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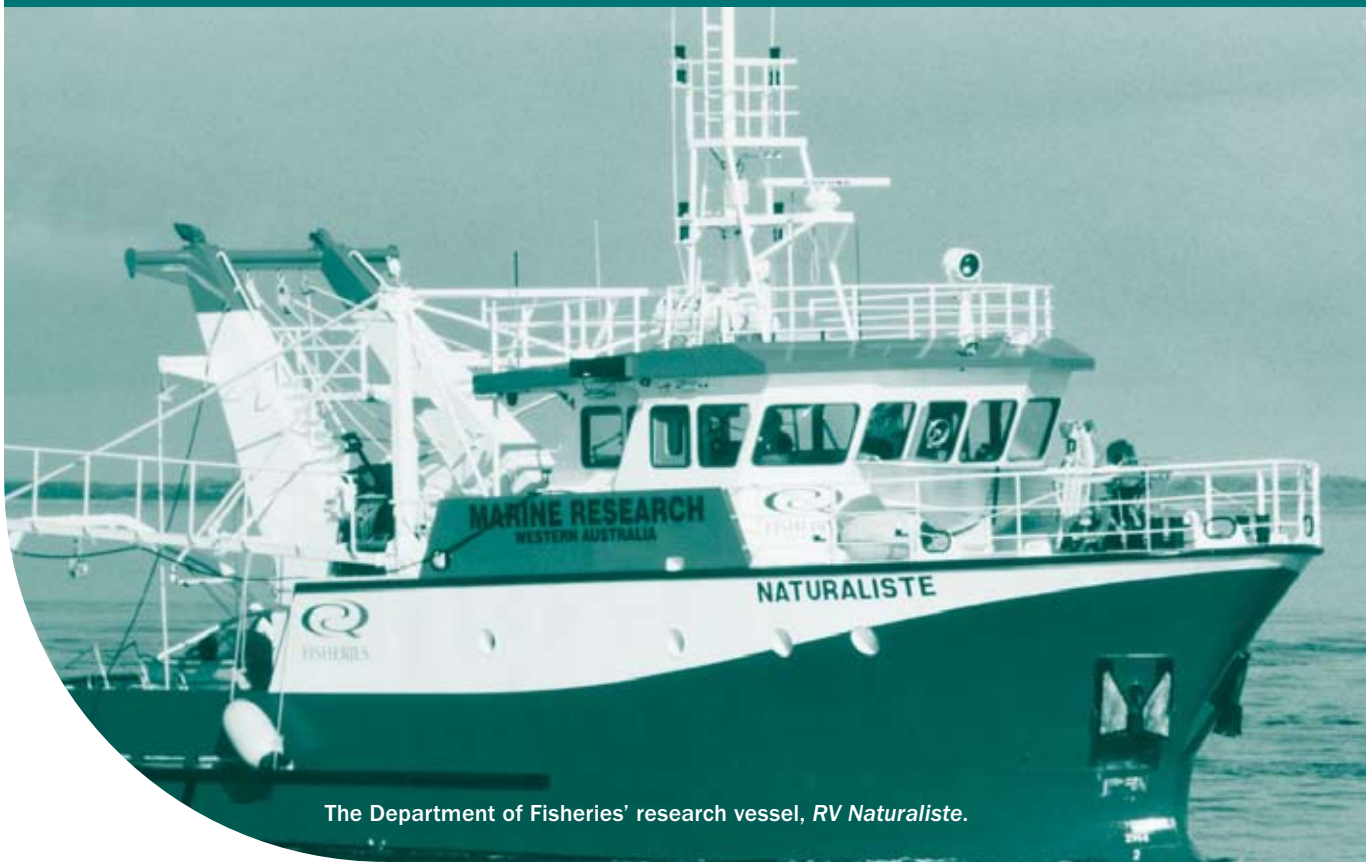

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APPENDIX 1

Stock status and catch ranges for major commercial fisheries

(Appendix 5 from Annual Report 2006/07[1])

Fishery	Stock assessment complete	Breeding stock assessment	Target catch (and effort) range in tonnes (days)	Catch (tonnes) for season reported[2]	Season reported[2]	Catch (or effort) level acceptable	Comments on performance in reported season
West Coast Bioregion							
West coast rock lobster	Yes	Adequate	8,166 – 14,523	10,326	2005/06	Yes	The below-average catch is due to a poor puerulus settlement 3 to 4 years previously.
Roe's abalone	Yes	Adequate	112.7 (Q) (679 – 914 days)	98.4 (625 days)	2006	Yes	The stocks of Roe's abalone are considered to be higher than historical levels. However, increased fishing efficiency is considered the main cause for the reduced effort. The effort range will be reviewed.
Abrolhos Islands and mid west trawl	Yes	Adequate	95 – 1,830	205	2006	Yes	The annual recruitment (and therefore catch) of scallops is highly variable, depending upon environmental conditions. The low catch in 2006 was anticipated, due to low recruitment.
South west trawl	NA	NA	Not available	Prawns 8 Scallops <1	2006	NA	
Cockburn Sound crab	Yes	Inadequate	200 – 350	52	2005/06	No	This was the third consecutive year of low commercial catches in Cockburn Sound. A subsequent review of the stock status resulted in the whole fishery being closed for the 2006/07 season. A research program is currently underway to monitor if there has been a recovery.
Deep sea crab	Yes	Adequate	100 – 300 (crystal crabs)	188	2006	Yes	This is a developing fishery targeting a long-lived species.
Estuarine fisheries (west coast)	NA	NA	75 – 220 (Peel/Harvey only)	185	2006	Yes	Recent catches are stable but low relative to historic levels (pre-1990) due to substantial reductions in commercial effort in each estuary.
West coast beach bait	Yes	Adequate	60 – 275 (whitebait only)	231	2006	Yes	Yearly fluctuations in whitebait stocks are due to environmental conditions.

Fishery	Stock assessment complete	Breeding stock assessment	Target catch (and effort) range in tonnes (days)	Catch (tonnes) for season reported[2]	Season reported[2]	Catch (or effort) level acceptable	Comments on performance in reported season
West Coast Bioregion (Continued)							
West coast demersal scalefish	Yes	Inadequate	558 – 798	975	2005/06	No	The catch is above the target range for the fifth year. The recent stock assessment indicates that 2 key indicator species are being over-fished.
Gascoyne Coast Bioregion							
Shark Bay prawn	Yes	Adequate	1,501 – 2,330	1,559	2006	Yes	Tiger and endeavour prawns were within target catch limits and king prawns just below the target range, due to targeting of larger-sized prawns.
Exmouth Gulf prawn	Yes	Adequate	771 – 1,276	899	2006	Yes	All 3 major prawn species were within target catch limits.
Shark Bay scallop	Yes	Adequate	1,250 – 3,000	1,044	2006	Yes	The annual recruitment of scallops is highly variable. The catch in 2006 was below the target catch range, due to low recruitment levels and catch rate thresholds introduced this season which halted fishing for 2 months during the season, with a smaller meat size being caught once the fishing recommenced.
Shark Bay beach seine and mesh net	Yes	Adequate	235 – 335	229	2006	Yes	The total catch fell below the target range for the first time, due to low fishing effort. The tailor catch in recent years was affected by self-imposed imposed restrictions by the fishery rather than reduced abundance. Therefore, there are no concerns about these stocks.
Shark Bay snapper	Yes	Inadequate	338.3 (Q) (425-558 days*) * June – July	318.2 (416 days*)	2006	Yes	Despite the increased catch rate, based on an updated stock assessment a further review of management arrangements was undertaken and the TACC reduced to 277.3 t for the 2006/07 season to achieve the required rate of stock recovery.

Fishery	Stock assessment complete	Breeding stock assessment	Target catch (and effort) range in tonnes (days)	Catch (tonnes) for season reported[2]	Season reported[2]	Catch (or effort) level acceptable	Comments on performance in reported season
North Coast Bioregion							
Onslow prawn	Yes	Adequate	60 – 180	54	2006	Yes	Tiger and banana prawns were within target catch limits, whereas king and endeavour prawns were just below target ranges. Reduced effort was a factor with the lowest number of days fished since 2000.
Nickol Bay prawn	Yes	Adequate	90 – 300	394	2006	Yes	Following high summer rainfall, higher than normal banana prawn catches were predicted.
Broome prawn	Yes	Adequate	55 – 260	45	2006	Yes	King prawns were within the target catch range, but coral prawns were considerably below their target range. This species was not targeted due to poor prices for small prawns. The exploitation rate was still less than 40%.
Kimberley prawn	Yes	Adequate	240 – 500	335	2006	Yes	Banana prawn catches were within expected range for observed rainfall. Other species were also within target catch ranges.
Kimberley gillnet and barramundi	Yes	Adequate	25 – 40 (barramundi)	36	2006	Yes	Barramundi catch level was similar to 2005 and was within the target range.
Northern demersal scalefish	Yes	Adequate	Total 600 – 1,000 (goldband <327) (red emperor <167)	Total 801 (goldband 336) (red emperor 166)	2006	No	Catches of goldband snapper and red emperor were both lower than last season, but are still either above or close to the target range. A stock assessment review of goldband snapper and red emperor is currently in progress, with results expected in 2007.
Pilbara fish trawl	Yes	Adequate	2,000 – 2,800	2,222	2006	Yes	Catches of lower-value species decreased.
Pilbara demersal trap and line	Yes	Adequate	160 – 360 (trap) 50 – 115 (line)	473 (trap) 105 (line)	2006	No	Trap catches were again above the upper limit, due to increased catch of some species. Line catch, including goldband snapper, however reduced to acceptable levels, due to management changes for this sector.

Fishery	Stock assessment complete	Breeding stock assessment	Target catch (and effort) range in tonnes (days)	Catch (tonnes) for season reported[2]	Season reported[2]	Catch (or effort) level acceptable	Comments on performance in reported season
North Coast Bioregion (Continued)							
Mackerel	Yes	Adequate	246 – 410 (all except grey mackerel)	275	2006	Yes	The implementation of the formal management arrangements continues to affect the fishery. Catches declined significantly in the Pilbara, due to decreased effort and poor weather, but good catches were reported elsewhere.
Northern shark	Yes	Declining	< 20 (sandbar only)	<1	2005/06	Yes	The target sandbar catch has been lowered significantly to reflect the sustainability objectives of new management arrangements introduced in 2005.
Pearl oyster	Yes	Adequate	557,000 oysters (Q) (14,071 – 20,551 dive hours)	538,882 oysters (13,684 dive hours)	2006	Yes	Effort was below the historical range, indicating stocks are higher than historical levels. The TAC increased to 603,000 in 2007.
South Coast Bioregion							
South coast crustacean	Yes	Uncertain	50 – 80 (southern rock lobster)	40	2005/06	No	The downturn in the lobster fishery may be a result of recruitment over fishing in both SA and WA. Management of this fishery is under review.
Abalone (greenlip/ brownlip)	Yes	Adequate	211.5 (Q) (907 – 1,339 days)	206 (1,161 days)	2006	Yes	Fishery is considered to be within historical levels, however localized declines in some areas have prompted a review of performance indicators for the fishery.
Estuarine fisheries (south coast)	Yes	Adequate	200 – 500	170	2006	Yes	The total catch is below target level due to ongoing decline in total effort level, but the stock levels of key species are considered adequate.
WA salmon	Yes	Adequate	1,200 – 2,800	1986	2006	Yes	Recent catches are low relative to historic levels, due to very limited market demand.

Fishery	Stock assessment complete	Breeding stock assessment	Target catch (and effort) range in tonnes (days)	Catch (tonnes) for season reported[2]	Season reported[2]	Catch (or effort) level acceptable	Comments on performance in reported season
South Coast Bioregion (Continued)							
Australian herring	Yes	Uncertain	475 – 1,200 (south coast only)	301	2006	Yes	Stock levels appear to have declined over last 5 to 10 years as result of poor recruitment, possibly due to environmental factors. At same time, commercial catch (and effort) has declined to a historically low level, partly due to market forces, and so is currently acceptable.
Albany/King George Sound purse seine	Yes	Adequate	1,500 (Q)	1,342	2005/06	NA	Quotas are adjusted annually. Target effort levels are not available.
Bremer Bay purse seine	Yes	Adequate	1,500 (Q)	391	2005/06	NA	Quotas are adjusted annually. Target effort levels are not available. The low catches this season are due to a scarcity of market-size fish in the traditional fishing grounds.
Esperance purse seine	Yes	Adequate	1,500 (Q)	138	2005/06	NA	Quotas are adjusted annually. Target effort levels not available. The low catches this season are due to a scarcity of market-size fish in the traditional fishing grounds.
Southern and west coast demersal gillnet and longline	Yes	Gummy and whiskery increasing. Dusky and sandbar declining.	725 – 1,095	1,121	2005/06	No	The depletion of the breeding stocks of dusky and sandbar sharks has resulted in reductions in the juvenile catch rates of these species, and this situation will continue for many years. The use of monthly gear units has seen the recent activation of latent effort and catch levels have therefore increased. Consequently, management will shift from the use of daily gear units to more explicitly controlled fishing effort.
Northern Inland Bioregion							
Lake Argyle catfish	Yes	Adequate	95 – 155	78	2006	Yes	The reduction in catch is related to a drop in the level of effort for 2006.

1 The information in this table is also used in Appendix 5 of the Department of Fisheries' Annual Report 2006/07, where it underpins some of the Department's Performance Indicators. Appendix 5 in the Annual Report utilised an earlier draft of this table and may vary slightly from this version. The Performance Indicators calculated from the information have not changed.

2 Catch figures supplied for latest year/season available.

NA Not assessed. Q Quota management.

APPENDIX 2

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APPENDIX 3

Table of catches from fishers' statutory monthly returns for 2005/06

This table contains the landed[1] and estimated live weight[2] of species recorded in the compulsory catch and fishing effort returns provided by commercial fishers each month. These data include the catch taken as by-product as well as the targeted catch.

These catch data may differ slightly from some of the catch estimates presented for specific fisheries as the latter may include additional data from other sources, such as research log books and processors. The figures may also differ slightly from previously reported figures, as additional data may have been received by the Department of Fisheries. The table represents the latest year for which a complete set of data is available.

While scientific names have been included wherever possible, it should be noted that many fish recorded under a common name cannot be identified as belonging to a particular single species and therefore must be reported as being part of a commercial grouping of several species. For example, the common name 'jobfish' may be used for several species of the genus *Pristipomoides*.

Data for species with live weight catches of less than 500 kg have been combined into the general or 'other' category within each class.

Common Name	Scientific Name	Landed weight (kg)	Live weight (kg)
Fish			
Amberjack	*Seriola dumerili*	7,718	7,718
Barramundi (giant perch)	*Lates calcarifer*	18,906	25,824
Bass grouper	*Polyprion americanus*	9,281	9,281
Bigeye (not tuna)	Priacanthidae	30,705	30,705
Boarfish	Pentacerotidae	3,117	3,807
Bonito	*Sarda australis*	1,220	1,227
Bream, black	*Acanthopagrus butcheri*	44,525	44,525
Bream, monocle	*Scolopsis* spp.	22,036	22,036
Bream, Mozambique	*Wattsia mossambica*	726	726
Bream, Robinson's	*Gymnocranius grandoculis*	43,678	43,678
Bream, sea	*Gymnocranius* spp.	6,477	6,477
Bream, silver (tarwhine)	*Rhabdosargus sarba*	5,808	5,808
Bream, western yellowfin	*Acanthopagrus latus*	25,760	25,760
Catfish, sea (golden cobbler)	Ariidae	16,988	18,613
Chinaman fish (not cod)	*Symphorus nematophorus*	19,902	19,902
Cobbler	*Cnidoglanis macrocephalus*	34,872	49,417
Cobbler, silver	*Arius midgleyi*	53,811	88,064
Cod	Serranidae	63,453	63,852
Cod, bar (grey-banded, eight-bar)	*Epinephelus octofasciatus*	39,126	39,135
Cod, breaksea	*Epinephelides armatus*	8,728	8,890
Cod, chinaman	*Epinephelus rivulatus*	2,134	2,161
Cod, radiant/comet	*Epinephelus radiatus/morrhua*	1,159	1,171
Cod, Rankin	*Epinephelus multinotatus*	153,832	153,832
Cod, spotted	*Epinephelus microdon/areolatus/bilobatus*	94,397	94,406
Dhufish, West Australian (jewfish)	*Glaucosoma hebraicum*	203,058	211,901
Emperor, blue-lined (grass; black snapper)	*Lethrinus laticaudis*	3,489	3,493
Emperor, blue-spot	*Lethrinus hutchinsi*	549,523	549,523
Emperor, red	*Lutjanus sebae*	403,358	403,476
Emperor, red-spot (snapper)	*Lethrinus lentjan*	60,907	60,907
Emperor, spangled	*Lethrinus nebulosus*	104,430	104,476

Common Name	Scientific Name	Landed weight (kg)	Live weight (kg)
Fish (continued)			
Emperor, sweetlip	*Lethrinus miniatus*	180,053	180,090
Emperor, yellow-tailed	*Lethrinus atkinsoni*	787	787
Flagfish (Spanish flag)	*Lutjanus vitta, L. quinquelineatus, L. carponotatus, L. lutjanus*	210,935	210,939
Flathead	Platycephalidae	10,973	10,973
Flounder	Bothidae	2,470	2,472
Garfish, sea	*Hyporhamphus melanochir*	34,935	34,992
Groper, baldchin	*Choerodon rubescens*	35,723	38,651
Groper, blue	*Achoerodus gouldii*	35,746	43,062
Groper (wrasses)	Labridae	5,717	5,717
Halibut	*Psettodes erumei*	2,020	2,020
Hapuku	*Polyprion oxygeneios*	40,847	40,856
Herring, Australian	*Arripis georgianus*	352,395	352,395
Herring, Perth	*Nematalosa vlaminghi*	8,021	8,021
Javelin fish	*Pomadasys* spp.	31,368	31,368
Jobfish (goldband snapper) - see Snapper, goldband			
Jobfish, rosy - see Snapper, rosy			
Jobfish (sharptooth snapper)			
Kingfish, black (cobia)	*Rachycentron canadum*	25,184	25,431
Kingfish, yellowtail	*Seriola lalandi*	2,597	2,687
Knifejaw	*Oplegnathus woodwardi*	2,275	2,328
Leather jacket	Monacanthidae	22,084	31,739
Mackerel, blue	*Scomber australasicus*	1,223	1,223
Mackerel, grey (broad-barred)	*Scomberomorus semifasciatus*	16,382	18,012
Mackerel, other	Scombridae	20,747	23,661
Mackerel, scaly	*Sardinella lemuru*	1,659,944	1,659,944
Mackerel, shark (salmon)	*Grammatorcynus bicarinatus*	1,240	1,780
Mackerel, Spanish	*Scomberomorus commerson*	188,332	263,094
Mangrove jack	*Lutjanus argentimaculatus*	14,814	14,817
Maray	*Etrumeus teres*	16,740	16,740
Morwong	Cheilodactylidae	916	1,090
Mullet, other	Mugillidae	2,953	2,963
Mullet, red	Mullidae	70,523	70,523
Mullet, sea	*Mugil cephalus*	199,930	199,930
Mullet, yellow-eye	*Aldrichetta forsteri*	37,842	37,842
Mulloway	*Argyrosomus hololepidotus*	21,678	23,307
Mulloway, northern (black jew)	*Protonibea diacanthus*	1,665	1,868
Parrot fish	Scaridae	20,040	20,360
Perch, darktail sea (maroon sea) - see Snapper, maroon			
Perch, Moses - see Snapper, Moses			
Perch, pearl	*Glaucosoma buergeri*	56,634	56,634

Common Name	Scientific Name	Landed weight (kg)	Live weight (kg)
Fish (Continued)			
Perch, red - *see* Snappers, other			
Perch, scarlet sea (saddletail sea) - *see* snapper, saddletail			
Perch, yellowtail	*Amniataba caudavittatus*	1,262	1,262
Perches, other - *see* Snappers, other			
Pike, sea	*Sphyraena novaehollandiae*	1,434	1,434
Pilchard	*Sardinops sagax ocellatus*	1,906,272	1,906,272
Pomfret, black	*Parastromateus niger*	3,552	3,552
Redfish	*Centroberyx* spp.	61,543	62,224
Redfish, Bight	*Centroberyx gerrardi*	68,082	68,257
Redfish, yelloweye	*Centroberyx australis*	746	773
Rockcod, blackspotted	*Epinephelus malabaricus*	3,780	3,780
Rockcod, goldspotted	*Epinephelus coioides*	3,108	3,108
Salmon, Western Australian	*Arripis truttaceus*	1,937,046	2,004,084
Samson fish (sea kingfish)	*Seriola hippos*	76,030	80,704
Sawfish	Pristidae	150	555
Scad, yellowtail	*Trachurus novaezelandiae*	16,307	16,307
Scorpionfishes	Scorpaenidae	7,156	7,156
Shark, blacktip	*Carcharhinus* spp.	54,586	95,034
Shark, bronze whaler (dusky whaler)	*Carcharhinus obscurus*	190,759	301,332
Shark, bull (river whaler)	*Carcharinus leucas*	11,344	18,036
Shark, eastern school	*Galeorhinus galeus*	4,892	7,781
Shark, golden (copper whaler)	*Carcharhinus brachyurus*	4,910	7,806
Shark, grey reef	*Carcharhinus amblyrhynchos*	490	779
Shark, gummy	*Mustelus antarcticus*	310,033	490,849
Shark, hammerhead	Sphyrnidae	56,923	91,884
Shark, lemon	*Negaprion acutidens*	4,333	6,884
Shark, mako (shortfin)	*Isurus oxyrinchus*	1,782	2,826
Shark, pigeye	*Carcharhinus amboinensis*	15,811	25,280
Shark, saw	*Pristiphorus* spp.	2,141	4,989
Shark, southern saw	*Pristiophorus nudipinnis*	356	831
Shark, spinner	*Carcharhinus brevipinna*	2,042	3,035
Shark, spot-tail	*Carcharhinus sorrah*	6,805	16,502
Shark, spurdog	Squalidae/Oxynotidae	502	654
Shark, thickskin (sandbar)	*Carcharhinus plumbeus*	115,869	183,914
Shark, tiger	*Galeocerdo cuvier*	15,264	24,270
Shark, whiskery	*Furgaleus macki*	127,448	191,013
Shark, wobbegong	Orectolobidae	51,665	78,667
Shark, other		63,574	94,280
Shovelnose (fiddler rays)	Rhinobatidae and Rhynchobatidae	4,467	14,828
Skates and rays, other		7,978	17,011
Snapper, bullnose (variegated emperor)	*Lethrinus ravus*	2,198	2,198

Common Name	Scientific Name	Landed weight (kg)	Live weight (kg)
Fish (Continued)			
Snapper, crimson (formerly red snapper)	*Lutjanus erythropterus*	364,950	364,950
Snapper, fingermark (golden)	*Lutjanus johnii*	445	768
Snapper, frypan	*Argyrops spinifer*	46,946	46,946
Snapper, goldband	*Pristipomoides multidens*	666,043	666,139
Snapper, long nose	*Lethrinus olivaceus*	17,759	17,759
Snapper, maroon (formerly maroon sea perch	*Lutjanus lemniscatus*	24,235	24,235
Snapper, Moses (formerly Moses perch)	*Lutjanus russelli*	66,408	66,408
Snapper, nor-west	Lethrinidae	49,515	49,562
Snapper, pink	*Pagrus auratus*	665,756	676,977
Snapper, queen	*Nemadactylus valenciennesi*	48,651	55,388
Snapper, rosy (formerly rosy jobfish)	*Pristipomoides filamentosus*	23,559	23,559
Snapper, ruby	*Etelis* spp.	60,276	60,324
Snapper, saddletail (formerly scarlet sea perch)	*Lutjanus malabaricus*	193,111	193,118
Snapper, sharptooth	*Pristipomoides typus*	7,644	7,739
Snappers, other	Lutjanidae	1,760	2,141
Sprat, blue	*Spratelloides robustus*	10,947	10,947
Sweep	*Scorpis aequipinnis*	1,235	1,321
Sweetlip	Haemulidae	96,380	98,311
Tailor	*Pomatomus saltatrix*	23,416	23,416
Threadfin	Polynemidae	1,261	1,389
Threadfin bream (butterfish)	Nemipteridae	245,659	245,659
Threadfin, giant (king salmon)	*Eleutheronema tetradactylum*	72,197	73,793
Trevalla, deepsea	*Hyperoglyphe antarctica*	13,721	13,721
Trevally, golden	*Gnathanodon speciosus*	8,449	8,449
Trevally, other (skippy)	Carangidae	193,107	193,567
Trevally, skipjack	*Pseudocaranx dentex*	3,757	3,778
Tripletail	*Lobotes surinamensis*	3,226	3,273
Trout, coral	*Plectropomus maculatus*	24,811	25,203
Trout, spotted (duskytail groper)	*Epinephelus bleekeri*	10,451	10,451
Trumpeters	Terapontidae	3,551	3,551
Tuna, mackerel	*Euthynnus affinis*	893	893
Tuna, other	Scombridae	2,103	2,341
Tuna, skipjack (striped)	*Katsuwonus pelamis*	2,800	2,800
Tuna, yellowfin	*Thunnus albacares*	1,442	1,623
Tuskfish, bluebone	*Choerodon* spp.	27,122	27,155
Whitebait	*Hyperlophus vittatus*	240,790	240,790
Whiting, golden-lined	*Sillago analis*	9,303	9,303
Whiting, King George	*Sillaginodes punctata*	9,601	9,601
Whiting, other	Sillaginidae	1,502	1,502
Whiting, western sand	*Sillago schomburgkii*	173,604	173,604
Other fish varieties		72,379	75,298
Total fish		**14,002,262**	**14,897,010**

Common Name	Scientific Name	Landed weight (kg)	Live weight (kg)
CRABS			
Crab, blue swimmer (blue manna, sand)	*Portunus pelagicus*	834,567	834,567
Crab, champagne (spiny)	*Hypothalassia acerba*	10,951	10,951
Crab, crystal (snow)	*Chaceon bicolour*	187,904	187,904
Crab, giant (king)	*Pseudocarcinus gigas*	5,821	5,821
Crab, mud	*Scylla serrata*	3,371	3,371
Total crabs		**1,042,614**	**1,042,614**
PRAWNS			
Prawn, banana	*Penaeus merguiensis*	463,346	463,346
Prawn, brown tiger	*Penaeus esculentus*	934,376	934,376
Prawn, coral	*Metapenaeopsis* spp.	127,797	127,797
Prawn, endeavour	*Metapenaeus endeavouri*	220,660	220,660
Prawn, western king	*Penaeus latisulcatus*	1,591,046	1,591,046
Other prawns	Penaeidae	124	124
Total prawns		**3,337,349**	**3,337,349**
LOBSTERS			
Bugs	Scyllaridae	17,044	17,233
Rock lobster, southern	*Jasus edwardsii*	38,202	38,202
Rock lobster, western	*Panulirus cygnus*	10,395,985	10,395,985
Total lobsters		**10,451,231**	**10,451,420**
MOLLUSCS			
Abalone, brownlip	*Haliotis conicopora*	15,161	37,930
Abalone, greenlip	*Haliotis laevigata*	60,578	161,553
Abalone, Roe's	*Haliotis roei*	91,347	105,621
Cuttlefish	Sepiidae	51,746	51,804
Octopus	*Octopus* spp. (mainly *O. tetricus*)	104,811	202,961
Scallop, saucer	*Amusium balloti*	556,210	2,779,250
Squid	*Sepioteuthis* spp., *Loligo* spp.	31,127	31,127
Total molluscs		**910,980**	**3,370,246**
OTHER CLASSES			
Beche-de-mer	Holothuridae	22,109	66,327
Total other classes		**22,109**	**66,327**
GRAND TOTAL		**29,766,545**	**33,164,966**

1. *Landed weight:* refers to the mass (or weight) of a product at the time of landing, regardless of the state in which it is landed. That is, the fish may be whole, gutted or filleted etc. This unit is of limited use for further analysis except where it is known that the product is very homogenous in nature. Where more detailed analysis of the data is required the landed weight is generally converted to a more meaningful measure, the most frequently used being termed live or whole weight or 'nominal catch'.
2. *Live weight:* refers to the landings converted to a live weight basis. This is often referred to as the 'live weight equivalent of the landings', shortened to the 'live weight'. Although live weight may be the preferred unit it is rarely obtained as a direct measure. This is because it would usually have to be made on board a fishing vessel where the practical difficulties associated with the working conditions render it impossible. Live weight has to be derived and this is usually done by applying a conversion factor to the landed weight.

More information may be obtained from the 'CWP Handbook of Fishery Statistical Standards' at the website http://www.fao.org/figis/servlet/static?dom=ontology&xml=sectionB.xml.

APPENDIX 4

Pemberton Freshwater Research Centre activities 2006/07

The Pemberton Freshwater Research Centre (PFRC) is the largest freshwater hatchery and research facility in Western Australia. Located on the Lefroy Brook in Pemberton, it consists of 2 neighbouring sites – the original PFRC hatchery and the Dr Noel Morrissy Research Ponds located on Thomson's Flat.

The original PFRC hatchery site contains 10 earthen ponds, 22 concrete ponds, trout hatching and larval rearing troughs, a 48-tank trout nutrition facility and a training centre. The nearby Dr Noel Morrissy Research Ponds feature 25 earthen ponds (ranging in size from 150m^2 breeding ponds to 1,000m^2 commercial grow-scale ponds), 28 tanks and a post-harvest handling facility. This site on Thomsons Flat also includes an area that is leased to the Pemberton Aquaculture Producers (PAP) for marron processing and marketing.

The PFRC staff are responsible for the maintenance and production of trout, native fish and crayfish at the facility. They are also responsible for stocking trout into public waters and packing trout and marron for sale to commercial farmers.

Efficient management and operation of a large production and research facility for fish and crayfish such as the PFRC requires a high level of expertise. As a result, PFRC staff provide a key regional extension service to aquaculture, recreational fishing and conservation client groups.

The PFRC provides facilities, expertise and stock to support research and industry development in 4 key areas of conservation, recreational fishing, aquaculture and freshwater fisheries. Key PFRC projects in 2006/07 are briefly discussed below.

Trout production for recreational fishing, aquaculture and research

Trout production at the PFRC provides fingerlings and yearlings for recreational fishing, aquaculture and research. 2 species of trout are produced at the PFRC – brown trout (*Salmo trutta*) for recreational fishing and rainbow trout (*Oncorhynchus mykiss*) for both aquaculture and recreational fishing.

In 2006/07 the PFRC produced 700,00 fry, representing an increase in production of 8% compared with 2005/06. These consisted of 668,000 rainbow trout fry and 32,000 brown trout fry – representing an increase in production of 5% and 100% respectively, in comparison to 2005/06.

The majority of production (73%) consisting of 483,000 rainbow trout fry and 32,000 brown trout fry were stocked into public waterways to support recreational fishing. A further 88,000 rainbow trout (13%) were sold to individuals and clubs for stocking private farm dams for recreational fishing and tourism.

Included in the 88,000 trout fry sold to the recreational groups were 41,000 rainbow triploid fry. The recent acquisition of new equipment to produce triploids using a high pressure chamber will increase the triploidy rate compared to the PFRC's present heat shock method.

The PFRC has established a reputation amongst commercial trout farmers for consistent hatchery production of quality fry and eyed ova. In 2006/07, commercial farmers purchased 57,000 fry from the PFRC, representing 8% of PRFC trout production.

The remaining 6% of trout produced were retained for future brood stock for the PFRC, yearling stocking, trout nutrition research and sales to Challenger TAFE in June 2007 to stock an Fisheries Research and Development Corporation-funded project to evaluate commercial trout production using SIFTS (Semi Intensive Floating Tank System) in inland saline water bodies.

In 2006/07, during the winter to spring months, some 26,000 rainbow yearlings, as well as 2,800 rainbow and 480 brown trout ex-brood stock, were released to public waters for recreational fishing.

Trout research for recreational fishing and aquaculture

In late 2006 the Department of Fisheries commenced a review of trout production at the PFRC to consider 2 key factors – brown trout egg viability and rainbow trout brood-stock selection strategies.

Firstly, brown trout egg viability is sub-optimal, but prior to disposing of this valuable line that is highly regarded by recreational fishers, Research Division staff commenced a study to confirm the extent of this problem and determine the contributing factors. The factors being investigated include poor sperm motility, water quality or climate change.

Once the extent of the problem has been quantified and contributing factors identified, a decision can then be made to either implement measures to resolve the issue and continue brown trout production or discontinue production.

Preliminary investigations by Dr Craig Lawrence into brown trout sperm motility in 2006 resulted in modifications to hatchery protocols to include assessment of sperm quality prior to egg fertilisation. This strategy led to a 100% increase in the number of brown trout produced in 2006/07.

Secondly, the current breeding strategy for both rainbow and brown trout at the PFRC focuses upon random selection of brood-stock. However, trout production at the PFRC has 2 key client groups with different objectives – recreational fishers and aquaculturists. It is therefore likely that breeding objectives for these 2 groups may be different.

Accordingly, in late 2006 Research Division staff commenced discussions with both major client groups to establish and prioritise breeding objectives. This will ensure that in the coming years, brood stock selection strategies at the PFRC can be implemented to produce trout with traits that specifically meet the needs of key client groups.

The genetic line of rainbow trout at the PFRC is unique. It has already been shown to have superior temperature tolerance

compared with most domesticated lines elsewhere. Discussions with trout farmers and fishers have already established that brood stock selection to further increase upper temperature tolerance and growth of the trout stock at PFRC would be desirable, particularly if combined with triploid production to produce sterile progeny.

With climate change resulting in major losses on trout farms overseas, this breeding strategy could have a major benefit for Western Australia through export sales of eyed ova that can tolerate the warmer water temperatures being recorded on commercial farms internationally.

Aquaculture feeds development

In 2006/07 the Aquaculture Nutrition Group completed their work in the development of feed grains for the aquaculture feed sector. A further 5 research trials were run at the PFRC during this period that have helped to contribute to making the application of grains in fish feeds locally, nationally and internationally more viable.

The grains industry has now completed commissioning of a fully operational $8 million plant in Perth that processes lupins for the aquaculture feed market in Australia and internationally. In 2006, about 30,000 t of WA-produced grain, worth an estimated $10.5 million, were used in aquaculture feeds worldwide.

Native fish and crayfish conservation and biodiversity research

In response to a declining prevalence of native fish in the south-west, the PFRC established a brood-stock population of pygmy perch (*Edelia vittata*) in 2006. The aim of this research project is to develop large-scale production techniques for this species to enable stocking of public and private water bodies.

It is thought that the decline in prevalence of native fish is related to the increased spread of introduced Gambusia (*Gambusia affinis*). Although Gambusia were originally introduced to control mosquito populations, it has been shown that the native pygmy perch consume more mosquito larvae. Therefore, while production and stocking of pygmy perch has direct conservation and biodiversity benefits, it is also likely to result in human health benefits through a reduction in mosquito numbers and Ross River virus.

The brood-stock population of pygmy perch established at the PFRC in 2006 were weaned onto a commercially-available formulated pellet. These brood-stock subsequently spawned in concrete tanks, their eggs hatched and larvae were reared. Modifications are being implemented to the hatchery protocols for this species in order to reduce egg predation, increase larval survival and increase production to levels suitable for large-scale restocking programs.

In addition, brood-stock populations of 2 other freshwater native fish species that have been listed as critically endangered – the trout minnow (*G. truttaceus*) and Balson's pygmy perch (*N. Balstoni*), are being established at the PFRC in an effort to close their lifecycles, develop large-scale production techniques and restock water bodies within their original distribution.

In 2005/06 a captive breeding program to conserve marron biodiversity was established at the PFRC. The key focus of this program was to establish a breeding population of the Margaret River marron, which has been listed as critically endangered.

The South West Catchments Council (SWCC) provided funding to develop a molecular genetic test (RAPIDs) for the PFRC to identify 'pure' marron from hybrids in collaboration with the University of Western Australia. This resulted in the establishment at the PFRC of the only 'pure' brood stock population of the rare Margaret River marron.

These brood stock produced over 1,200 juveniles in the first year of this project. These juveniles are being reared to sexual maturity at the PFRC, and their progeny will be available for restocking the Margaret River catchment.

In addition, captive breeding populations from 3 other river systems were established at the PFRC in 2005/06. These brood-stock represent the genetic biodiversity of the northern, central and eastern marron populations found in WA.

Each genetic line was spawned in 2006/07 and these juveniles are being reared to sexual maturity at the PFRC. Their progeny will be available for:

- marron farmers wishing to increase the genetic diversity of their stocks based upon the results of the recently completed Fisheries Research and Development Corporation-funded marron project;
- wild fisheries research involving the release and recapture of tagged juveniles in the recreational marron fishery; and
- restocking both catchments and farm dams in each of the 3 regions.

Marron aquaculture research and development

In 2006 the Fisheries Research and Development Corporation project 2000/215 "Improved performance of marron using genetic and pond management strategies" was completed. Working with industry on commercial marron farms, Department of Fisheries' Research Division staff validated and established current 'best practice' farming techniques.

This showed that correctly constructed and professionally managed marron farms can achieve production levels that are twice that of those which do not follow 'best practice'. The project also showed that poor brood-stock selection, where farmers sell their largest marron and breed from the remaining slower-growing animals, had reduced the growth rate of marron on commercial farms. To address this situation, the Research Division staff initiated a selective breeding program that resulted in a 100% improvement in growth rate.

In 2006, over 10,000 marron from the selective breeding program were sold to juvenile producers for mass production and sale of progeny to commercial farmers. In 2007, the PFRC has produced 25,000 juveniles for sale to industry. A repository population of the better performing genetic lines was retained at the PFRC for future selective breeding and sale of progeny to industry.

APPENDIX 5

Activities of the Fish Health Unit during 2006/07

The Fish Health Unit of the Department of Fisheries was formed in 1988 and is based at South Perth within the Animal Health Laboratories of the Department of Agriculture. The unit is staffed by 1 full-time and 2 part-time fish pathologists, one research scientist, one laboratory manager and one technical officer.

The unit is accredited to ISO 17025 and provides a diagnostic service to the fishing and aquaculture industry in Western Australia, investigates 'fish kills', contributes to policy advice developed by the Department, carries out research on diseases of aquatic organisms, and has a minor extension role. Greater emphasis has been placed on staff visiting aquaculture farms to encourage sustainable farming practices.

Key activities and achievements of the unit during 2006/07 were as follows:

- The laboratory continued in its role as one of 6 regional resource centres for aquatic animal health within the Network of Aquaculture Centres (NACA) in the Asia-Pacific.
- The fish health laboratory received a total of 216 diagnostic cases during 2006/07 – a slight increase on the previous year. The types of fish diagnostic cases were consistent with those in 2005/06, with about 70 cases mainly due to submissions from barramundi farmers and commercial ornamental fish breeders.
- The provision of export health certificates for yabbies and marron has continued its downward trend since 2002/03, when 51 certificates were issued, to only 1 in this reporting period. This decline is due to the continuing drought and to changes within the industry.
- The provision of pearling translocation certificates remained steady at around 30 cases.
- Cases of the endemic notifiable disease epizootic ulcerative syndrome continue to be reported from estuarine fish in the south-west river systems. This disease is considered established in wild populations and is monitored for international reporting purposes only. No other notifiable diseases were reported.
- A major mortality of pearl oyster (*Pinctada maxima*) in Exmouth Gulf in October to November 2006 resulted in a considerable extra workload for the Fish Health staff, and an additional technical officer was employed from January 2007 for a 12-month period using Development and Better Interest Funds. Over 7,000 histology slides have been examined and over 800 polymerase chain reaction tests (to detect DNA) have been carried out. To date, the cause of the mortalities has not been determined, but from the epidemiology of the disease it is believed to be an infectious process, probably a virus.
- In collaboration with staff from the Water and Rivers Commission, 15 reports of 'fish kills' throughout the State were investigated. This was up from the 10 investigated last year. Most 'fish kills' were due to poor water quality or toxic algal blooms.
- In collaboration with the Department of Agriculture and Murdoch University, work continued on a project funded by the Fisheries Research and Development Corporation and the Australian Government's Department of Agriculture, Forestry and Fisheries (DAFF) to develop Australian standard diagnostic techniques for the endemic notifiable disease EUS and the exotic disease crayfish plague (both caused by fungi of the genus *Aphanomyces*). Crayfish plague has not been recorded in Australia and development of a standard diagnostic technique is a precautionary step.
- The Fish Health Unit completed a tender to manage a national project investigating the health of certain groups of quarantined ornamental fish and a final report was submitted to Biosecurity Australia.
- The expertise of the Fish Health Unit is frequently sought by the national Aquatic Animal Health Committee, the National Animal Health Strategy Advisory Group and Biosecurity Australia. Western Australia held the chair of the National Aquatic Animal Health Technical Working Group until October 2006. This reflects the greater emphasis on national coordination and consultation on aquatic animal health issues.

APPENDIX 6

Annual performance for commercial fisheries subject to export approval under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999*

The following table provides a summary of the issues and performance measures for fisheries subject to the above Act and their annual performance. The period assessed in each case is the most recent season for which complete data are available. As a result of the duration required for data collection and analysis, the years being assessed in this volume are the 2005/06 season or the calendar year 2006.

In addition to this summary, more detailed information on the annual performance of each fishery is provided in the relevant status reports presented throughout this volume. Within the individual status reports, each performance measure assessed is shown in a highlighted box to assist the reader.

It should also be noted that where naturally-occurring fluctuations in fish stocks have required management adjustments or where improvements have been made to methods of analysis, these have in some cases (asterisked) required a revision of the performance measure this year.

Fishery details	Issue/species	Performance measure	Current performance in 2005/06 or 2006	Comment
Fishery: **Abalone** *Date of certification:* August 2004 *Approval type:* Export exemption *Expiry date*: September 2009	Greenlip/brownlip abalone, Areas 2/3 (spawning stock)	Effort range 907 – 1,339 diver days; minimum meat weight 140 gm greenlip, 160 gm brownlip.	Acceptable	
	Roe's abalone, Area 1 (spawning stock)	Effort range 14 – 43 diver days; total catch 9,900 kg.	Acceptable	Adverse weather conditions limited fishing.
	Roe's abalone, Area 2 (spawning stock)	Effort range 80 – 106 diver days; total catch 19,800 kg.	Acceptable	88% of quota taken in Area 5, due to adverse weather.
	Roe's abalone, Area 5 (spawning stock)	Effort range 100 – 140 diver days; total catch 20,000 kg.	Acceptable	
	Roe's abalone, Area 6 (spawning stock)	Effort range 80 – 127 diver days; total catch 12,000 kg.	Acceptable	
	Roe's abalone Area 7 (spawning stock)	Effort range 175 – 215 diver days; total catch 36,000 kg.	Acceptable	A reduction to 12,000 kg recommended for 2007 in Area 8.
	Roe's abalone Area 8 (spawning stock)	Effort range 140 – 200 diver days; total catch 15,000 kg.	Acceptable	
Fishery: **Abrolhos Islands and mid west trawl** *Date of certification:* 17 March 2005 *Approval type:* Wildlife Trade Order *Expiry date*: 17 March 2008	Scallops (spawning stock)	The residual stock index determines a predicted catch that should set the length of the season.	Acceptable	
Fishery: **Beche-de-mer** *Date of certification:* December 2004 *Approval type:* Wildlife Trade Order *Expiry date*: January 2008	Beche-de-mer species (spawning stock)	The preliminary acceptable catch range is 50 – 150 t; catch rate above 80 kg/ crew-day fished.	Acceptable	

Fishery details	Issue/species	Performance measure	Current performance in 2005/06 or 2006	Comment
Fishery: **Broome prawn** *Date of certification:* August 2004 *Approval type:* Export exemption *Expiry date:* August 2009	Western king prawn (spawning stock)	Annual exploitation rate of king prawns to not exceed 60% in any 1 year.	Acceptable	
	Coral prawns (spawning stock)	Total catch within acceptable range of 20 – 90 t (7-year catch range).	Acceptable	Catch slightly below range due to low effort.
Fishery: **Exmouth Gulf prawn** *Date of certification:* March 2003 *Approval Type:* Export exemption *Expiry date*: February 2008	Tiger prawn (spawning stock)	Catch rate above 8 – 10 kg/hr	Acceptable	Spawning catch rate indicator slightly below threshold therefore no further fishing took place after spawning.
	King prawn (spawning stock)	Total catch within acceptable range of 350 – 500 t.	Acceptable	
	Endeavour prawn (spawning stock)	Total catch within acceptable range of 120 – 300 t.	Acceptable	
	Banana prawn (spawning stock)	Total catch within acceptable range of 10 – 60 t for years with significant rainfall and zero to 2 t for years with low rainfall.	Acceptable	No recorded catch correlates to low rainfall.
	Coral prawns (spawning stock)	Total catch within acceptable range of 20 – 100 t.	Acceptable	
	Discarded fish (abundance)	The major species of bycatch are found in significant numbers outside of the trawled areas.	Acceptable	
	Impact to mud/shell (habitat)	Less than 40% of mud/ shell habitat in Exmouth Gulf trawled.	Acceptable	
	Discarding fish (provisioning)	Reduction in amount of discards and ratio of discards to target catch from levels prior to introduction of Bycatch Reduction Devices.	Acceptable	
Fishery: **Kimberley prawn** *Date of Certification:* November 2004 *Approval Type:* Export exemption *Expiry date*: November 2009	Banana prawn (spawning stock)	Total catch within acceptable range of 200 – 450 t.	Acceptable	
	Brown tiger prawn (spawning stock)	Total catch within acceptable range of 15 – 60 t.	Acceptable	
	Endeavour prawn (spawning stock)	Total catch within acceptable range of 7 –80 t.	Acceptable	Just below target range due to lower retention and low market value.
	Coral prawns (spawning stock)	Total catch within acceptable range of zero to 6 t (10-year catch range).	Acceptable	

Fishery details	Issue/species	Performance measure	Current performance in 2005/06 or 2006	Comment
	Black tiger prawn (spawning stock)	Total catch within acceptable range of zero to 1 t.	Acceptable	
	Squid (spawning stock)	Total catch within acceptable range of 1 – 50 t.	Acceptable	
Fishery: **Mackerel** *Date of certification:* November 2004 *Approval type:* Export exemption *Expiry date*: November 2009	Spanish mackerel (spawning stock)	Total catch within acceptable range of 246 – 410 t; acceptable regional catch ranges: Kimberley 110 – 205 t; Pilbara 80 – 126 t; Gascoyne/West Coast 56 – 79 t.	Acceptable	Pilbara and Gascoyne/ West Coast catches below target range, due to considerable reduction in effort as a consequence of new management arrangements.
Fishery: **Northern demersal scalefish** *Date of certification:* November 2004 *Approval type:* Export exemption *Expiry date*: November 2009	Red emperor and goldband snapper (spawning stock)	Spawning biomass greater than 40% of virgin spawning biomass with lower limit of 30%; total annual catches should not increase greater than 20% above the average catches of previous 4 years; no decrease in annual trap catch rates in 2 consecutive years.	Acceptable	Increasing trend in catches for these species has triggered the requirement for an updated stock assessment, which is currently in progress.
	Cods/groupers (spawning stock)	Total annual catch should not increase greater than 20% above the average catches of previous 4 years; no decrease in annual trap catch rates in 2 consecutive years.	Acceptable	As for red emperor and goldband snapper (above).
Fishery: **Onslow and Nickol Bay prawn** *Date of certification:* November 2004 *Approval Type:* Export exemption *Expiry date*: November 2009	Banana prawns (spawning stock)	Nickol Bay: total catch in high rainfall areas within acceptable range of 40 – 220 t; in low rainfall areas within acceptable range of 0 – 40 t.	Acceptable	Catch above range, due to favourable rainfall.
		Onslow: total catch within acceptable range of 2 – 90 t.	Acceptable	
	Brown tiger prawn (spawning stock)*	Acceptable catch ranges of Nickol Bay is 2 – 40 t	Acceptable	
		and Onslow is 10 – 120 t	Acceptable	
	Western king prawn (spawning stock)	Acceptable catch ranges of Nickol Bay is 20 –70 t and Onslow is 10 – 55 t.	Nickol Bay: below but acceptable	
			Onslow: below but acceptable	
	Endeavour prawn (spawning stock)	Total catch within acceptable ranges; Nickol Bay 1 – 10 t and Onslow 5 – 20 t.	Below but acceptable	
	Coral prawns (spawning stock)	Total catch within acceptable range of Nickol Bay 1 – 15 t (10-year catch range) and Onslow 4 – 20 t.	Below but acceptable	
	Black tiger prawn (spawning stock)	Total catch within acceptable range of zero to 2 t.	Acceptable	

Fishery details	Issue/species	Performance measure	Current performance in 2005/06 or 2006	Comment
Fishery: **Pearl oyster** *Date of certification:* September 2003 *Approval type:* Export exemption *Expiry date*: October 2008	Silver-lipped (gold-lipped) pearl oyster (spawning stock)	Fished area should be less than 60% of species distribution; catch rates should not decrease by greater than 50% from historical averages of 29.5 oysters/hr (Zone 2) and 34.8 oysters/hr (Zone 3); greater than 30% of Zone 1 catch should be greater than 150 mm shell length.	Acceptable	Catch rates in Zones 2 and 3 were above performance levels. Size-frequency data in Zone 1 showed that rebuilding of stock had occurred, and that fisheries were targeting smaller size animals.
Fishery: **Pilbara trap** *Date of certification:* November 2004 *Approval type:* Wildlife Trade Order *Expiry date*: November 2007	Long-lived target species (spawning stock) – includes Rankin cod, red emperor, scarlet perch, goldband snapper, red snapper, spangled emperor	Spawning biomass of Rankin cod and red emperor should remain above minimum limit of 40% of virgin spawning biomass. Annual trap catch should not increase greater than 20% above the average catch of previous 4 years. No decrease in annual trap catch rates in more than 2 consecutive years.	Acceptable	The age structured model will be updated in 2007.
Fishery: **Pilbara trawl** *Date of certification:* November 2004 *Approval type:* Wildlife Trade Order *Expiry date*: December 2007	Long-lived target species (spawning stock) – includes Rankin cod, red emperor, scarlet perch, goldband snapper, red snapper, spangled emperor	Spawning biomass of Rankin cod and red emperor should remain above minimum limit of 40% of virgin spawning biomass; annual trawl catch should not increase greater than 20% above the average catch of previous 4 years; and no decrease in annual trawl catch rates in more than consecutive years.	Acceptable	The age structured model will be updated in 2007.
	Short-lived target species (spawning stock)	Median spawning biomass of blue-spot emperor should be greater than 40% of the 1993 spawning biomass in Area 1; annual catch of each short-lived target species should not increase more than 20% above the average annual catch of the previous 4 years; annual catch rate of each short-lived target species should not decrease in 2 consecutive years.	Acceptable	The age structured model will be updated in 2007.
	Bycatch of protected species – dolphins	Number of dolphins caught by the fishery should be less than 75/yr, assuming 100% catch mortality; all skippers to maintain records of the time, date, shot duration and location of each incidental capture.	Acceptable	

Fishery details	Issue/species	Performance measure	Current performance in 2005/06 or 2006	Comment
	Bycatch of protected species – turtles	Number of turtles caught should be reduced by 50% of 2002 level following implementation of mitigation devices; number of turtles released alive should be greater than or equal to 72% of total captures per year; all skippers to maintain records of the time, date, shot duration and location of each incidental capture.	Acceptable	
	Bycatch of protected species – syngnathids	Number of pipefish caught and released alive should be less than 500/yr; number of seahorses caught and released alive should be less than 60/yr; all skippers to maintain records of the time, date, shot duration and location of each incidental capture.	Acceptable	
	Bycatch of protected species – sawfish	Number of sawfish caught should be less than 120/yr; number of sawfish released alive should be increased to 50% of captures by 2008; all skippers to maintain records of the time, date, shot duration and location of each incidental capture.	Acceptable	
	General ecosystem – large epibenthos	The total area of the Pilbara demersal fish fishery (encompassing both trawl and trap fisheries) that is closed to trawling is 80%; the total area of the Pilbara demersal fish fishery between depths of 30 m and 120 m should remain at or below the current level of 60%.	Acceptable	
Fishery: **Salmon** *Date of certification:* November 2004 *Approval type:* Export exemption *Expiry date*: November 2009	Western Australian salmon (spawning stock)	Expected catch range under the current management regime is 1,200 – 2,800 t.	Acceptable	
Fishery: **Shark Bay experimental crab fishery** *Date of certification:* November 2004 *Approval type:* Wildlife Trade Order *Expiry date*: November 2007	Blue swimmer crab (breeding stock)	Catch per unit effort (CPUE) to remain above 1 kg/trap lift.	Acceptable	

Fishery details	Issue/species	Performance measure	Current performance in 2005/06 or 2006	Comment
Fishery: **Shark Bay prawn** *Date of certification:* February 2003 *Approval type:* Export exemption *Expiry date*: January 2008	Tiger prawn (spawning stock)	Level of spawning stock present during the spawning season above 2 kg/hr, preferred level between 3 and 4 kg/hr.	Acceptable	
	King prawn (spawning stock)	Total catch within historical acceptable range of 1,100 – 1,600 t, given no change in effort.	Below but acceptable	Due to reduced effort and targeting of larger-size prawns.
	Coral and endeavour prawns (spawning stock)	Total catch within historical acceptable ranges given no change in effort: coral 80 – 280 t, endeavour 1 – 30 t.	Acceptable	Endeavour prawns not targeted in this fishery.
	Loggerhead turtles (captures)	90% of turtles captured from non-Bycatch Reduction Device nets returned alive.	Acceptable	
	Discarded fish (abundance)	Majority of bycatch species are found in relatively significant numbers outside of trawled areas.	Acceptable	
	Impact to sand/shell (habitat)	Less than 40% of sand/shell habitat in Shark Bay trawled.	Acceptable	
	Impact to coral/sponge (habitat)	Less than 20% of the remaining coral/sponge habitat in Shark Bay to be contained within the legally trawled area.	Acceptable	
	Discarding fish (provisioning)	Reduction in amount of discards and ratio of discards to target catch from pre-catch reduction device levels.	Acceptable	
Fishery: **Shark Bay scallop** *Date of certification:* February 2003 *Approval type:* Export exemption *Expiry date*: January 2008	Scallop (spawning stock)	Monitoring of recruits/ residual stock to ensure the start date of the season is set so that there is adequate level of breeding stock present when spawning commences.	Acceptable	
	Loggerhead turtles (captures)	90% of turtles captured from non-Bycatch Reduction Device nets returned alive.	Acceptable	
Fishery: **Shark Bay snapper** *Date of certification:* June 2004 *Approval type:* Export exemption *Expiry date*: June 2009	Pink snapper (spawning stock)	Catch rate not to fall below 500 kg/standard June – July boat day.	Catch rates in 2006 have increased significantly, but a further quota reduction was instigated.	There is a need to review the current Ecologically Sustainable Development trigger level of 500 kg/ standard boat day.

Fishery details	Issue/species	Performance measure	Current performance in 2005/06 or 2006	Comment
Fishery: **South coast crustacean** *Date of certification:* September 2004 *Approval type:* Wildlife Trade Order *Expiry date*: September 2007	Southern rock lobster (spawning stock)	Catch to remain below 40 t for Esperance fishery.	Acceptable	Management of south coast crustacean fisheries are being reviewed.
Fishery: **Specimen shell** *Date of certification:* 25 May 2005 *Approval type:* Export exemption *Expiry date*: 25 May 2010	Specimen shell species (spawning stock)	Preliminary acceptable catch range is from 10,000 – 25,000 shells; acceptable catch rate 10 – 40 shells per day.	Acceptable	
Fishery: **Western rock lobster** *Date of certification:* August 2002 *Approval Type:* Export exemption *Expiry date*: September 2007	Western rock lobster (spawning stock)	Spawning biomass at Abrolhos Islands and coastal regions to remain above 22% of unfished level.	Acceptable	
	Octopus (spawning stock)	Catch rate not to drop outside of historic range by greater than 10%.	Acceptable	
	Sea lion (captures)	No increase in rate of capture.	Acceptable	No sea lion captures were reported
	Leatherback turtle (captures)	No increase in rate of interactions.	Acceptable	
	Whales and dolphins (captures)	No increase in rate of interactions.	Not acceptable	Indicator requires revision as whale populations are increasing, hence the level of interactions will also increase.
Fishery: **West coast deep sea crab** *Date of certification:* March 2004 *Approval type:* Wildlife Trade Order *Expiry date*: March 2007	Champagne crab (spawning stock)	Catch to remain below historical high of 50 t per annum.	Acceptable	
	Crystal crab (spawning stock)	Catch to remain within range 100 – 250 t per annum.	Acceptable	

GLOSSARY OF ACRONYMS

AIMWTF	Abrolhos Islands and Mid West Trawl Managed Fishery
BPF	Broome Prawn Fishery
BRD	bycatch reduction device
CAES	catch and effort statistics
CAP	Commercial Access Panel
CPUE	catch per unit effort
CW	carapace width
DEC	Department of Environment and Conservation (formerly Department of Conservation and Land Management)
DEH	(Australian Government) Department of Environment and Heritage
EPBC	(Commonwealth) Environment Protection and Biodiversity Conservation Act 1999
ERLF	Esperance Rock Lobster Managed Fishery
ESD	Ecologically Sustainable Development
FED	fish escapement device
FHPA	Fish Habitat Protection Area
FMO	Fisheries and Marine Officer
FRDC	Fisheries Research and Development Corporation
GAB	Great Australian Bight
GSMH	Great Southern Marine Hatcheries
IBSS	independent breeding stock survey
IFAAC	Integrated Fisheries Allocation Advisory Committee
IFM	Integrated Fisheries Management
IMCRA	Interim Marine and Coastal Regionalisation for Australia
IQF	individually quick frozen
ITE	individually transferable effort
ITQ	individually transferable quota
JANSF	Joint Authority Northern Shark Fishery
JASDGDLF	Joint Authority Southern Demersal Gillnet and Demersal Longline Managed Fishery
KGBF	Kimberley Gillnet and Barramundi Managed Fishery
KPF	Kimberley Prawn Managed Fishery
LASCF	Lake Argyle Silver Cobbler Fishery
LML	legal minimum length
MAF	Marine Aquarium Fish Managed Fishery
MOP	mother-of-pearl
MPA	Marine Protected Area
MPP	Management Planning Panel
MSC	Marine Stewardship Council
NBPF	Nickol Bay Prawn Managed Fishery
NDSF	Northern Demersal Scalefish Managed Fishery
NPF	Northern Prawn Fishery
PER	Public Environmental Review
PFRC	Pemberton Freshwater Research Centre
PFTF	Pilbara Fish Trawl (Interim) Managed Fishery
RCL	rostrum carapace length
RFAC	Recreational Fishing Advisory Committee
RFFSS	Recreational Freshwater Fisheries Stakeholder Subcommittee
ROA	Reef Observation Area
SBBSMNF	Shark Bay Beach Seine and Mesh Net Managed Fishery
SBSF	Shark Bay Snapper Managed Fishery
SCEF	South Coast Estuarine (Interim) Managed Fishery
SFD	standard fishing day
SHL	sustainable harvest level
SLED	sea lion exclusion device
SMFG	size management fish ground
SRR	spawning stock–recruitment relationship
SSF	Specimen Shell Managed Fishery
TAC	total allowable catch
TACC	total allowable commercial catch
TAE	total allowable effort
TAFE	Technical and Further Education
TL	total length
TPSA	tiger prawn spawning area
VFLO	Volunteer Fisheries Liaison Officer
VMS	vessel monitoring system
WAFMRL	WA Fisheries and Marine Research Laboratories
WANCSF	WA North Coast Shark Fishery
WCBBF	West Coast Beach Bait Managed Fishery
WCDGDLF	West Coast Demersal Gillnet and Demersal Longline (Interim) Managed Fishery
WCEF	West Coast Estuarine Managed Fishery
WCRLF	West Coast Rock Lobster Managed Fishery