5 years. Research in NSW has also identified that mulloway grow fast, reaching (on average) nearly 40 cm in the first year and 95 cm within 5 years.

The 'size at 50% maturity' is the length at which half of the fish are likely to be mature – it is not the "spawning size". The 50% size at maturity for mulloway is approximately 51 cm for males and 68 cm for females[6].

Unfortunately, just protecting "small" fish does not necessarily stop overfishing which occurs when mortality is too high and fish are being removed faster than they are replaced. Even if fish are not caught before they reach the size at 50% maturity, if fishing mortality on larger fish is high, overfishing can still occur, particularly as smaller fish produce fewer eggs than larger fish.
The overall level of mortality is the most important factor and any rebuilding program therefore needs to address fishing mortality across all life stages[7].

How much of a reduction in fishing mortality is needed to rebuild mulloway stocks?

One way of looking at the overall impact of fishing is to compare the spawning potential of the fished stock to what it would be without fishing. The ratio of the fished spawning biomass (or estimated number of eggs produced by an average fish over a lifetime) to the unfished estimate is called the Spawning Potential Ratio (SPR). If the SPR is below the level considered necessary to sustain the stock, then fishing mortality needs to be reduced.

Currently the SPR of NSW mulloway stocks is estimated to be somewhere between 5 and 15%. The stock will not be considered to have recovered until it returns to at least 25%, with a long term goal of attaining 40%. The only way this can be achieved is through reducing fishing mortality and therefore increasing the proportion of older fish in the adult stock. It is estimated that the reduction in fishing mortality needed to assist recovery is somewhere between 50% and 70%, depending on what measures are put in place.

What are current management arrangements for mulloway?

Commercial fishers take mulloway in ocean line and hauling fisheries and in meshing and hauling fisheries in estuaries. All these fisheries must use the current 45 cm minimum legal length. Mulloway juveniles are also caught as by-catch in prawn fisheries, particularly during flood conditions in northern NSW. During floods and other periods of risk to mulloway, by-catch is closely monitored and trawl fisheries closed when by-catch is high. For example, during early 2012, there have been extensive closures of trawl fishing in northern NSW.

Recreational fishers currently may take 5 mulloway, with no more than two fish over 70 cm. The 45 cm minimum legal length also applies.

Which fishing sectors take mulloway?

In NSW, significant catches of mulloway are taken each year by the commercial Estuary General (34 tonnes[a]), Ocean Hauling (9 tonnes) and Ocean Trap and Line

[a] Average reported annual landings from 2006/07 to 2010/11

fisheries (10 tonnes). Mulloway is at times also taken as a bycatch in estuary and ocean trawl fisheries. Catches of mulloway by ocean haulers are highly infrequent although occasionally large catches may be made opportunistically a few times each year.

Mulloway is a very significant species in the recreational fishery, and the estimate of catch by this sector is much larger than commercial landings. The annual recreational harvest of mulloway in NSW is between 100 and 500 tonnes and is most probably towards the centre of this range. This estimate is based upon the results of the offsite National Recreational and Indigenous Fishing Survey[8] and onsite surveys[9] undertaken by NSW DPI.

Wouldn't implementing a moratorium on retaining mulloway be the simplest and quickest method to achieve recovery of the mulloway stock?

This is the simplest method of limiting targeted fishing mortality of mulloway however the impact on fishers would be significant. Although likely to result in a substantial reduction in fishing mortality, it is not consistent with the aim of facilitating recovery in a way that minimises social and economic impacts.

Why do fishers need to keep smaller fish?

Fishers may prefer to catch large fish, however many also take smaller mulloway when targeting other species and when fishing in estuarine waters where smaller fish are more common. The overwhelming majority of estuarine caught mulloway are below 70 cm and it is acknowledged that both commercial and recreational fishers will inevitably catch these fish irrespective of any size limit. Release mortality (fish dying after being caught and then released) therefore has the potential to negate any benefits of attempting to protect fish based on size[10].

With careful handling most fish caught by recreational line fishers in shallow water can be released alive, however those with ingested hooks have a mortality rate around 40% if the line is cut and greater than 70% if hooks are removed[11,12]. Fish caught in deeper water also suffer from barotrauma, with recent research indicating approximately 50% survival of mulloway caught from 30 m, even if they are returned to depth after release. Appropriate management options where release mortality is an issue include reducing fishing pressure, changes to gear selectivity and fishing closures[13].

Within the commercial sector most fishers who take mulloway do so in non-targeted fishing operations where it is not possible to use fishing gear which selects mulloway at a particular size. Requiring fishers to discard mulloway which are dead or in poor condition will not benefit the stock and is a waste of the resource[14]. For example, the nets most commonly used in general estuarine meshing operations primarily catch mulloway that are less than 60 cm, with mortality approaching 100% when set for more than a short time. Therefore, for fishers who are not targeting mulloway with these nets, one option is to permit them to retain a limited quantity of incidentally caught fish, rather than discard them dead.

Based on the numbers of mulloway usually taken in non-targeted fishing operations, a "bycatch allowance" has been suggested as appropriate to minimise waste, while discouraging targeted operations. Even with a bycatch allowance a sufficient reduction in mortality on smaller fish can be achieved to promote stock recovery.

What is being done about juvenile mulloway taken as bycatch in other fisheries?

At present, temporary closures to prawn trawling are implemented adjacent to the mouths of specified estuaries following flood events, when many juvenile mulloway and other fish are flushed out to sea. Such closures are also implemented within estuaries in areas and at times when large numbers of juvenile fish are present. Fisheries officers regularly monitor bycatch levels after flood events and at times when juvenile mulloway are likely to be present.

Such closures have been used extensively off the mid-north and north coast between January and March this year following extensive flooding events in early January.

The use of bycatch reduction devices is also mandatory in trawl fisheries, with new designs being tested over time[15]. The Department is actively working with fishers to develop fishing gear and practices that minimise bycatch and associated mortality[16].

Don't fish need to be allowed to spawn at least once and isn't taking spawning fish unsustainable?

Harvesting some fish before they spawn is not automatically unsustainable, but it is something that needs to be evaluated when considering the overall level of fishing that is sustainable. The idea that protecting juvenile fish will protect the fishery pre-dates fishery science and a more rigorous evaluation of the simple "let most fish spawn at least once" doctrine indicates that it is not always the best strategy to protect fish stocks. Where high levels of discarding occur, reduced fishing intensity is a better management approach[17].

Egg production goes up exponentially with female size, and simply looking at 'spawning stock biomass' may underestimate the extra reproductive fitness added if a significant proportion of older fish are restored. Responding to depletion by raising the size limit means that fishers must target the surviving population of old, large fish, with negative consequences on stock rebuilding[18]. Harvesting a portion of immature or early mature animals may actually be more appropriate.

Many fishers also tend to overlook the fact that selective fishing aimed at taking the biggest animals can have long term negative impacts on the stock. Scientific studies indicate that management strategies allowing a controlled harvest across the whole population, rather than reliance on minimum size limits, can be preferable.

Mulloway appear to predominantly spawn in ocean waters between November and March in NSW. A closure during the spawning period is sometimes suggested as a way to protect the spawning stock. In reality however, unless the fishing activity prevents the spawning success of the fish that are not caught, it makes little difference whether fishing occurs before, during or after the spawning season. Any mature fish taken are not available to spawn the next year irrespective of when they are taken and again it is the level of fishing mortality that is most important.

Furthermore, the spawning period of mulloway is somewhat protracted and also varies geographically along the coast. It is also a popular recreational fishing period for mulloway which would make the setting of a spawning season closure problematic.

How will it be determined if mulloway stocks are recovering?

Age-based monitoring and assessment of mulloway will be needed over their entire range to determine if a positive change in age structure rebuilding is occurring. As indicated above, the stock will not be considered to have recovered until the estimated spawning potential ratio of the stock returns to at least 25%, with a long term goal of attaining 40%.

Currently, Fisheries NSW primarily assesses the stock by monitoring the age composition of commercial landings. However, monitoring for mulloway will be extended to include estimates of the sizes, ages and quantities being harvested by the largest harvest sector, recreational fishing. This is essential because the recreational fishery is likely to be the first to see the benefits of stock recovery and without monitoring, recovery management actions will need to stay in place longer than potentially necessary.

There are lots of juveniles around so doesn't that mean that the stock is healthy?

Populations of long-lived species are naturally stable because of the presence of many age classes, however reproductive success may vary greatly from year to year. The survival of strong cohorts is therefore critical to maintain the population during periods of poor recruitment.

Environmental factors can have a substantial impact on mulloway reproduction and in studies from South Australia freshwater flows explained around 28% of the variability in year class strength[19]. There were significant flood events in northern NSW during 2009 and 2010 was the wettest year in half a century. These rainfall events appear to be correlated with recent reported increases in catches of small mulloway.

Given that there is no guarantee current recruitment patterns will persist, it would be sensible to utilise these strong recruitment events to rebuild the population.

Why does the bag limit need to be reduced from 5 to 1?

Having a bag limit higher than the preferred option of 1 may achieve some recovery in the stock but this may take a very long time. Most recreational fishers seldom catch 2 or more mulloway during a fishing trip. The preferred option of reducing the bag limit to 1 and a minimum legal length of 70 cm is the best way to reduce recreational catches (and associated fishing mortality) and will also provide additional protection for adult fish.

It is important to note that the proposed recovery measures would be temporary and required only until the stock rebuilds. If recent reports of mulloway recruitment are correct, removing fishing pressure on mulloway now will reduce the time needed for the recovery program.

How long will the recovery program last and will it be reviewed while it is in place?

This program is intended to assist with recovery of mulloway in the short-medium term and is not intended to be a long term arrangement. In particular the actions are intended capitalise on recent good recruitment and boost the spawning stock by protecting these cohorts of fish until they reach the most productive part of the stock (i.e. fish at around 7-8 years of age). Once this has occurred focus can shift to

maintaining the breeding stock and may involve different management strategies that allow a more balanced harvest.

It is difficult to estimate how long these arrangements will need to remain in place, however given that fish spawned after floods in 2009 and 2010 have already recruited to the fishery it may be that recovery in the numbers of 7+ year old fish will be noticeable after 4-5 years.

The proposed measures outlined below have the best chance of reducing fishing mortality, however, the recovery program will need to be kept under regular review to ensure that the predicted outcomes are occurring, particularly given the lack of information on the recreational fishery.

What next?

After considering various options available and suggestions from both commercial and recreational fishing sectors a preferred option has been developed which provides a balanced approach to recovery of the resource (see below).

Please note that the resource planning process is intended to focus on efficient recovery of fish stocks and is not about resource allocation or securing a greater share of the resource for either the commercial or recreational sector.

Public submissions are invited on the following management options below developed to promote the recovery of Mulloway in NSW.

Written submissions marked "Mulloway Recovery Program Submissions" can be:

- **Posted to: NSW Department of Primary Industries**
  Locked bag 21
  Cronulla NSW 2230; or
- **Faxed to: (02) 6391 4718; or**
- **Emailed to: fisheries.recoveryprograms@dpi.nsw.gov.au**

An on line submission form is also available at www.fisheries.nsw.gov.au

Additional copies of the form are available upon request by phoning (02) 9527 8439.

Submissions close on Tuesday 16 October 2012.

Department of Primary Industries

Options for changes to the management of the mulloway resource while stocks are recovering

Current mulloway rules

Recreational fishing

- **Bag limit of 5 fish, only two fish over 70 cm**
- **Minimum legal length of 45 cm**

Commercial fishing

- **Minimum legal length of 45 cm**

Preferred option

Recreational fishing

- **Bag limit of 1 fish**
- **Minimum legal length of 70 cm**

The bag limit change should reduce catches and provide additional protection for adult fish.

A minimum size limit of 70 cm would ensure that most mulloway landed have already reached (or are close to) sexual maturity. The majority of the catch currently taken by recreational fishers will however be undersize and need to be released, especially in estuaries where at least 80% of mulloway caught are smaller than 70 cm, (based on available information).

Commercial fishing

- **Minimum legal length of 70 cm but with a daily bycatch limit of 10 fish between 45 and 70 cm for estuarine mesh netting and a 500kg trip limit for ocean haul fishers.**

A minimum size limit of 70 cm would ensure that most mulloway landed have already reached (or are close to) sexual maturity. The majority of the catch currently taken by commercial mesh fishers in estuaries will however be undersize and this measure will force a major change in fishing practices currently targeting small mulloway. A small bycatch allowance would permit retention of some incidentally caught fish in estuarine mesh nets but some level of discarding is still likely to occur.

Commercial mulloway fishing mainly occurs in estuarine areas and catches of fish over 70 cm are a minor component of overall harvest. Monitoring of commercial landings will continue and further measures such as daily trip limits for larger size mulloway may be considered if catches appear to be increasing to a level that would threaten recovery.

During floods and other periods of risk to mulloway, by-catch will continue to be closely monitored and trawl fisheries closed when by-catch is high. The department will also continue work to improve fishing gear to reduce this problem.

OTHER OPTIONS CONSIDERED

Below are a series of alternative actions that have been considered. In some cases these are options suggested by particular interest groups and are not necessarily considered to be equitable or to provide adequate protection for the mulloway stock during recovery.

Recreational fishing options considered

- **Bag limit of 2 fish and minimum legal length of 75 cm**

Little additional protection for adults is provided by this option as recreational fishers can currently retain 2 fish of adult size.

- **Bag limit of 2 fish and minimum legal length of 70 cm**

Little additional protection for adults is provided by this option as recreational fishers can currently retain 2 fish greater than 70 cm.

- **Bag limit of 2 fish with rules permitting retention of 1 fish between 45-70 cm and 1 fish above 70 cm**

This option would reduce catches of both juvenile and adult fish, but not to the same extent as the preferred option. It is difficult to estimate the effectiveness of this proposal in reducing fishing mortality without better information on the composition of recreational catches. This option is however more consistent with the proposed commercial fishery bycatch provision by allowing recreational fishers the opportunity to keep one small fish.

- **Moratorium on retaining mulloway (i.e. daily limit of 0 fish).**

This is the simplest method of limiting the targeted fishing mortality however the impact on fishers would be significant. Although likely to result in a substantial reduction in fishing mortality, it is not consistent with the aim of facilitating recovery in a way that minimises social and economic impacts. To have the maximum benefit and minimise discard mortality recreational fishers would need to avoid catching mulloway wherever possible.

Commercial fishing options considered

- **Minimum legal length of 75 cm**

This is the length setting used in Queensland, however there are significant differences in the two fisheries. The estuary fisheries in NSW are relatively larger and the majority of the catch currently taken by commercial estuary fishers would be undersize, much of which would be discarded either dead or in poor condition, resulting in waste of the resource. Does little to reduce the harvest of fish above 70 cm and mortality in this size range could increase as fishers shift their effort.

- **Minimum legal length of 70 cm but with a daily limit of 20 fish between 45 and 70 cm**

This bycatch allowance of smaller fish would permit retention of most incidentally caught fish and minimise the discarding problem, but may not deter some targeting. Does nothing to reduce the harvest of fish above 70 cm and mortality in this size range could increase as fishers shift their effort.

- **Daily limit of 15 fish smaller than 70 cm and 50 kg all sizes combined.**

Would limit the overall harvest of fish including those above 70 cm and minimises potential for effort shift onto larger fish. Bycatch allowance of smaller fish would permit retention of most incidentally caught fish, thus minimising discarding problems. More than 50% of the commercial catch of mulloway comes from catches that exceed 50 kg and if all catches were capped at this level, overall landings could be expected to be reduced by more than 30%.

- **Moratorium on retaining mulloway (i.e. daily limit of 0 fish) for both commercial and recreational fishers.**

This is the simplest method of limiting the targeted fishing mortality however the impact on fishers would be significant. Although likely to result in a substantial reduction in fishing mortality, it is not consistent with the aim of facilitating recovery in a way that minimises social and economic impacts.

Mulloway will still however be taken in non-targeted operations and any fish that cannot be released in good condition are simply a waste of the resource. As such this option is not substantially better than other options which discourage targeted operations but allow a limited bycatch.

Public submissions are invited on the management options developed to promote the recovery of Mulloway in NSW.

Written submissions marked "Mulloway Recovery Program Submissions" can be:

- **Posted to: NSW Department of Primary Industries**
  Locked bag 21
  Cronulla NSW 2230; or
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NEW SOUTH WALES
Statutory Declaration

I, Kim David Poole
(FULL NAME OF DECLARANT / PERSON MAKING THE DECLARATION)

of 50 Lord street
(ADDRESS OF DECLARANT / PERSON MAKING THE DECLARATION)

Laurieton NSW Postcode 2443

in the State/Territory of New South Wales

Insert your occupation(s) Fisherman

do solemnly and sincerely declare that Last year 2016 I was talking to local fishermen about fisheries reform when the term "Share Barrons" was mentioned, enquireing further I was told who some of them were i.e. Greame Burns, Ross Fidden, Jeff Blackburn. I remembered being at a Chairmans + Managers meeting with the P.F.A. in the Sydney Fish markets on the 2-9-04. The last thing discussed at that meeting was that it would be of future benefit to buy as many old fishermens businesses as possible. Present at that meeting were Jeff Fidden (chair) Greame Burns, Jeff Blackburn Mr Pugglesi, manager of Tuncurry Co-op and Myself chairman of Laurieton co-op. The surname's of three of the "Share Barrons" are the same as at the meeting. Is this a case of inside information or shear coincidence?

(Your Statutory Declaration ends on the reverse side of this page and that is where you sign it)

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the *Oaths Act 1900*.

Declared at Lauriston in the State/Territory of New South Wales

this 5th day of January 20 17

[redacted]
(SIGNATURE OF DECLARANT / PERSON MAKING THE DECLARATION)

Kim David Poole
(NAME OF DECLARANT / PERSON MAKING THE DECLARATION)

before me [redacted]
(SIGNATURE OF WITNESS / PERSON BEFORE WHOM THE DECLARATION IS MADE)

SANDRA ORCAJO
(NAME OF WITNESS / PERSON BEFORE WHOM THE DECLARATION IS MADE)

[redacted]
(ADDRESS OF WITNESS / PERSON BEFORE WHOM THE DECLARATION IS MADE)

[redacted] Postcode [redacted]

POSTAL MANAGER
(TITLE OR QUALIFICATION OF WITNESS / PERSON BEFORE WHOM THE DECLARATION IS MADE)

I SANDRA ORCAJO a POSTAL MANAGER
(NAME OF AUTHORISED WITNESS) (INSERT QUALIFICATION TO BE THE AUTHORISED WITNESS)

certify the following matters concerning the making of this statutory declaration by the person who made it:

1. I saw the face of the person or ~~I did not see the~~ face of the person because the person was wearing a face covering, but I am satisfied that the person had a special justification for not removing the covering.

2. I have known the person for at least 12 months or I have not known the person for at least 12 months, but I have confirmed the person's identity using an identification document and the document I relied on was

[redacted]
(DESCRIBE IDENTIFICATION DOCUMENT RELIED ON)

[redacted] 05/01/2017
(SIGNATURE OF AUTHORISED WITNESS) (DATE)