

## 16. Future Action

It is recommended that protection of remaining wetlands should be the first priority. There is a need to bring together catchment management groups, community leaders with a focus on changes to land management practices, government decision makers and those with knowledge and expertise of wetlands. At present most of these stakeholders are working in isolation and the benefit of their combined knowledge is compromised.

A more strategic targeted approach is required that includes priority setting based on wetland values, a thematic focus on specific threat types, protection ahead of restoration and specific restoration initiatives if there is to be a shift towards improvement in wetland management and protection. A Wetland Working Group comprising members of these groups should be established to provide guidance for future investment in wetlands.

It is considered that there is a sufficient knowledge base for investment in wetlands to shift from research to on-ground action aimed at protecting and improving high value wetlands. It is suggested that an investment ratio of 80% for on-ground action and 20% for further research and monitoring should be a target used in catchment management investment plans or when funding works on wetlands. Whilst additional research on wetlands values is important, we need to start using our existing knowledge to protect and rehabilitate wetlands and realise the benefits for the built and natural environment.

Monitoring needs to go beyond water quality parameters and address the food chain issues that are critical to fishery productivity. Use of biological monitoring will address both habitat issues and provide a better understanding of links to productivity. Regular population surveys should be introduced in all coastal waterways and used as an indicator for the health of wetlands.

Future research needs to focus on filling in the gaps in areas such as the relationship between habitat type and extent and the productivity of the fishery as identified in NSW in 1989. Other shortfalls include the impacts of sub-lethal effects of poor water quality in tropical wetlands and food chain relationships between freshwater and marine environments. Lack of research however, should not stop the restoration of catchments to start addressing obvious water quality and connectivity issues.

There is a need to establish an agreed list of assessment criteria of wetland values for fishery resources with an agreed rapid assessment procedure. Factors should include biological diversity of fish populations, adult/juvenile habitat, food chain/productivity contributions, water quality issues and hydrological

functions as a minimum. An inventory of wetland resources needs to be established and maintained.

The high value wetlands identified in this report should be targeted and management strategies developed to maintain their values as a priority for future investment in wetlands. Future strategies should include maintenance and improvements to connectivity, water quality and habitat quality. These strategies should also include the use of these wetlands as demonstration and education sites and for communication of wetland values to the wider community. The strategy needs to be community driven rather than government or science driven.

Investment in improvement of wetlands is a key priority of the Reef Water Quality Protection Plan in terms of the future water quality of the water entering the GBR Lagoon. However, further encouragement is required to target wetlands protection that enhances the maintenance of fish stocks that use the GBR. It is recommended that priority investment for the GBR catchment area is targeted at wetlands assessed as having a high value from a fishery perspective.

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The Landsat TM Imagery displayed is held in the Great Barrier Reef Marine Park Geospatial Data Library.

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## 19. Appendix 1 – Species List

List of species recorded from both freshwater and saltwater in the past 15 years. More species are likely to be identified as monitoring continues in the GBR region.

Common Name	Scientific Name	WT	TV	MK	CQ	BB
ANCHOVY – HAMILTON	<i>Thryssa hamiltoni</i>				Y	
ARCHERFISH	<i>Toxotes chatareus</i>	Y	Y			
BARRAMUNDI	<i>Lates calcarifer</i>	Y	Y	Y	Y	Y
BASS – AUSTRALIAN	<i>Macquaria novemaculatus</i>					Y
BLUE EYE – PACIFIC	<i>Pseudomugil signifer</i>	Y		Y	Y	
BONY BREEM – FRESHWATER	<i>Nematalosa erebi</i>	Y	Y	Y	Y	Y
BONY BREEM – SALTWATER	<i>Nematalosa come</i>				Y	
BREAM – BUTTER	<i>Monodactylus argenteus</i>				Y	
BREAM – PIKEY	<i>Acanthopagrus berda</i>	Y				
BREAM – YELLOWFIN	<i>Acanthopagrus australis</i>				Y	Y
BULLROUT	<i>Notesthes robusta</i>	Y		Y	Y	Y
BUTTERFISH – SPOTTED	<i>Scatophagus argus</i>	Y	Y		Y	Y
BUTTERFISH – STRIPED	<i>Selenotoca multifasciata</i>	Y			Y	Y
CARDINALFISH – HUMPBAC	<i>Apogon hyalosoma</i>	Y				
CATFISH – BLACK	<i>Neosilurus ater</i>			Y		
CATFISH – FORKTAIL	<i>Arius graffei</i>		Y	Y	Y	Y
CATFISH – HYRTL	<i>Neosilurus hyrtlii</i>				Y	Y
CATFISH – TRIANGULAR SHIELD	<i>Arius leptaspis</i>			Y		
EEL – LONGFINNED	<i>Anguilla reinhardtii</i>	Y	Y	Y	Y	Y
EEL – LONGFIN SNAKE	<i>Pisodonophis cancrivorus</i>	Y				
EEL – PACIFIC	<i>Anguilla obscura</i>	Y				
EEL – SHORTFINNED	<i>Anguilla australis</i>					Y
EEL – SWAMP	<i>Ophisternon gutterale</i>	Y				
FLATHEAD – BARTAIL	<i>Platycephalus indicus</i>	Y				
FLATHEAD – DUSKY	<i>Platycephalus fuscus</i>				Y	
GARFISH – EASTERN RIVER	<i>Hemiramphus regularis ardelio</i>	Y				
GARFISH – SNUBNOSE	<i>Arrhamphus sclerolepis</i>	Y	Y	Y	Y	Y
GLASS PERCHLET	<i>Ambassis agassizi</i>	Y		Y	Y	Y
GLASS PERCHLET	<i>Ambassis gymnocephalus</i>	Y				
GLASS PERCHLET – ESTUARY	<i>Ambassis marianus</i>					Y
GLASS PERCHLET – FLAGTAIL	<i>Ambassis miops</i>	Y				
GLASS PERCHLET – LONG SPINED	<i>Ambassis interruptus</i>	Y				
GLASS PERCHLET – VACHELLI	<i>Ambassis vachellii</i>	Y			Y	
GOBY – CELEBES	<i>Glossogobius celebius</i>	Y				
GOBY – ROMAN NOSE	<i>Awaous acritus</i>	Y				
GOBY – SLEEPY	<i>Glossogobius biocellatus</i>	Y				
GOBY – SPECKLED	<i>Redigobius bikolanus</i>	Y	Y			
GRUNTER – BANDED	<i>Amniataba percoides</i>		Y	Y	Y	Y

GRUNTER – SILVER	<i>Mesopristes argenteus</i>	Y				
GRUNTER – SOOTY	<i>Hephaestus fuliginosus</i>			Y		
GUDGEON – BROWN	<i>Eleotris fusca</i>	Y				
GUDGEON – EBONY	<i>Eleotris melanosoma</i>	Y				
GUDGEON – EMPIRE	<i>Hypseleotris compressa</i>	Y		Y	Y	Y
GUDGEON – FLATHEAD	<i>Philypnodon grandiceps</i>					Y
GUDGEON – PURPLE SPOTTED	<i>Mogurnda adspersa</i>		Y	Y	Y	
GUDGEON – SNAKEHEAD	<i>Ophieleotris aporos</i>	Y				
GUDGEON – SPANGLED	<i>Ophiocara porocephala</i>				Y	
GUPPY *	<i>Poecilia reticulata</i>	Y				
HARDYHEAD – FLY SPECKLED	<i>Craterocephalus stercusmuscarum</i>			Y	Y	Y
HERRING – GIANT	<i>Elops hawaiiensis</i>			Y	Y	
HERRING – SOUTHERN	<i>Herklotsichthys castelnaui</i>				Y	
LONGTOM – FRESHWATER	<i>Strongylura krefftii</i>			Y	Y	
MANGROVE JACK	<i>Lutjanus argentimaculatus</i>	Y	Y	Y	Y	Y
MILKFISH	<i>Chanos chanos</i>	Y			Y	Y
MOSQUITO FISH *	<i>Gambusia holbrooki</i>		Y		Y	Y
MOUTH ALMIGHTY	<i>Glossamia aprion</i>	Y		Y	Y	
MULLET – BLUESPOT	<i>Valamugil sehili</i>	Y				
MULLET – FANTAIL	<i>Liza subviridis</i>	Y			Y	
MULLET – SEA	<i>Mugil cephalus</i>	Y		Y	Y	Y
MULLET – SILVER	<i>Mugil georgii</i>	Y				
MULLET – SQUARETAIL	<i>Liza vaigiensis</i>	Y				
PERCH – JUNGLE	<i>Kuhlia rupestris</i>	Y		Y		Y
PERCH – SPANGLED	<i>Leiopotherapon unicolor</i>			Y	Y	Y
PONYFISH – COMMON	<i>Leignathus equulus</i>	Y			Y	
RAINBOWFISH – EASTERN	<i>Melanotaenia splendida splendida</i>	Y		Y	Y	
REMORA – BROWN	<i>Remora remora</i>				Y	
SHARK – BULL	<i>Carcharhinus leucas</i>				Y	
SILVERBELLY – COMMON	<i>Gerres subfasciatus</i>				Y	
SILVERBELLY – THREADFIN	<i>Gerres filamentosus</i>	Y	Y		Y	Y
SLEEPER – DUCKBILL	<i>Butis butis</i>	Y				
SLEEPY COD	<i>Oxeleotris lineolatus</i>	Y		Y		
SLEEPY COD – COASTAL	<i>Oxeleotris gyrindoides</i>				Y	
SOLE – DAPPLED	<i>Aseraggodes spp</i>					Y
TARPON	<i>Megalops cyprinoides</i>	Y	Y	Y	Y	Y
TERAPON – JARBUA	<i>Terapon jabbua</i>	Y				
TERAPON – SMALLSCALE	<i>Terapon puta</i>	Y				
TILAPIA *	<i>Tilapia mariae</i>	Y				
TREVALLY – BIGEYE	<i>Caranx sexfasciatus</i>	Y				
TREVALLY – GIANT	<i>Caranx ignobilis</i>	Y				

Regions are WT = Wet Tropics TV = Townsville MK = Mackay CQ = Central Queensland BB = Bundaberg

\* species are not native

## 20. Appendix 2 – Tagged Fish Summary

Barramundi tagged in freshwater and brackish wetlands from the Suntag database 1984–2004.

LOCATION	TAGGED	WHEN	RECAPTURES	HABITAT	STOCKED
LAKE CALLEMONDAH	372	2000–2003	Y	F	S
12 MILE CK	4658	1984–2004	Y	B	
BLACKS HOLE	563	1989–2003	Y	F	
8 MILE CK	2	1999	N	F	
WOOLWASH LAGOON	365	1989–2003	Y	F	S
FROGMORE LAGOON	865	1985–2003	Y		
BATES LAGOON	18	1989–1997	Y	F	
YEPPEN LAGOON	1	1998	N	F	
HEDLOW CK	242	2001–2003	Y	F	S
SERPENTINE LAGOON	84	2002–2004	Y	F	S
CORIO WETLAND	185	1991	Y	F	
BOUNDARY LAGOONS	18	1993–1996	Y	F	
SHOALWATER CK	21	2002–2003	N	B	
POTTY LAGOON	42	1993	N	F	
HERBERT CK	476	1989–2001	Y	F	
WUMALGI LAGOON	6	1992–1998	Y	F	
GRANITE CK	43	1990–1994	Y	F	
HEIFER CK	21	1995–1997	N	F	
ANDERGROVE LAGOON	55	1987–2002	Y	F	
INVESTIGATOR SWAMP	46	2002	Y	F	
GOOSEPONDS CK	172	1989–2001	Y	F	
MURRAY CK	22	1999–2001	Y	F	
THOMPSON CK	150	1988–2001	Y	F	
LAGUNA LAKES	13	2000–2001	N	F	
GOORGANGA CK	79	1990–2002	N	F	
CLAY HOLE	27	2000–2002	Y	F	
REED BEDS LAGOON	95	1985–1992	Y	F	
HODEL LAGOON	27	1990–2000	Y	F	
CROOKED WATERHOLE	3	1998	N	F	
CROMARTY LAGOON	13	2000	N	F	
JERONA LAGOON	10	1994–1999	Y	F	
WEST BARRATTA CK	115	2001–2003	Y	F	
GORIZIA LAGOON	4	2003	N	F	
BARRATTA CK RAILWAY	77	1990–2000	Y	F	
CLEVEDON CAUSEWAY	21	1991–2000	Y	B	
GOOSE LAGOON	6	1994	Y	F	
CATTLE CK	64	1988–1997	Y	F	
RIPPLE CK LAGOON	14	1999	Y	F	
BARRETT'S LAGOON	47	1995–2000	Y	F	
WRECK LAGOON	5	1992–1996	N	B	
LANDCARE LAGOON	6	2000–2002	N	F	
DIGMAN LAGOONS	26	2000–2002	Y	F	

BOONGURAY LAGOON	16	2002	N	F	
KYAMBOL LAGOON	4	2003	N	F	
HASSELL LAGOON	11	1994	Y	F	
FLEGLER LAGOON	1	2003	N	F	
WARRINA LAKES	33	1998–2001	Y	F	

## 21. Appendix 3 – Recaptured Fish Summary

Barramundi recaptures for fish tagged in freshwater and brackish wetlands from the Suntag database 1984–2004.

LOCATION	TOTAL RECAPS	NO MOVEMENT	IN	OUT	UNKNOWN
LAKE CALLEMONDAH	57	28	0	29	
12 MILE CREEK	1113	1058	1	54	
BLACKS HOLE	35	13	2	20	
WOOLWASH LAGOON	73	5	13	55	
FROGMORE LAGOON	114	9	8	97	
BATES LAGOON	11	0	5	6	
FRENCHMAN CK	1	0	0	1	
HEDLOW CK	2	2	0	0	
SERPENTINE LAGOON	4	0	0	4	
CORIO WETLAND	15	1	0	14	
BOUNDARY LAGOONS	1	0	0	1	
HERBERT CK	23	13	0	10	
WUMALGI LAGOON	1	1	0	0	
GRANITE CK	1	0	0	1	
ANDERGROVE LAGOON	3	0	0	3	
INVESTIGATOR SWAMP	1	0	0	1	
GOOSEPONDS	35	23	1	11	
MURRAY CK	3	1	0	2	
THOMPSON CK	8	1	0	7	
JERONA LAGOON	1	0	0	0	1
WEST BARRATTA CK	6	4	0	1	1
BARRATA CK RAILWAY	4	2	0	1	1
CLAY HOLE	1	1	0	0	
REED BEDS LAGOON	9	0	0	9	
HODEL CK	4	0	0	4	
CLEVEDON CAUSEWAY	6	0	0	6	
CATTLE CK	1	0	0	1	
RIPPLE CK LAGOON	1	0	0	1	
BARRETT'S LAGOON	6	2	0	4	
DIGMAN LAGOONS	1	1	0	0	
HASSELL LAGOON	1	0	0	1	
WARRINA LAKES	1	0	0	1	
			30	345	