

Appendix 1

Fauna list developed from the NPWS Atlas of Wildlife

Class name	Family Name	Scientific Name	Common Name*	Status
Amphibia	Myobatrachidae	<i>Crinia signifera</i>	Common Eastern Froglet	Protected
Amphibia	Hylidae	<i>Litoria caerulea</i>	Green Tree Frog	Protected
Amphibia	Hylidae	<i>Litoria fallax</i>	Eastern Dwarf Tree Frog	Protected
Aves	Acanthizidae	<i>Acanthiza pusilla</i>	Brown Thornbill	Protected
Aves	Anatidae	<i>Anas superciliosa</i>	Pacific Black Duck	Protected
Aves	Meliphagidae	<i>Anthochaera carunculata</i>	Red Wattlebird	Protected
Aves	Meliphagidae	<i>Anthochaera chrysoptera</i>	Little Wattlebird	Protected
Aves	Motacillidae	<i>Anthus australis</i>	Australian Pipit	Protected
Aves	Ardeidae	<i>Ardea alba</i>	Great Egret	Protected
Aves	Ardeidae	<i>Ardea ibis</i>	Cattle Egret	Protected
Aves	Artamidae	<i>Artamus leucorhynchus</i>	White-breasted Woodswallow	Protected
Aves	Ardeidae	<i>Butorides striatus</i>	Striated Heron	Protected
Aves	Cacatuidae	<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	Vulnerable
Aves	Cuculidae	<i>Chalcites lucidus</i>	Shining Bronze-Cuckoo	Protected
Aves	Anatidae	<i>Chenonetta jubata</i>	Australian Wood Duck	Protected
Aves	Accipitridae	<i>Circus approximans</i>	Swamp Harrier	Protected
Aves	Pachycephalidae	<i>Colluricincla harmonica</i>	Grey Shrike-thrush	Protected
Aves	Columbidae	<i>Columba leucomela</i>	White-headed Pigeon	Protected
Aves	Columbidae	<i>Columba livia</i>	Rock Dove	Unprotected
Aves	Campephagidae	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	Protected
Aves	Campephagidae	<i>Coracina papuensis</i>	White-bellied Cuckoo-shrike	Protected
Aves	Climacteridae	<i>Cormobates leucophaeus</i>	White-throated Treecreeper	Protected
Aves	Corvidae	<i>Corvus coronoides</i>	Australian Raven	Protected
Aves	Corvidae	<i>Corvus tasmanicus</i>	Forest Raven	Protected
Aves	Artamidae	<i>Cracticus nigrogularis</i>	Pied Butcherbird	Protected
Aves	Artamidae	<i>Cracticus torquatus</i>	Grey Butcherbird	Protected
Aves	Halcyonidae	<i>Dacelo novaeguineae</i>	Laughing Kookaburra	Protected
Aves	Dicaeidae	<i>Dicaeum hirundinaceum</i>	Mistletoebird	Protected
Aves	Dicruridae	<i>Dicrurus bracteatus</i>	Spangled Drongo	Protected
Aves	Ardeidae	<i>Egretta novaehollandiae</i>	White-faced Heron	Protected
Aves	Accipitridae	<i>Elanus axillaris</i>	Black-shouldered Kite	Protected
Aves	Petroicidae	<i>Eopsaltria australis</i>	Eastern Yellow Robin	Protected
Aves	Cuculidae	<i>Eudynamys orientalis</i>	Pacific Koel	Protected
Aves	Coraciidae	<i>Eurystomus orientalis</i>	Dollarbird	Protected
Aves	Falconidae	<i>Falco cenchroides</i>	Nankeen Kestrel	Protected
Aves	Pachycephalidae	<i>Falcunculus frontatus</i>	Eastern Shrike-tit	Protected
Aves	Columbidae	<i>Geopelia humeralis</i>	Bar-shouldered Dove	Protected
Aves	Acanthizidae	<i>Gerygone mouki</i>	Brown Gerygone	Protected
Aves	Acanthizidae	<i>Gerygone olivacea</i>	White-throated Gerygone	Protected
Aves	Dicruridae	<i>Grallina cyanoleuca</i>	Magpie-lark	Protected
Aves	Artamidae	<i>Gymnorhina tibicen</i>	Australian Magpie	Protected
Aves	Accipitridae	<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	Protected
Aves	Accipitridae	<i>Haliastur indus</i>	Brahminy Kite	Protected
Aves	Accipitridae	<i>Haliastur sphenurus</i>	Whistling Kite	Protected
Aves	Apodidae	<i>Hirundapus caudacutus</i>	White-throated Needletail	Protected
Aves	Hirundinidae	<i>Hirundo neoxena</i>	Welcome Swallow	Protected
Aves	Campephagidae	<i>Lalage leucomela</i>	Varied Triller	Protected
Aves	Campephagidae	<i>Lalage tricolor</i>	White-winged Triller	Protected

* Emboldened species are those most likely to occur in estuarine environments.

Appendix 1

Fauna list developed from the NPWS Atlas of Wildlife

Class name	Family Name	Scientific Name	Common Name*	Status
Aves	Laridae	<i>Larus novaehollandiae</i>	Silver Gull	Protected
Aves	Columbidae	<i>Leucosarcia melanoleuca</i>	Wonga Pigeon	Protected
Aves	Meliphagidae	<i>Lichenostomus chrysops</i>	Yellow-faced Honeyeater	Protected
Aves	Meliphagidae	<i>Lichmera indistincta</i>	Brown Honeyeater	Protected
Aves	Estrildidae	<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin	Protected
Aves	Columbidae	<i>Lopholaimus antarcticus</i>	Topknot Pigeon	Protected
Aves	Maluridae	<i>Malurus cyaneus</i>	Superb Fairy-wren	Protected
Aves	Maluridae	<i>Malurus lamberti</i>	Variiegated Fairy-wren	Protected
Aves	Maluridae	<i>Malurus melanocephalus</i>	Red-backed Fairy-wren	Protected
Aves	Meliphagidae	<i>Manorina melanocephala</i>	Noisy Miner	Protected
Aves	Sylviidae	<i>Megalurus timoriensis</i>	Tawny Grassbird	Protected
Aves	Meropidae	<i>Merops ornatus</i>	Rainbow Bee-eater	Protected
Aves	Dicruridae	<i>Monarcha melanopsis</i>	Black-faced Monarch	Protected
Aves	Dicruridae	<i>Monarcha trivirgatus</i>	Spectacled Monarch	Protected
Aves	Dicruridae	<i>Myiagra cyanoleuca</i>	Satin Flycatcher	Protected
Aves	Dicruridae	<i>Myiagra rubecula</i>	Leaden Flycatcher	Protected
Aves	Meliphagidae	<i>Myzomela sanguinolenta</i>	Scarlet Honeyeater	Protected
Aves	Estrildidae	<i>Neochmia temporalis</i>	Red-browed Finch	Protected
Aves	Ardeidae	<i>Nycticorax caledonicus</i>	Nankeen Night Heron	Protected
Aves	Columbidae	<i>Ocyphaps lophotes</i>	Crested Pigeon	Protected
Aves	Oriolidae	<i>Oriolus sagittatus</i>	Olive-backed Oriole	Protected
Aves	Pachycephalidae	<i>Pachycephala pectoralis</i>	Golden Whistler	Protected
Aves	Accipitridae	<i>Pandion haliaetus</i>	Osprey	Vulnerable
Aves	Pardalotidae	<i>Pardalotus punctatus</i>	Spotted Pardalote	Protected
Aves	Pardalotidae	<i>Pardalotus striatus</i>	Striated Pardalote	Protected
Aves	Pelecanidae	<i>Pelecanus conspicillatus</i>	Australian Pelican	Protected
Aves	Petroicidae	<i>Petroica rosea</i>	Rose Robin	Protected
Aves	Phalacrocoracidae	<i>Phalacrocorax carbo</i>	Great Cormorant	Protected
Aves	Phalacrocoracidae	<i>Phalacrocorax melanoleucos</i>	Little Pied Cormorant	Protected
Aves	Phalacrocoracidae	<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	Protected
Aves	Meliphagidae	<i>Philemon corniculatus</i>	Noisy Friarbird	Protected
Aves	Meliphagidae	<i>Phylidonyris nigra</i>	White-cheeked Honeyeater	Protected
Aves	Threskiornithidae	<i>Platalea regia</i>	Royal Spoonbill	Protected
Aves	Psittacidae	<i>Platycercus adscitus eximius</i>	Eastern Rosella	Protected
Aves	Meliphagidae	<i>Plectorhyncha lanceolata</i>	Striped Honeyeater	Protected
Aves	Podargidae	<i>Podargus strigoides</i>	Tawny Frogmouth	Protected
Aves	Eupetidae	<i>Psophodes olivaceus</i>	Eastern Whipbird	Protected
Aves	Columbidae	<i>Ptilinopus magnificus</i>	Wompoo Fruit-Dove	Vulnerable
Aves	Dicruridae	<i>Rhipidura albiscapa</i>	Grey Fantail	Protected
Aves	Dicruridae	<i>Rhipidura leucophrys</i>	Willie Wagtail	Protected
Aves	Dicruridae	<i>Rhipidura rufifrons</i>	Rufous Fantail	Protected
Aves	Cuculidae	<i>Scythrops novaehollandiae</i>	Channel-billed Cuckoo	Protected
Aves	Acanthizidae	<i>Sericornis frontalis</i>	White-browed Scrubwren	Protected
Aves	Acanthizidae	<i>Sericornis magnirostris</i>	Large-billed Scrubwren	Protected
Aves	Ptilonorhynchidae	<i>Sericulus chrysocephalus</i>	Regent Bowerbird	Protected
Aves	Oriolidae	<i>Sphecotheres vieilloti</i>	Australasian Figbird	Protected
Aves	Laridae	<i>Sterna bergii</i>	Crested Tern	Protected
Aves	Artamidae	<i>Strepera graculina</i>	Pied Currawong	Protected
Aves	Columbidae	<i>Streptopelia chinensis</i>	Spotted Turtle-Dove	Unprotected
Aves	Sturnidae	<i>Sturnus vulgaris</i>	Common Starling	Unprotected
Aves	Threskiornithidae	<i>Threskiornis molucca</i>	Australian White Ibis	Protected

Appendix 1

Fauna list developed from the NPWS Atlas of Wildlife

Class name	Family Name	Scientific Name	Common Name*	Status
Aves	Psittacidae	<i>Trichoglossus chlorolepidotus</i>	Scaly-breasted Lorikeet	Protected
Aves	Psittacidae	<i>Trichoglossus haematodus</i>	Rainbow Lorikeet	Protected
Aves	Charadriidae	<i>Vanellus miles</i>	Masked Lapwing	Protected
Aves	Meliphagidae	<i>Xanthomyza phrygia</i>	Regent Honeyeater	Endangered
Aves	Zosteropidae	<i>Zosterops lateralis</i>	Silvereye	Protected
Mammalia	Delphinidae	<i>Dolphin sp.</i>	Unidentified Dolphin	Protected
Mammalia	Delphinidae	<i>Grampus griseus</i>	Risso's Dolphin	Protected
Mammalia	Macropodidae	<i>Macropus giganteus</i>	Eastern Grey Kangaroo	Protected
Mammalia	Balaenopteridae	<i>Megaptera novaeangliae</i>	Humpback Whale	Vulnerable
Mammalia	Tachyglossidae	<i>Tachyglossus aculeatus</i>	Short-beaked Echidna	Protected
Mammalia	Phalangeridae	<i>Trichosurus vulpecula</i>	Common Brushtail Possum	Protected
Mammalia	Canidae	<i>Vulpes vulpes</i>	Fox	Unprotected
Plant	Fabaceae	<i>Acacia floribunda</i>	White Sally	Unprotected
Plant	Restionaceae	<i>Baloskion tetraphyllum</i>		Protected
Plant	Blechnaceae	<i>Blechnum indicum</i>	Swamp Water Fern	Unprotected
Plant	Rutaceae	<i>Boronia pinnata</i>		Protected
Plant	Orchidaceae	<i>Caladenia carnea</i>	Pink Fingers	Unprotected
Plant	Asteraceae	<i>Chrysanthemoides monilifera</i>	Bitou Bush	Unprotected
Plant	Orchidaceae	<i>Cryptostylis subulata</i>	Large Tongue Orchid	Unprotected
Plant	Phormiaceae	<i>Dianella caerulea</i>	Blue Flax-lily	Unprotected
Plant	Rubiaceae	<i>Durringtonia paludosa</i>		Unprotected
Plant	Elaeocarpaceae	<i>Elaeocarpus reticulatus</i>	Blueberry Ash	Unprotected
Plant	Poaceae	<i>Entolasia marginata</i>	Bordered Panic	Unprotected
Plant	Poaceae	<i>Entolasia stricta</i>	Wiry Panic	Unprotected
Plant	Myrtaceae	<i>Eucalyptus robusta</i>	Swamp Mahogany	Unprotected
Plant	Cyperaceae	<i>Gahnia clarkei</i>	Tall Saw-sedge	Unprotected
Plant	Dilleniaceae	<i>Hibbertia linearis</i>		Unprotected
Plant	Dilleniaceae	<i>Hibbertia scandens</i>	Climbing Guinea Flower	Unprotected
Plant	Poaceae	<i>Imperata cylindrica var. major</i>	Blady Grass	Unprotected
Plant	Fabaceae	<i>Kennedia rubicunda</i>	Red Kennedy Pea	Unprotected
Plant	Myrtaceae	<i>Leptospermum polygalifolium</i>		Unprotected
Plant	Epacridaceae	<i>Leucopogon margarodes</i>		Unprotected
Plant	Lomandraceae	<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	Unprotected
Plant	Myrtaceae	<i>Melaleuca quinquenervia</i>	Broad-leaved Paperbark	Unprotected
Plant	Epacridaceae	<i>Monotoca elliptica</i>		Unprotected
Plant	Fabaceae	<i>Oxylobium robustum</i>	Tree Shaggy Pea	Unprotected
Plant	Bignoniaceae	<i>Pandorea pandorana</i>	Wonga Wonga Vine	Unprotected
Plant	Proteaceae	<i>Persoonia linearis</i>	Narrow-leaved Geebung	Unprotected
Plant	Proteaceae	<i>Persoonia stradbrokeensis</i>		Unprotected
Plant	Rubiaceae	<i>Pomax umbellata</i>		Unprotected
Plant	Dennstaedtiaceae	<i>Pteridium esculentum</i>	Bracken	Unprotected
Plant	Cyperaceae	<i>Schoenus brevifolius</i>		Unprotected
Plant	Smilacaceae	<i>Smilax glycyphylla</i>	Sweet Sarsparilla	Unprotected
Plant	Poaceae	<i>Themeda australis</i>	Kangaroo Grass	Unprotected
Plant	Santalaceae	<i>Thesium australe</i>	Austral Toadflax	Vulnerable
Plant	Xanthorrhoeaceae	<i>Xanthorrhoea johnsonii</i>		Unprotected
Plant	Rutaceae	<i>Zieria smithii</i>	Sandfly Zieria	Unprotected
Reptilia	Cheloniidae	<i>Caretta caretta</i>	Loggerhead Turtle	Endangered
Reptilia	Scincidae	<i>Ctenotus taeniolatus</i>	Copper-tailed Ctenotus	Protected
Reptilia	Agamidae	<i>Physignathus lesueurii</i>	Eastern Water Dragon	Protected
Reptilia	Varanidae	<i>Varanus varius</i>	Lace Monitor	Protected

Appendix 2

Community Values and Issues Survey

Korogoro Creek Estuary Data Compilation and Processes Study

COMMUNITY SURVEY

Kempsey Shire Council in conjunction with the NSW Department of Natural Resources has initiated an Estuary Management Planning Process for Korogoro Creek under the NSW Government's Estuary Management Program.

The Council has engaged a local consultancy business, GECO Environmental, to prepare the first stages of the EMP, the data compilation and review stage and estuary processes study.

The study will look in detail at the Korogoro Creek estuary system including the tidal dynamics, entrance conditions, water quality, ecological processes, and human use considerations. The study will draw upon both technical/scientific information and local knowledge and values of the creek. Land and aquatic areas outside the estuary area that impact upon the biophysical or social environment will also be considered.

The Council and consultants are keen to hear from you, as residents and users of Korogoro Creek, as to what the key issues for management of this area are now and into the future.

The following survey is one of the first stages in the planning process and will help focus the development of the Estuary Management Plan. Further opportunities for comment will be available throughout the process, however it is important that we hear your views early to help us get on track.

PLEASE FORWARD your survey/comments to any of the following;

- **Hand delivered to:** Hat Head Holiday Park

Jordan's Fish Shop
Hat Head Coastal Cafe (Blue Cafe)
Kempsey Shire Council, Customer First Centre marked
"Attention Ron Kemsley"
- **Faxed to:** Kempsey Shire Council, on 6562 2345, marked "Attention Ron Kemsley"
- **Mailed to:** Damon Telfer, GECO Environmental,
5 Arcadia Lane, Grassy Head NSW 2441

Ron Kemsley, Kempsey Shire Council,
Senior Natural Resources Officer,
PO Box 78, West Kempsey NSW 2440

Please return by 5pm, Monday 19th February 2007.

Lower Korogoro Creek Estuary - Usage Map



Please indicate on the map in pen:

1. The areas of Korogoro Creek you most frequently use.
2. The location of any issues or values of importance to you.

Number if necessary and provide details or comments below....

Korogoro Creek Estuary, Community Survey

Are you a resident of Hat Head? YES NO

If no, where are you from?

Macleay valley Mid north coast Other NSW Interstate Overseas

Please indicate how you use the Korogoro Creek area...

Boat access to ocean Camping/caravanning Walking Swimming
 Recreational fishing Boating within the creek Passive recreation (reading, picnicking, etc)

Other (please describe)....

Please indicate the importance you place on the following estuary related values...

Your answers will help focus the future management of the estuary area.

	Very Low	Low	Moderate	High	Very High
A permanently open estuary mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vehicle access to the creek bank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The ability to fish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A healthy estuary ecosystem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safe swimming location	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Native foreshore vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What other features of Korogoro Creek are important to you?

(Please describe)

Are you happy with current access arrangements to the estuary?

(Indicate Yes/No & comment)

	YES	NO	
Boat ramps	<input type="checkbox"/>	<input type="checkbox"/>	Comment:
Vehicle access	<input type="checkbox"/>	<input type="checkbox"/>	Comment:
Pedestrian access	<input type="checkbox"/>	<input type="checkbox"/>	Comment:
Disabled access	<input type="checkbox"/>	<input type="checkbox"/>	Comment:

How would you rate the health of Korogoro Creek?

	Very Poor	Poor	Moderate	Good	Very Good
Water quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fish populations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Foreshore vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank stability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

What, if any, issues or impacts do you think affect the health of the Creek?

(Please describe)

Are any of the following issues of concern to you?

	Very Unconcerned	Unconcerned	Don't Know	Concerned	Very Concerned
Sea level rise and climate change	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Habitat protection	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bait collection in the creek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tropical fish collection in the creek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bank erosion	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uncontrolled vehicle access on the southern bank of the creek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weeds in the foreshore vegetation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Litter/rubbish	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stormwater discharge into the creek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor water quality after flooding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Washing of vehicles near the creek	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scenic amenity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cultural heritage (indigenous)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other *(please describe)*

Are there any comments you would like to make?

Thank you for your time and interest

Appendix 3

Thalweg Data for Korogoro Creek Estuary

The following information was derived from the detailed hydrographic survey data collected in November 2005 by DIPNR which constitutes a total of 75 cross-sections between the entrance and closed flood gates.

Table B1 Thalweg Data for Korogoro Creek estuary (DIPNR 2005)

Chainage	Depth (m AHD)
0	-0.794
112	-1.227
193	-0.912
279	-0.739
365	-1.264
491	-1.165
657	-0.643
788	-0.649
898	-0.952
923	-1.198
949	-1.137
993	-0.902
1104	-0.924
1165	-0.822
1222	-0.729
1284	-0.605
1336	-0.947
1400	-0.577
1453	-0.789
1508	-1.041
1560	-0.889
1626	-0.971
1703	-1.366
1750	-0.658
1803	-0.463
1853	-0.756
1919	-0.630
1972	-0.863
2022	-0.819
2071	-0.747
2121	-0.729
2177	-1.311
2235	-1.036
2286	-1.088
2349	-0.954
2397	-0.647
2453	-1.827
2516	-1.259

Appendix 3

Thalweg Data for Korogoro Creek Estuary

Chainage	Depth (m AHD)
2534	-1.365
2744	-0.993
2945	-0.788
3184	-0.539
3368	-0.739
3559	-0.778
3740	-0.735
3929	-0.387
4164	-0.422
4319	-0.715
4409	-2.559
4432	-1.248
4629	-0.556
4822	-0.372
5019	-0.424
5213	-0.632
5363	-1.189

~ 0 ~

Appendix 4
Summary Tables of available Water Quality Data

Table A Summary of Kempsey Shire Council WQ Data 1994 - 1995

Site	pH <i>pH units</i>	Diss Oxy <i>mg/l</i>	TDS <i>g/l</i>	Chloride <i>mg/l</i>	Ammonia <i>mg/l</i>	Nitrate <i>mg/l</i>	Tot Phos <i>mg/l</i>	Turbidity <i>NTU</i>	Faec col <i>per 100 ml</i>
Means									
Creek Mouth	8.0	8.13	27.21	19068	0.07	0.52	0.032	1.08	32.57
Footbridge	7.9	7.95	26.13	18356	0.06	0.53	0.027	0.98	20.57
Near Footbridge	7.8	7.45	25.33	17651	0.07	0.55	0.024	1.53	47.89
Near Traffic Bridge	7.6	6.96	23.43	16275	0.09	0.59	0.025	2.29	17.36
Traffic Bridge	7.5	6.48	21.86	15049	0.09	0.58	0.027	2.61	19.81
Upstream Traffic Bridge	7.3	6.18	20.58	14165	0.1	0.63	0.026	2.84	21.96
Medians									
Creek Mouth	8	8.25	27.27	19104	0.07	0.5	0.025	0.634	8
Footbridge	8	8	26.71	18142	0.06	0.5	0.02	0.6995	8
Near Footbridge	7.9	7.45	26.195	17602	0.06	0.6	0.02	1.1145	14
Near Traffic Bridge	7.55	6.8	23.39	16438	0.08	0.6	0.02	2.07	10
Traffic Bridge	7.4	6.4	21.72	14940	0.08	0.6	0.02	2.495	10.5
Upstream Traffic Bridge	7.3	6.1	20.74	14004	0.085	0.6	0.02	2.705	10
90th %ile									
Creek Mouth	8.27	9.35	29.188	21175	0.107	0.6	0.067	1.76	35.5
Footbridge	8.2	9.35	28.616	20533	0.097	0.7	0.04	2.194	43.6
Near Footbridge	8.2	8.95	28.762	20720	0.13	0.7	0.0335	2.854	57.4
Near Traffic Bridge	8.1	8.8	27.922	20336	0.14	0.8	0.04	4.12	37.4
Traffic Bridge	8.07	8.1	26.88	19618	0.147	0.8	0.037	4.663	44.4
Upstream Traffic Bridge	7.84	7.8	26.03	18337	0.157	0.8	0.04	4.247	45.6
10th %ile									
Creek Mouth	7.7	5.5	24.83	16816	0.023	0.3	0.01	0.2029	0
Footbridge	7.53	5.2	23.364	15792	0.03	0.3	0.01	0.1991	0
Near Footbridge	7.4	5.05	21.102	14491	0.023	0.4	0.01	0.3206	4
Near Traffic Bridge	7.1	4.5	18.51	13126	0.03	0.4	0.01	0.6699	2
Traffic Bridge	7	4.05	15.734	11171	0.04	0.4	0.01	0.6546	2
Upstream Traffic Bridge	6.93	3.95	15.186	10431	0.04	0.4	0.013	1.3951	0

Appendix 4

Summary Tables of available Water Quality Data

Table B Summary of Kempsey Shire Council Water Quality Data 1997 - 1998

Site	pH <i>pH units</i>	Total P <i>mg/L</i>	Faecal col <i>cfu/100mL</i>	D.O. <i>mg/L</i>	Conductivity <i>mS/cm</i>	NFR <i>mg/L</i>	TKN <i>mg/L</i>	Oxidised N <i>mg/L</i>	Total N <i>mg/L</i>
Means									
Floodgates	6.53	0.17	36.16	4.02	19.80	33.69	2.30	0.36	2.66
Traffic Bridge	6.94	0.14	46.18	4.98	34.51	53.73	1.33	0.35	1.68
50m DS PD	7.48	0.14	57.95	6.20	45.49	76.55	1.09	0.38	1.47
Medians									
Floodgates	6.5	0.145	19.5	3.995	20.845	26.5	0	0.02	1.2
Traffic Bridge	6.795	0.13	20.5	4.96	36.42	44	0	0.04	0.04
50m DS PD	7.36	0.14	21.5	6.41	48.4	78	0	0.02	0.8
90th %ile									
Floodgates	6.987	0.2935	71.1	6.135	35.048	70	7.5	1.2	7.5
Traffic Bridge	7.871	0.277	94.8	7.028	54.592	124.5	3.75	1.2	3.87
50m DS PD	8.081	0.257	108.3	7.54	59.032	137	3.75	1.2	3.81
10th %ile									
Floodgates	6.112	0.04	6	2.075	2.112	10	0	0	0
Traffic Bridge	6.495	0.023	5	2.934	16.139	17.5	0	0	0
50m DS PD	6.818	0.013	3.3	4.37	31.216	22.5	0	0	0

Appendix 4
Summary Tables of available Water Quality Data

Table C Kempsey Shire Council Water Quality Data: 2000 - Ongoing

Site	Ammonia mg/L	Conductivity mS/cm	DO mg/L	Faecal Coliform cfu/100mL	Nitrate mg/L	Nitrite mg/L	pH pH units	TKN mg/L	TN mg/L	TP mg/L	TSS mg/L	Turbidity NTU
<i>Means</i>												
50m D/S PD	0.03	17861.03	7.22	14.83	0.04	0.01	7.60	0.21	0.25	0.02	5.42	2.06
Traffic Bridge	0.02	16305.12	5.98	13.83	0.05	0.01	7.13	0.29	0.34	0.01	2.92	1.92
Floodgates	0.03	10979.64	5.68	18.50	0.04	0.01	6.62	0.72	0.77	0.03	11.25	5.27
<i>Medians</i>												
50m D/S PD	0.02	44.70	7.05	8.50	0.04	0.01	7.50	0.20	0.25	0.01	2.75	1.04
Traffic Bridge	0.01	35.90	5.91	13.50	0.05	0.01	6.94	0.28	0.34	0.01	3.00	1.53
Floodgates	0.03	23.19	5.83	14.50	0.04	0.01	6.62	0.79	0.83	0.03	8.00	5.13
Floodgates	0.01	13.69	4.46	2.00	0.03	0.01	6.36	0.48	0.53	0.02	4.50	3.65
<i>90th %ile</i>												
50m D/S PD	0.05	53500.00	7.83	30.50	0.07	0.01	8.10	0.30	0.34	0.04	12.00	4.44
Traffic Bridge	0.05	48850.00	6.99	24.00	0.08	0.01	7.78	0.38	0.45	0.02	5.00	2.96
Floodgates	0.05	32900.00	6.13	36.50	0.05	0.02	6.81	0.88	0.93	0.04	21.25	6.94
<i>10th %ile</i>												
50m D/S PD	0.01	38.40	6.79	5.50	0.01	0.01	7.20	0.14	0.17	0.01	1.50	0.71
Traffic Bridge	0.01	29.45	5.03	4.00	0.03	0.01	6.67	0.20	0.23	0.01	0.75	1.28
Floodgates	0.01	15.74	5.08	4.50	0.04	0.01	6.43	0.50	0.55	0.02	4.50	3.73

Appendix 4 Summary Tables of available Water Quality Data

Table D Summary of UNSW Water Resources Laboratory Surface Water Sampling Results

	Traffic Bridge					Foot Bridge				
	Faecal Coliforms CFU/100mL	pH	TKN mg/L	Ammonia (N) mg/L	TP mg/L	Faecal Coliforms CFU/100mL	pH	TKN mg/L	Ammonia (N) mg/L	TP mg/L
Dec-01	18	6.1	0.3	0.03	0.03	2	4.6	0.1	0.1	0.67
Mar-02	0	6.7	0.7	0.01	0.18	0	7.1	0.3	0.01	
Jun-03	10	6.5	0.3	0.06	0.01	10	6.4	0.1	0.04	0.01
Oct-02	7	7	0.3	0.05	0.05	13	7.3	0.2	0.04	0.01
Nov-03	17	6.5	0.4	0.02	0.01	1	7.3	0.2	0.01	0.03
Feb-04	66	7.2	0.1	0.02	0.03	57	7.6	0.1	0.01	0.02
May-04	10	6.6	0.4	0.08	0.02	24	7.1	0.3	0.07	0.06
Aug-04	1	6.5	0.4	0.4	0.01	8	6.4	0.7	0.74	0.04
Aug-05	0	6.62	0.9	0.161						
Feb-06	8	6.67	0.4	0.074	0.02					
Mean	13.7	6.639	0.42	0.0905	0.04	14.375	6.725	0.25	0.1275	0.12
Median	9	6.61	0.4	0.055	0.02	9	7.1	0.2	0.04	0.03
90%	22.8	7.02	0.72	0.1849	0.076	33.9	7.39	0.42	0.292	0.304
10%	0	6.46	0.28	0.019	0.01	0.7	5.86	0.1	0.01	0.01

Note: Values of <0.01 etc. were rounded up to 0.01 for the purposes of analyses.

Appendix 5

Summary tables of fauna species observed during field investigations

Table A *Bird species observed during field investigations.*

Scientific Name	Common Name	Notes
<i>Merops ornatus</i>	Rainbow Bee Eater	Riparian veg, middle estuary
<i>Alcedo azurea</i>	Azure Kingfisher	Mangroves, middle and upper estuary
<i>Egretta novaehollandiae</i>	Eastern White-faced Heron	Mangroves, intertidal sand flats
<i>Phalacrocorax carbo</i>	Little Black Cormorant	Mangroves, in water, all areas
<i>Phalacrocorax varius</i>	Pied Cormorant	Mangroves, in water, all areas
<i>Calyptrorhynchus lathamii</i>	Glossy Black Cocatoo	Riparian veg, lower estuary
<i>Haliaeetus leucogaster</i>	White-bellied Sea Eagle	Riparian veg, upper estuary
<i>Haliastur indus</i>	Brahminy Kite	Riparian veg, creek mouth
<i>Pandion hiliaetus</i>	Osprey	Fishing in lower estuary

Table B *Observed aquatic fauna with habitat associations*

Common Name	Scientific Name	Location	Habitat Associations
Black-spot Goatfish	<i>Parupeneus signatus</i>	Mouth	Rocks
Black-spot Sergeant	<i>Abudefduf sordidus</i>	Lower	Rocks
Blue Damsel	<i>Pomacentris coelestis</i>	Middle	Rocks
Blue Streak Cleaner Wrasse	<i>Labroides dimidiatus</i>	Lower	Rocks
Brown Sabretooth Blenny	<i>Petroscirtes lupus</i>	Lower	Rocks/Seagrass
Common Silver Belly/Silverbiddy/Roach	<i>Gerres subfasciatus</i>	Adults - Lower, Juveniles - Upper	Unvegetated Sediments
Crimson-banded Wrasse	<i>Notolabrus gymnogenis</i>	Lower	Rocks
Cut Ribbon Wrasse	<i>Stethojulis interrupta</i>	Lower	Rocks
Damsel Angelfish	<i>Centropyge flavicauda</i>	Lower	Rocks
Dusky Barred Goby	<i>Amblygobius phalaena</i>	Middle	Rocks
Dusky Flathead	<i>Platycephalus fuscus</i>	All	Mangroves/ Unvegetated Sediments
Eastern Fortescue	<i>Centropogon australis</i>	Lower	Rocks
Eastern Hulafish	<i>Trachinops taeniatus</i>	Lower	Rocks
Eastern Sea Garfish	<i>Hyporhamphus melanochir</i>	Upper	Surface Water
Eastern Striped Trumpeter	<i>Pelates sexlineatus</i>	Lower	Juveniles - Seagrass
False Tasmanian Blenny	<i>Parablennius intermedius</i>	Lower	Rocks
Fiddler Crab	<i>Uca</i> sp.	Upper	Mangroves
Fire Damsel	<i>Pomacentris bankanensis</i>	Lower	Rocks
Flat Tail Mullet	<i>Liza argentia</i>	Upper	Surface Water
Flutemouth	<i>Fistularia</i> sp	Lower	Rocks
Ghost Crab	<i>Ocypode cordimana</i>	Lower	Sand
Glassfish	<i>Ambassis</i> sp	All	Seagrass
Goby	Unidentified	Lower/Middle	Seagrass/Sediments

Appendix 5

Summary tables of fauna species observed during field investigations

Common Name	Scientific Name	Location	Habitat Associations
Gracilis Wrasse	<i>Suezichthys devisi</i>	Lower	Rocks
Gunther's Butterflyfish	<i>Chaetodon guentheri</i>	Lower	Rocks
Gunthers wrasse	<i>Psuedolabrus guentheri</i>	Lower	Rocks
Half Banded Seaperch	<i>Hypoplectrodes maccullochi</i>	Lower	Rocks
Happy Moments	<i>Siganus nebulosus</i>	Lower	Sargassum
Hermit Crab	Unidentified	Lower	Rocks
Large Tooth Flounder	<i>Psuedorhombus sp.</i>	Lower	Unvegetated Sediments
Loggerhead Turtle	<i>Caretta caretta</i>	Lower	Among Sargassum
Long-armed shrimp	<i>Macrobrachium sp.</i>	Middle	Rocks
Luderick	<i>Girella tricuspidata</i>	Lower/Middle	Unvegetated Sediments/Seagrass
Mado	<i>Atypichthys strigatus</i>	Lower	Rocks
Magpie Morwong/Crested Morwong	<i>Cheilodactylus vestitus</i>	Lower	Rocks
Mangrove Crab	<i>Sesarma sp.</i>	Upper	Mangroves
Mangrove Jack	<i>Lutjanus argentimaculatus</i>	Middle	Juveniles - Traffic Bridge
Moon Wrasse	<i>Thalossoma lutescens</i>	Lower	Rocks
Mudcrab	<i>Scylla olivacea</i>	Middle	Mangroves
Old Wife	<i>Enoplosus armatus</i>	Lower	Rocks
Oyster Blenny	<i>Omobranchus anolius</i>	Lower	Rocks
Pearly Wrasse	<i>Halichoeres margaritaceus</i>	Lower	Rocks
Sand Mullet, Telagalane	<i>Myxus elongatus</i>	Middle/Upper	Unvegetated Sediments
Sand Whiting	<i>Sillago cilliata</i>	Adults - Middle, Juveniles - Upper	Unvegetated Sediments
Sea Mullet, Bully Mullet	<i>Mugil cephalus</i>	Lower/Middle	Surface Water
Sergeant Major	<i>Abudefduf vaigiensis</i>	Lower	Rocks
Semaphore Crab	<i>Heloecius cordiformis</i>	Upper	Mangroves
shrimp	<i>Paleomon sp.</i>	Lower/Middle	Seagrass
Silver Batfish	<i>Monodactylus argenteus</i>	Middle	Traffic Bridge
Silver Bream, Yellowfin Bream	<i>Acanthopagrus australis</i>	Adults Lower/Middle, Juveniles All	Adults Unvegetated Sediments, Juveniles Seagrass/Mangroves
Soldier Crab	<i>Mictyris sp.</i>	Lower	Intertidal Flats
Speckled Moray Eel	<i>Gymnothorax obesus</i>	Lower	Rocks
Stingray	<i>Dasyatis spp.</i>	Upper	Unvegetated Sediments
Stripey	<i>Microcanthus strigatus</i>	Lower/Middle	Rocks
Tarwhine	<i>Rhabdosargus sarba</i>	Mouth	Unvegetated Sediments
White Ear	<i>Parma microlepis</i>	Lower	Rocks
Yellow Finned Leatherjacket	<i>Meuschenia trachylepis</i>	Lower	Seagrass
Yellow-lined Coris	<i>Coris aurilineata</i>	Lower/Middle	Rocks

Appendix 5

Summary tables of fauna species observed during field investigations

Table C Inventory of observed saltmarsh species

Species Name	Common Name
<i>Halosarcia halocnemoides</i>	Glasswort
<i>Carpobrotus glaucescens</i>	Pigsface
<i>Suada australis</i>	Seablight
<i>Sesuvium portuacastrum</i>	Sea Purslane
<i>Phragmites australis</i>	Common Reed
<i>Cynodon dactylon</i>	Green Couch
<i>Baumea juncea</i>	Baumea
<i>Juncus kraussii</i>	Jointed Rush
<i>Isolepis nodosa</i>	Knobby Club Rush
<i>Fimbristylis ferruginea</i>	Rusty Sedge
<i>Sporobolus virginicus</i>	Saltcouch
<i>Samolus repens</i>	Creeping Bushweed
<i>Casuarina Glauca</i>	Swamp Oak
<i>Melaleuca quinquenervia</i>	Swamp Paperbark