

MAGNT RESEARCH REPORT NO. 5

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**REPORT TO PARKS AUSTRALIA NORTH, ON
THE ESTUARINE FISH INVENTORY OF
KAKADU NATIONAL PARK, NORTHERN
TERRITORY, AUSTRALIA.**

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REPORT TO PARKS AUSTRALIA NORTH, ON THE ESTUARINE FISH INVENTORY OF KAKADU NATIONAL PARK, NORTHERN TERRITORY AUSTRALIA

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INTRODUCTION

The estuarine fishes of Kakadu National Park, which includes three major rivers entering the Van Diemen Gulf in the Northern Territory, have not been well documented (unlike the freshwater fishes of the region). Midgley (1973) reported two estuarine fishes (a sole and a gudgeon of unspecified species) from Cannon Hill Lagoon, which is “in effect a tributary of the East Alligator River, and is subject to some tidal influence during very high tides”. Pollard (1974) detailed some fishes other than the strictly freshwater species known from the East Alligator River system. Bishop *et al.* (1981, 1990) added a few additional estuarine fishes. In total, only 72 species of marine and estuarine fishes were definitely known from the literature as occurring within Kakadu. Davis and May (1989) carried out a nine-month survey of the East Alligator River, as part of a larger study on barramundi.

The present knowledge of the fish fauna in the Park and surrounding waters is based on these records, on prawn-trawl bycatch, demersal fish trawl catch and a small amount of *ad hoc* collecting. Most of these collections have been made outside the Park boundaries.

In 1996, the Ichthyology Section of MAGNT undertook a survey, as a consultancy to Parks Australia North, of the residential estuarine fish fauna of Kakadu. The survey took place from 24 May to 8 June 1997, with 93 collecting stations made over 13 days (described below). We were assisted by Parks Australia North staff Leanne Alderson, Joseph Bishop, Ann Ferguson, Mick Gorst, Matty Large, Garry Lindner, Peter Nagle, Anna Pickworth, Kenny Wauchope, Andrew Wellings and Steven Winderlich, and by Kim Grice of Sandfly Beach.

METHODS

Methods used were the same used for similar surveys undertaken by Larson in the Bing Bong (1992) and Roper River areas (1996), with the exception of the use of single-point and three-pointed spears. Fishing effort with hook and line was limited.

Collecting effort was increased by using two teams: one headed by Helen Larson which carried out gillnetting (station numbers prefixed HL), and the other headed by Rex Williams which carried out beam trawling (station numbers prefixed RW). Wherever the habitat was appropriate, other methods were used. Due to the logistics of dealing with considerable distances, vagaries of weather and the large tidal ranges typical of the region, it was not possible to duplicate collecting effort for each river and area sampled. Between 10 and 21 stations per river were carried out.

All methods used were: a small beam trawl (2 m wide mouth with 6.5 mm mesh body and 1.4 mm mesh cod end) operated from a 5 m dinghy (hauled against the current for 10 minute periods, unless stated otherwise below), a range of monofilament gill nets (including two multipanel nets, two 10 cm wide mesh net), two old 20 cm mesh multifilament nets, 2 cm mesh multifilament beach seines, "Japanese" one-person seines, small dipnets, hook and line, hand, pistol (dustshot) and the ichthyocide rotenone (which is derived from the native plant *Derris*, and is a compound which rapidly becomes inactive and biodegrades in warm water). Large fishes were released wherever possible.

Depth was recorded for each station. Temperature and salinity were recorded by YSI Model 30 portable meters. Locations were fixed by hand-held Magellan GPS units. Turbidity was not recorded (visibility restricted to a few cm in most localities sampled). Substrate information was usually based on trawl catch or by using an oar, due to lack of visibility.

The specimens collected are registered in the Museum's permanent reference collection of fishes. A printout of this information may be obtained through the Museum, upon request.

DESCRIPTION OF COLLECTING STATIONS AND AREAS SAMPLED

Station HL 97-1. Locality: very small mangrove patch on sand beach, E of campsite at Pocock's Beach, West Alligator Head (12° 11.33'S 132° 13.30'E). Water clear, depth 0-5 cm (low tide). Substrate orange sand with thin mud layer, few oyster-covered rocks. Water temperature 33°C. Salinity 18.9‰. 25 May 1997. 1345-1430 hrs. Method: scoopnet, dipnet. Collector: H. Larson.

Station HL 97-2. Locality: same locality but working along edge of sand flats directly out from mangrove patch. 25 May 1997. 1345-1430 hrs. Method: beach seine. Collector: R. Williams, A. Pickworth.

Station HL 97-3. Locality: just E of HL 97-1, small pools and mud patches on rocky headland, West Alligator Head (12° 11.28'S 132° 13.33'E). Water depth few cm (low tide). Substrate firm sand and shell, mud and sandy-mud patches, few oyster-covered rock outcrops. Water temperature 33°C. 25 May 1997. 1445-1530 hrs. Method: scoopnet, dipnet. Collector: H. Larson, R. Williams, A. Pickworth.

Station HL 97-4. Locality: along water's edge at incoming tide, Pocock's Beach, West Alligator Head (12° 11.44'S 132° 13.26'E). Water turbid, green-blue; depth 0.5 m (fish captured at surface). Substrate firm sand. Water temperature 23.8°C. Salinity 28.8‰. 26 May 1997. 0900 hrs. Method: scoopnet. Collector: H. Larson.

Station HL 97-5. Locality: directly off Pocock's Beach, towing W along coastline (12° 11.44'S 132° 13.25'E). Water rather turbid green-grey, depth 3 m (high tide). Substrate

firm, no algae or seagrass fragments. Water temperature 26.6°C. Salinity 29.6‰. 26 May 1997. 0945-0955 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, J. Bishop.

Station HL 97-6. Locality: same as HL 97-5, second haul. Water depth 3.7 m. 26 May 1997. 1015-1025 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, J. Bishop.

Station HL 97-7. Locality: same as HL 97-5, hauling at 45° angle from coast; third and fourth hauls combined (third unsuccessful, trawl flipped) (12° 11.59'S 132° 10.59'E). Water depth 4.8 m (full tide at 1100 hrs). Substrate mud. Water temperature 27.5°C. Salinity 29.6‰. 26 May 1997. 1037-1113 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, J. Bishop.

Station HL 97-8. Locality: same as HL 97-5, directly offshore from reef at W end of Pocock's Beach; fifth and sixth hauls combined (fifth caught nothing) (12° 11.38'S 132° 09.22'E). Water depth 7 m (high tide). Substrate bumpy (rocky reef). Water temperature 27.8°C. Salinity 29.3‰. 26 May 1997. 1145-1200 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, J. Bishop.

Station HL 97-9. Locality: same as HL 97-5, just off Pocock's Beach, hauling W toward reef; seventh haul (12° 12.02'S 132° 12.01'E). Water turbid, depth 3 m (tide dropping). Substrate mud. Water temperature 29.5°C. Salinity 27.8‰. 26 May 1997. 1223-1233 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, J. Bishop.

Station HL 97-10. Locality: interconnected pools isolated in centre of rocky reef at Middle Beach, E of West Alligator Head (12° 10.15'S 132° 14.20'E). Water turbid, depth 0-0.25 m (low tide). Substrate muddy sand, oyster-covered rocks, few clumps *Sargassum* and other brown and green algae. Water temperature 29.6°C. Salinity 29.7‰. 26 May 1997. 1600-1700 hrs. Method: rotenone. Collector: H. Larson, R. Williams, A. Pickworth.

Station HL 97-11. Locality: unnamed mangrove creek on W bank of West Alligator River (12° 15.49'S 132° 16.11'E). Water turbid, depth 3 m (tide rising). Substrate probably mud, shore dense mangroves. Water temperature 26.8°C. Salinity 28‰. 27 May 1997. 1015-1415 hrs. Method: 65 mm mesh gillnet. Collector: H. Larson, J. Bishop, S. Winderlich.

Station HL 97-12. Locality: unnamed mangrove creek closer to mouth of river, on W bank of West Alligator River (12° 15.08'S 132° 16.20'E). Water turbid, depth 2-3 m (high tide). Substrate probably mud, shore dense mangroves. Water temperature 29.2°C. Salinity 27.2‰. 27 May 1997. 1100-1400 hrs. Method: 115 mm mesh gillnet. Collector: H. Larson, J. Bishop, S. Winderlich.

Station HL 97-13. Locality: unnamed mangrove creek upstream on E bank of West Alligator River (12° 19.02'S 132° 15.33'E). Water turbid, depth 2 m (tide dropping). Substrate mud, mangrove shore. Water temperature 27.5°C. Salinity 25.4‰. 27 May 1997. 1430-1530 hrs. Method: 65 mm mesh gillnet. Collector: H. Larson, J. Bishop, S. Winderlich.

Station RW 97-1. Locality: middle of West Alligator River (12° 19.92'S 132° 14.16'E). Water turbid, depth 6.8 m (tide rising). Substrate gravel, shell, algae. Water temperature 27.2°C. Salinity 22.5‰. 27 May 1997. 1022-1032 hrs. Method: beam trawl. Collector: R. Williams, A. Pickworth.

Station RW 97-2. Locality: middle of West Alligator River (12° 18.9'S 132° 15.4'E). Water turbid, depth 9.6 m (tide rising). Substrate gravel, shell, detritus. Water temperature 27.3°C. Salinity 25.7‰. 27 May 1997. 1110-1120 hrs. Method: beam trawl. Collector: R. Williams, A. Pickworth.

Station RW 97-3. Locality: W bank West Alligator River (12° 17.6'S 132° 15.2'E). Water turbid, depth 10 m (slack tide - high). Substrate mud and detritus. Water temperature 27.3°C. Salinity 28.4‰. 27 May 1997. 1200-1210 hrs. Method: beam trawl. Collector: R. Williams, A. Pickworth.

Station RW 97-4. Locality: E bank West Alligator River (12° 15.2'S 132° 16.6'E). Water green-brown, depth 15 m (dropping tide). Substrate mud. Water temperature 27.8°C. Salinity 29.1‰. 27 May 1997. 1245-1247 hrs (short haul, net fouled on substrate). Method: beam trawl. Collector: R. Williams, A. Pickworth.

Station RW 97-5. Locality: W side of mouth of West Alligator River (12° 13.14'S 132° 16.43'E). Water light brown, depth 2.8 m (dropping tide). Substrate mud. Water temperature 28.2°C. Salinity 29‰. 27 May 1997. 1315-1320 hrs (short haul, net fouled in mud). Method: beam trawl. Collector: R. Williams, A. Pickworth.

Station RW 97-6. Locality: centre of mouth of West Alligator River (12° 13.04'S 132° 16.83'E). Water light brown, depth 5.5 m (dropping tide). Substrate mud. Water temperature 27.9°C. Salinity 28.9‰. 27 May 1997. 1437-1447 hrs. Method: beam trawl. Collector: R. Williams, A. Pickworth.

Station RW 97-7. Locality: 1.5 km out from mouth of West Alligator River (12° 11.8'S 132° 16.48'E). Water turbid, depth 4.4 m (dropping tide). Substrate mud and detritus. Water temperature 27.8°C. Salinity 29.1‰. 27 May 1997. 1536-1546 hrs. Method: beam trawl. Collector: R. Williams, A. Pickworth.

Station HL 97-14. Locality: upstream, Wildman River (12° 20.47'S 132° 07.42'E); low mangrove shore with samphire/salt plain behind. Water muddy with floating plant detritus, depth 11.5 m (rising tide). Substrate firm, with leaf and plant detritus. Water temperature 26.8°C. Salinity 9.2‰. 28 May 1997. 1130-1140 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, M. Gorst.

Station HL 97-15. Locality: Wildman River, hauling downstream (12° 20.40'S 132° 07.46'E). Water muddy with floating plant detritus, depth 8.2 m (high tide). Substrate rocks, leaf litter. Water temperature 26.9°C. Salinity 10.9‰. 28 May 1997. 1202-1212 hrs. Method: beam trawl, hook and line. Collector: H. Larson, R. Williams, A. Pickworth, M. Gorst.

Station HL 97-16. Locality: Wildman River, hauling downstream (12° 20.38'S 132° 05.43'E). Water turbid, muddy, depth 10.2 m (high tide). Substrate plant detritus, leaf litter. Water temperature 25.6°C. Salinity 19.4‰. 28 May 1997. 1234-1244 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, M. Gorst.

Station HL 97-17. Locality: small shallow creeklet flowing over salt plain on E bank Wildman River (12° 20.40'S 132° 05.03'E); low mangrove shore nearby. Water clearish, depth 0-0.25 m. Substrate mud. Water temperature 26°C. Salinity 31.4‰. 28 May 1997. 1315 hrs. Method: scoopnet. Collector: H. Larson.

Station HL 97-18. Locality: at mangrove creek mouth just inside mouth of Wildman River (12° 18.48'S 132° 04.01'E). Water turbid, depth 1.3 m (tide dropping). Water

temperature 25.5°C. Salinity 26.8‰. 28 May 1997. 1400-1500 hrs. Method: 65 mm mesh gillnet. Collector: H. Larson, R. Williams, A. Pickworth, M. Gorst.

Station HL 97-19. Locality: off mouth of Wildman River, hauling toward mouth entrance (12° 17.54'S 132° 03.34'E). Water turbid, depth 2 m (tide dropping). Substrate firm mud, plant detritus, leaves. Water temperature 25.8°C. Salinity 28‰. 28 May 1997. 1518-1528 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, M. Gorst.

Station HL 97-20. Locality: off mouth of Wildman River (12° 17.33'S 132° 03.28'E). Water turbid, depth 1.3-2 m (tide dropping). Substrate firm mud, plant detritus. Water temperature 25.6°C. Salinity 28.1‰. 28 May 1997. 1550-1600 hrs. Method: beam trawl. Collector: H. Larson, R. Williams, A. Pickworth, M. Gorst.

Station HL 97-21. Locality: along water's edge, Pocock's Beach, West Alligator Head (12° 11.44'S 132° 13.26'E). Water turbid, depth 0.5 m (rising tide). Substrate sand with soft mud layer on top. 29 May 1997. 1015 hrs. Method: scoopnet, hand. Collector: H. Larson.



Fig. 1. Creeklet on salt plain, Wildman River, 28 May 1997.

Station HL 97-23. Locality: in small creek upstream of mouth, E side South Alligator River (12° 12.11'S 132° 26.12'E). Water turbid, depth 2 m (dropping tide). Water temperature 27.4°C. Salinity 28.1‰. 29 May 1997. 1300-1400 hrs. Method: multipanel gillnet, hook and line. Collector: H. Larson, A. Pickworth, M. Gorst.

Station HL 97-24. Locality: creek mouth entering river, E side South Alligator River (12° 16.53'S 132° 25.56'E). Water turbid, depth 3 m (dropping tide). Substrate probably mud, shore flat salt plain. Water temperature 27.3°C. Salinity 27‰. 29 May 1997. 1450-1550 hrs. Method: multipanel gillnet. Collector: H. Larson, A. Pickworth, M. Gorst.

Station HL 97-25. Locality: creek upstream of HL 97-24, E side South Alligator River (12° 19.27'S 132° 26.18'E). Water turbid, depth 3 m (dropping tide). Substrate probably mud, shore flat salt plain behind low mangroves. Water temperature 27.5°C. Salinity 24.3‰. 29 May 1997. 1510-1630 hrs. Method: multipanel gillnet. Collector: H. Larson, A. Pickworth, M. Gorst.

Station HL 97-26. Locality: sloping sand bank, W side of Mud Island, South Alligator River (12° 13.41'S 132° 22.49'E). Water turbid, depth 0.5 m (dropping tide). Substrate sand, *Avicennia* roots, muddy sand. Water temperature 27.4°C. Salinity 28.9‰. 29 May 1997. 1700 hrs. Method: scoopnet. Collector: H. Larson.



Fig. 2. Aboriginal fishtrap, W of HL 97-30, Pocock's Beach, 30 May 1997.

Station RW 97-8. Locality: off E end Mud Island, South Alligator River (12° 13.86'S 132° 23.01'E). Water turbid, khaki-colour, depth 7.3 m (slack high tide). Substrate detritus. Water temperature 27.3°C. Salinity 28.9‰. 29 May 1997. 1239-1249 hrs. Method: beam trawl. Collector: R. Williams, A. Ferguson.

Station RW 97-9. Locality: off middle of Mud Island, South Alligator River (12° 13.41'S 132° 22.21'E). Water turbid, khaki-colour, depth 8.5 m (tide dropping). Substrate mud and mangrove detritus. Water temperature 28°C. Salinity 28.8‰. 29 May 1997. 1309-1319 hrs. Method: beam trawl. Collector: R. Williams, A. Ferguson.

Station RW 97-10. Locality: in middle of mouth, South Alligator River (12° 16.13'S 132° 24.43'E). Water turbid, khaki-colour, depth 8 m (tide dropping). Substrate mud. Water temperature 28.1°C. Salinity 28.8‰. 29 May 1997. 1412-1422 hrs. Method: beam trawl. Collector: R. Williams, A. Ferguson.

Station RW 97-11. Locality: centre of river, upstream from mouth of South Alligator River (12° 20.50'S 132° 23.95'E). Water turbid, khaki-colour, depth 8 m (tide dropping). Substrate mud. Water temperature 27.5°C. Salinity 26.2‰. 29 May 1997. 1507-1517 hrs. Method: beam trawl. Collector: R. Williams, A. Ferguson.

Station RW 97-12. Locality: centre of river, upstream from mouth South Alligator River (12° 25.74'S 132° 24.31'E). Water turbid, khaki-colour, depth 11.4 m (tide dropping). Substrate mud. Water temperature 28.1°C. Salinity 21.9‰. 29 May 1997. 1558-1608 hrs. Method: beam trawl. Collector: R. Williams, A. Ferguson.

Station HL 97-27. Locality: along water's edge, directly in front of Pocock's Beach campsite, West Alligator Head (12° 11.44'S 132° 13.26'E). Caught at surface (dropping tide). Substrate muddy sand, sand. 30 May 1997. 1100 hrs. Method: castnet. Collector: G. Lindner.

Station HL 97-28. Locality: along water's edge, directly in front of Pocock's Beach campsite, West Alligator Head (12° 11.44'S 132° 13.26'E). Substrate sand. 30 May 1997. 1100 hrs. Method: handline, castnet. Collector: L. Alderson.

Station HL 97-29. Locality: W end of Pocock's Beach, West Alligator Head (12° 12.47'S 132° 10.58'E). Water depth 0.5 m (dropping tide). Substrate sand and shell. Water temperature 28.1°C. Salinity 29‰. 30 May 1997. 1330 hrs. Method: seine. Collector: H. Larson, A. Pickworth.

Station HL 97-30. Locality: sandy mangrove flat at W end of Pocock's Beach, West Alligator Head (12° 12.48'S 132° 10.37'E). Water turbid, depth 0.5 m (low tide). Substrate sand, *Sonneratia* roots, few logs. Water temperature 30.1°C. Salinity 26.6‰. 30 May 1997. 1620 hrs. Method: seine, dipnet. Collector: H. Larson, A. Pickworth, G. Lindner.

Station RW 97-13. Locality: Brooks Creek, South Alligator River (12° 11.94'S 132° 25.14'E). Water turbid, khaki-colour, depth 4.5 m (incoming tide). Substrate mud. Water temperature 27.5°C. Salinity 28.6‰. 30 May 1997. 1346-1348 hrs (short haul, trawl bogged). Method: beam trawl. Collector: R. Williams, K. Grice.

Station RW 97-14. Locality: E bank South Alligator River (12° 14.38'S 132° 24.85'E). Water turbid, khaki-colour, depth 8.1 m (slack high tide). Substrate mud. Water temperature 27.6°C. Salinity 28.3‰. 30 May 1997. 1426-1436 hrs. Method: beam trawl. Collector: R. Williams, K. Grice.

Station RW 97-15. Locality: E bank near mouth, South Alligator River (12° 16.51'S 132° 25.46'E). Water turbid, khaki-colour, depth 11 m (dropping tide). Substrate mud, mangrove detritus. Water temperature 27.5°C. Salinity 28‰. 30 May 1997. 1507-1517 hrs. Method: beam trawl. Collector: R. Williams, K. Grice.

Station RW 97-16. Locality: off Midnight Point, mouth of South Alligator River (12° 08.96'S 132° 26.12'E). Water turbid, green, depth 11 m (dropping tide). Substrate mud, some shell, detritus. Water temperature 27.7°C. Salinity 29.8‰. 30 May 1997. 1610-1620 hrs. Method: beam trawl. Collector: R. Williams, K. Grice.

Station RW 97-17. Locality: E side of mouth of South Alligator River (12° 12.15'S 132° 24.64'E). Water turbid, green, depth 9.2 m (dropping tide). Substrate mud and detritus. Water temperature 27.6°C. Salinity 29‰. 30 May 1997. 1507-1517 hrs. Method: beam trawl. Collector: R. Williams, K. Grice.

Station HL 97-31. Locality: isolated pools among mangroves on E tip of rocky point on E end Sandfly Beach, West Alligator Head (12° 10.34'S 132° 15.34'E). Water clear, depth 0.25 m (low tide). Substrate firm mud, shell, mangrove roots. Water temperature 26.8°C. Salinity 28.4‰. 31 May 1997. 0930-1200 hrs. Method: rotenone. Collector: H. Larson, R. Williams, G. Lindner, K. Grice.

Station HL 97-32. Locality: tiny pools on rocks adjacent to beach, E end Pocock's Beach, where Tucker's Spring flows over rocks onto beach. Water clear, depth 1-3 cm. Substrate rock, rubble, muddy sand. Salinity 0.6‰. 31 May 1997. 1700 hrs. Method: plastic bag. Collector: H. Larson.

Station HL 97-33. Locality: muddy sand among *Rhizophora* patch near rocks at E end Pocock's Beach (near 12° 11.33'S 132° 13.30'E). Water turbid, depth 0-0.5 m (tide dropping). Substrate muddy sand. 31 May 1997. 1430 hrs. Method: scoopnet. Collector: H. Larson.



Fig. 3. Shallow pool among mangroves, Sandfly Beach, 31 May 1997.



Fig. 4. Liquid mud substrate in which are concealed many gobioid fishes, edge of Pocock's Beach, 1 June 1997.

Station HL 97-34. Locality: liquid mud layer along sandy edge of Pocock's Beach, West Alligator Head (12° 11.44'S 132° 13.26'E). Water clear, depth 1-3 cm (low tide). Substrate liquid mud layer over firm sand; mud up to 0.5 m deep. 1 June 1997. 1030-1200 hrs. Method: dipnets. Collector: H. Larson, R. Williams, G. Lindner.

Station HL 97-35. Locality: “Jewfish Reef”, well offshore of Pocock’s Beach, West Alligator Head (12° 10.18'S 132° 07.54'E). Water turbid, depth 7 m (high tide). Substrate rocky reef. 1 and 7 June 1997. 1530-1630 hrs. Method: handlines. Collector: R. Williams, G. Lindner, P. Nagle, K. Wauchope, A. Wellings, M. Large.

Station HL 97-36. Locality: up creek on W bank of mouth of East Alligator River; creek enters sea directly (12° 06.12'S 132° 33.23'E). Water turbid, depth 2 m (dropping tide). Substrate mud, steep mud banks. Water temperature 25.4°C. Salinity 29.7‰. 2 June 1997. 0800-0900 hrs. Method: 10 cm mesh gillnet. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-37. Locality: small gutter entering sand/mud flat, East Alligator River mouth (12° 05.39'S 132° 32.10'E). Water turbid, depth 0-2 m (dropping tide). Substrate mud and sand in layers, sand and coarse shell. Water temperature 26°C. Salinity 27.6‰. 2 June 1997. 1030-1200 hrs. Method: 10 cm mesh gillnet, castnet, scoopnet, dipnet. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-38. Locality: pools formed by rocky ridges covered with mud, on mud bank on W side of mouth of East Alligator River (12° 08.06'S 132° 40.10'E). Water turbid, depth 0-3 cm (low tide). Substrate mud over rock, patches of deep mud and sandy mud; shore with low mangroves on edge of open plain. Water temperature 27.2°C. Salinity 23.9‰. 2 June 1997. 1230-1250 hrs. Method: 10 cm mesh gillnet, scoopnets, castnet. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-39. Locality: “Semi Creek” on W bank of East Alligator River (12° 09.02'S 132° 42.06'E). Water turbid, depth 0-1.5 m (rising tide). Substrate mud, rock. Water temperature 27.4°C. Salinity 21.6‰. 2 June 1997. 1320-1350 hrs (short set due to incoming tide sinking nets). Method: 10 cm mesh gillnet, multipanel gillnet. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-40. Locality: “No Name Spring” Creek on W bank of East Alligator River (12° 07.42'S 132° 38.48'E). Water turbid, depth 0-1 m. Substrate mud. Water temperature 29°C. Salinity 25.8‰. 2 June 1997. 1400-1430 hrs. Method: 10 cm mesh gillnet, dustshot. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-41. Locality: close to mouth of creek on W bank of mouth of East Alligator River; creek enters sea directly (same creek as in HL 97-36) (12° 05.59'S 132° 33.19'E). Water turbid, depth 3 m (incoming tide). Mud banks. Water temperature 29.7°C. Salinity 29.8‰. 2 June 1997. 1515-1640 hrs. Method: 10 cm mesh gillnet. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-42. Locality: same locality as HL 97-41 but 100 m downstream, at creek mouth (12° 05.59'S 132° 33.19'E). Water depth 3 m. Mud banks. 2 June 1997. 1520-1630 hrs. Method: mulitpanel gillnet. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station RW 97-19. Locality: E side of mouth of East Alligator River (12° 05.58'S 132° 37.93'E). Water depth 3 m (dropping tide). Substrate plant detritus forming deep layer. Water temperature 25.9°C. Salinity 27.3‰. 2 June 1997. 1507-1517 hrs (short haul, trawl bogged in detritus). Method: beam trawl. Collector: R. Williams, M. Large.



Fig. 5. Gillnet set across creek, East Alligator River, 2 June 1997.



Fig. 6. Rocky reef flat, N side Field Island, 4 June 1997.

Station RW 97-21. Locality: W side of mouth of East Alligator River (12° 04.9'S 132° 33.3'E). Water khaki-green, depth 2-5 m. Substrate rocky. Water temperature 26°C. Salinity 28.5‰. 2 June 1997. 1030-1130, 1300-1600 hrs. Method: hook and line. Collector: A. Wellings, M. Large.

Station HL 97-43. Locality: "The Rookery" Creek, East Alligator River (12° 08.48'S 132° 43.13'E). Water turbid, depth 2-2.5 m (tide high, dropping). Substrate mud; creek banks firm, with low *Avicennia* mangrove. Water temperature 25.6°C. Salinity 23.9‰. 3

June 1997. 0915-1015 hrs. Method: 10 cm mesh gillnet, multipanel gillnet; nets anchored on each side of creek mouth. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-45. Locality: Didigeegee Creek, East Alligator River (12° 13.19'S 132° 46.46'E). Water turbid, depth 2-3 m (tide high, dropping). Substrate soft mud. Water temperature 26.1°C. Salinity 12.5‰. 3 June 1997. 1100 hrs. Method: scoopnet, oar (used as club). Collector: H. Larson, G. Lindner, P. Nagle.

Station HL 97-46. Locality: midstream, opposite Smith's Landing, East Alligator River (12° 11.56'S 132° 47.22'E). Water turbid, depth 1 m (tide low). Substrate sand, sandy-mud. Water temperature 27.1°C. Salinity 15.8‰. 3 June 1997. 1200-1220 hrs (short set, current shifted). Method: 10 cm mesh gillnet, multipanel gillnet; nets anchored in midstream of river. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-47. Locality: at Smith's Landing, East Alligator River (12° 11.48'S 132° 47.35'E). Water turbid, depth 1-2 m (tide low). Substrate mud. Water temperature 26.7°C. Salinity 15‰. 3 June 1997. 1240-1430 hrs. Method: 10 cm mesh gillnet, multipanel gillnet; nets set out from shore. Collector: H. Larson, G. Lindner, P. Nagle, K. Wauchope.

Station HL 97-48. Locality: isolated pool on rock bar at Smith's Landing, East Alligator River (12° 11.48'S 132° 47.35'E). Water rather turbid, depth 0-0.25 m (tide low). Substrate rock, gravel, mud, some *Enteromorpha*; very steep sticky mud bank shore beside pool. 3 June 1997. 1300-1430 hrs. Method: rotenone. Collector: H. Larson, G. Lindner.

Station RW 97-22. Locality: upstream, East Alligator River (12° 13.05'S 132° 46.64'E). Water turbid, khaki, depth 5.5 m (dropping tide). Substrate mangrove detritus. Water temperature 26.3°C. Salinity 19.4‰. 3 June 1997. 0935-0945 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station RW 97-24. Locality: upstream, East Alligator River (12° 12.27'S 132° 47.7'E). Water turbid, khaki, depth 6-9 m (dropping tide). Substrate mud, mangrove detritus. Water temperature 26.5°C. Salinity 14.6‰. 3 June 1997. 1107-1117 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station RW 97-25. Locality: upstream, East Alligator River (12° 13.65'S 132° 49.55'E). Water turbid, khaki, depth 4.4 m (dropping tide). Substrate mangrove detritus, mud. Water temperature 26.7°C. Salinity 12.8‰. 3 June 1997. 1219-1229 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station RW 97-26. Locality: upstream, East Alligator River (12° 15.60'S 132° 52.42'E). Water turbid, khaki, depth 4 m (dropping tide). Substrate mud, mangrove detritus. Water temperature 26.8°C. Salinity 10.2‰. 3 June 1997. 1303-1313 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station RW 97-27. Locality: upstream, East Alligator River (12° 10.07'S 132° 46.61'E). Water turbid, khaki, depth 5.5 m (slack tide). Substrate mud, some mangrove detritus. Water temperature 27°C. Salinity 15.6‰. 3 June 1997. 1435-1445 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station RW 97-28. Locality: East Alligator River (12° 07.61'S 132° 41.55'E). Water turbid, depth 2.7 m (incoming tide). Substrate shell, gravel, rubble. Water temperature 27.6°C. Salinity 22.8‰. 3 June 1997. 1542-1552 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station RW 97-29. Locality: East Alligator River (12° 06.55'S 132° 40.17'E). Water turbid, khaki, depth 3.7 m (incoming tide). Substrate mud, gravel, rubble. Water temperature 26.8°C. Salinity 26.9‰. 3 June 1997. 1642-1652 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station RW 97-30. Locality: East Alligator River (12° 06.08'S 132° 37.60'E). Water turbid, khaki, depth 6.1 m (incoming tide). Substrate mud, shell. Water temperature 27°C. Salinity 27.2‰. 3 June 1997. 1730-1740 hrs. Method: beam trawl. Collector: R. Williams, M. Large.

Station HL 97-49. Locality: mouth of "North Creek", Field Island (12° 05.05'S 132° 24.28'E). Water turbid to partly clear, depth 0-9 m (high tide, dropping). Substrate mud, sandy mud, rocky outcrops; *Rhizophora* mangrove shore. Water temperature 26°C. Salinity 30.6‰. 4 June 1997. 0930-1130 hrs. Method: 10 cm mesh gillnet, multipanel gillnet, handline, dipnet; one net set in mouth channel, other 100 m upstream by small sand beach. Collector: H. Larson, G. Lindner, K. Wauchope.

Station HL 97-50. Locality: rocky reef and sandbars on N side of Field Island (12° 03.51'S 132° 23.27'E). Water turbid to partly clear, depth 0-1 m (low tide). Substrate rock covered with tiny oysters, overlaid by sand, rubble, some silty mud, *Padina*, *Sargassum* and other brown algae, few *Porites* and faviid corals, few sponges. Water temperature 29.4°C. Salinity 30.4‰. 4 June 1997. 1230-1445 hrs. Method: rotenone. Collector: H. Larson, G. Lindner, K. Wauchope.

Station RW 97-31. Locality: sandbanks on N side of Field Island (12° 04.05'S 132° 22.42'E). Water turbid, green, depth 0.1-1 m (dropping tide). Substrate sand. Water temperature 25.3°C. Salinity 30.5‰. 4 June 1997. 0930 hrs. Method: beach seine. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-32. Locality: mouth of creek on NE side of Field Island (12° 04.92'S 132° 24.49'E). Water turbid, green, depth 1.5 m (dropping tide). Substrate rocky. Water temperature 26.6°C. Salinity 30.2‰. 4 June 1997. 1045 hrs. Method: hook and line. Collector: A. Wellings, M. Large.

Station RW 97-31. Locality: sandbanks on N side of Field Island (12° 04.05'S 132° 22.42'E). Water turbid, green, depth 0.1-1 m (dropping tide). Substrate sand. Water temperature 25.3°C. Salinity 30.5‰. 4 June 1997. 0930 hrs. Method: beach seine. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-32. Locality: mouth of creek on NE side of Field Island (12° 04.92'S 132° 24.49'E). Water turbid, green, depth 1.5 m (dropping tide). Substrate rocky. Water temperature 26.6°C. Salinity 30.2‰. 4 June 1997. 1045 hrs. Method: hook and line. Collector: A. Wellings, M. Large.

Station RW 97-33. Locality: sand beach on NE side of Field Island (12° 05.98'S 132° 24.81'E). Water depth 0-1 m (dropping tide). Substrate sand. Water temperature 27.8°C. Salinity 29.3‰. 4 June 1997. 1300 hrs. Method: beach seine. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-34. Locality: in creek on NE side of Field Island (12° 05.13'S 132° 24.42'E). Water muddy green, depth 3 m (incoming tide). Substrate rocky. Water temperature 29.5°C. Salinity 30‰. 4 June 1997. 1600 hrs. Method: hook and line. Collector: R. Williams, A. Wellings, M. Large.

Station HL 97-51. Locality: mangrove creek on SSW side Field Island (12° 06.18'S 132° 20.47'E). Water depth 3 m (high tide). Substrate rock, mangrove roots, mud, brown algae; *Rhizophora* mangrove shore. Water temperature 26.5°C. Salinity 30.8‰. 5 June 1997. 0930-1035 hrs. Method: 10 cm mesh gillnet. Collector: H. Larson, G. Lindner, K. Wauchope.

Station HL 97-52. Locality: upstream in mangrove creek on SSW side Field Island (12° 06.03'S 132° 20.54'E). Water depth 3 m (high tide). Substrate rock, mangrove roots, mud, brown algae; *Rhizophora* mangrove shore. Water temperature 26.5°C. Salinity 30.9‰. 5 June 1997. 0940-1030 hrs. Method: multipanel gillnet. Collector: H. Larson, G. Lindner, K. Wauchope.

Station HL 97-53. Locality: mouth of largest creek on S side Field Island (12° 07.12'S 132° 21.52'E). Water depth 2-3 m (tide dropping). Mangrove shore. Water temperature 26.9°C. Salinity 30.6‰. 5 June 1997. 1100-1230 hrs. Method: 10 cm mesh gillnet, multipanel gillnet, 200 mm mesh multifilament gillnet, castnet; nets set across centre of mouth. Collector: H. Larson, G. Lindner, K. Wauchope.

Station HL 97-54. Locality: series of interconnected pools on layered rock platform reef ("Turtle Reef") on W side of Field Island (12° 05.26'S 132° 19.13'E). Water turbid to clear, depth 0-0.5 m (tide dropping; moderate current). Substrate rock, mud, *Goniopora* coral, brown algae, some seagrass and soft corals. Water temperature 28.7°C. Salinity 30.5‰. 5 June 1997. 1300-1400 hrs. Method: rotenone. Collector: H. Larson, R. Williams, G. Lindner, K. Wauchope, A. Wellings, M. Large.

Station HL 97-55. Locality: same locality as HL 97-54 but on N side of rock platform (12° 04.08'S 132° 19.12'E); pools siltier but more corals present. Water clear, depth 0-0.5 m (tide low, incoming). Substrate rock, rubble, silt, *Goniopora* mini-atolls, brown algae, orange sand. Water temperature 29.5°C. Salinity 30.6‰. 5 June 1997. 1415-1500 hrs. Method: rotenone. Collector: H. Larson, R. Williams, G. Lindner, K. Wauchope, A. Wellings, M. Large.

Station RW 97-35. Locality: S side of Field Island (12° 08.52'S 132° 23.40'E). Water turbid, green, depth 3 m (dropping tide). Water temperature 26.8°C. Salinity 29.5‰. 5 June 1997. 1000 hrs. Method: multipanel gillnet, 60 mm mesh gillnet. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-36. Locality: W side of Field Island (12° 07.24'S 132° 21.73'E). Water turbid, green, depth 3.4 m (dropping tide). Water temperature 26.8°C. Salinity 30.2‰. 5 June 1997. 1145-1205 hrs; short set due to rapidly dropping tide. Method: multipanel gillnet, 60 mm mesh gillnet. Collector: R. Williams, A. Wellings, M. Large.

Station HL 97-56. Locality: by creek on W bank near mouth of Wildman River (12° 18.45'S 132° 03.54'E). Water depth 3-4 m (high tide, dropping). Water temperature 26.6°C. Salinity 28.8‰. 6 June 1997. 0945-1145 hrs. Method: 10 cm mesh gillnet, multipanel gillnet, pistol; nets set upstream of mouth. Collector: H. Larson, G. Lindner, K. Wauchope.

Station HL 97-57. Locality: same locality as HL 97-56 but net set across creek mouth on E side of river (12° 19.03'S 132° 05.09'E). Water depth 4 m (high tide, dropping). Low *Avicennia* and *Sonneratia* mangrove shore. Water temperature 26.5°C. Salinity 28.4‰. 6 June 1997. 1010-1200 hrs. Method: 10 cm mesh gillnet. Collector: H. Larson, G. Lindner, K. Wauchope.

Station RW 97-37. Locality: Wildman River (12° 18.57'S 132° 04.52'E). Water depth 3.5 m (outgoing tide). Water temperature 26.6°C. Salinity 27.58‰. 6 June 1997. 1000-1020 hrs. Method: multipanel gillnet. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-38. Locality: Wildman River (12° 18.47'S 132° 05.33'E). Water depth 5 m (outgoing tide). Water temperature 26.6°C. Salinity 28.2‰. 6 June 1997. 1030-1130 hrs. Method: 60 mm mesh gillnet. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-39. Locality: Wildman River (12° 20.21'S 132° 04.72'E). Water depth 5.5 m (outgoing tide). Water temperature 25.9°C. Salinity 23.2‰. 6 June 1997. 1155-1315 hrs. Method: 60 mm mesh gillnet. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-40. Locality: Wildman River (12° 20.43'S 132° 07.44'E). Water depth 2.2 m (outgoing tide). Water temperature 26.5°C. Salinity 11‰. 6 June 1997. 1225-1425 hrs. Method: multipanel gillnet. Collector: R. Williams, A. Wellings, M. Large.

Station RW 97-41. Locality: Wildman River (12° 21.25'S 132° 09.23'E). Water depth 3.2 m (outgoing tide). Water temperature 26.5°C. Salinity 3.6‰. 6 June 1997. 1345-1530 hrs. Method: 60 mm mesh gillnet. Collector: R. Williams, A. Wellings, M. Large.

RESULTS

During the 13-day survey, 93 stations were made, recording 161 species from 59 families of marine and estuarine fish from Kakadu National Park waters. Adding these records to those previously known brings the total number of species now definitely known from Kakadu to 181. A number of species, tentatively identified only to family or genus, are not included in this total. A list of marine and estuarine fish species known from Kakadu National Park is given in Appendix 1. Appendix 2 is a list of molluscs collected incidentally during the survey, and identified by Dr Richard Willan, malacologist at MAGNT.

The most significant finds of the survey include a new genus of gobiid fish, which possibly may be related to the genus *Egglestonichthys*. The specimens of the small gobiid *Amoya* probably include a new species, but a revision of this poorly understood genus will have to be carried out before this can be confirmed. The survey produced seven species of fishes not recorded in the literature from the Northern Territory, although known from other NT localities (an eel, a blenny, a sweetlip, three gobies and a tongue-sole). An unusual behaviour was noted for the threadfin scat (*Rhinoprenes*), which was observed to inflate its body when captured in the beam trawl (inflation is known in the families Tetraodontidae and Diodontidae, but is rare in other fishes). Almost nothing else is known about *Rhinoprenes*.

When the resident species collected from the four main rivers, the West Alligator Head area and Field Island are compared (Table 1), an impression may be gained that some areas are more diverse than others or support different faunas. While this may be true, it must be borne in mind that the West Alligator Head area included the survey's campsite at Pocock's Beach, and was the site of greater collecting effort than other localities. Seventy-four fish species (from 20 collecting stations) were obtained in the West Alligator Head area, 59 species (from 13 stations) at Field Island, 49 species (from 21 stations) in the East Alligator, 32 species (from 14 stations) in the Wildman, 24 species (from 10 stations) in the West Alligator and 20 species (from 14 stations) in the South Alligator.

As can be seen, the West Alligator Head area and Field Island stand out as the most speciose. The former is undoubtedly due to the rocky shore reef and mangrove habitats sampled. Rocky reefs form important oases of diversity in the Park, where much of the substrate (sand and mud) may move according to seasonal and tidal changes. Field Island is the most outstanding marine locality in the Park, having a wide range of habitats available to fishes, from sandy beaches, seagrass beds, rocky reef, muddy reef, rocky reef with coral and sponges to mangrove creeks and mud. It is not possible to make any meaningful comparisons between any of the rivers without further survey work.

However, this survey can be compared, based on similar sampling techniques and available habitats, with the fish fauna collected during a beam trawl survey of the Roper River area (Larson 1996). This survey examined the resident fish fauna of the Roper River estuary, Nayarnpi Creek, an un-named creek ("Last Creek") and the Towns River mouth. Although conditions did not allow exact duplication of effort, the overall effort and amount of material obtained are open to comparison. One hundred and seven species from 34 families were collected from marine and estuarine areas of the Roper River and neighbouring creeks (Larson 1996).

The most speciose fish families from Kakadu were the Gobiidae (gobies; with 30 species), the Engraulididae (anchovies; 11 species), Sciaenidae (jewfishes; eight species), Mugilidae (mullet; eight species) and the Cynoglossidae (tongue soles; eight species) (Table 1). In comparison, the Roper area had 28 species of Gobiidae, 10 Engraulididae, five Sciaenidae, five Clupeidae and four species of Ariidae.

When Table 2 is examined, it can be seen that the estuarine areas of Kakadu show a faunal assemblage most similar to that of the Roper River area, with seven families among the "top eight" being shared between the two areas. It must be borne in mind that the Roper survey was sampled mostly by beam trawl (four gillnet and five rotenone stations). Kakadu also shares four of its "top eight" fish families with the Gulf of Papua and shares three families with the southern Gulf of Carpentaria. Kakadu shares only two of its "top eight" families (Gobiidae and Clupeidae) with the Bing Bong/McArthur River region, and one (Gobiidae) with Darwin Harbour.

Kakadu, the Roper and Gulf of Papua, despite their differences in topography, have several key features in common, such as high turbidity, largely muddy substrates and fluctuating salinity. Fishes characteristic of this type of inshore habitat belong to the families the Engraulididae (anchovies), Clupeidae (sardines), Ariidae (fork-tailed catfish) and Sciaenidae (jewfishes) (and to a lesser extent, the Leiognathidae; ponyfishes). These four families are all well represented in Kakadu, the Roper and the Gulf of Papua.

A high number of gobiid fish species is recorded for Kakadu, the Roper, Bing Bong/McArthur and Darwin Harbour areas, but not for the Gulf of Papua or southern Gulf of Carpentaria. This is very likely to be linked to sampling technique and sampling localities (beam trawl and rotenone sampling techniques; and sampling in creeks and estuary mouths), as these fishes are small and therefore not well represented in demersal trawl or prawn trawl samples taken from more open, offshore waters (which the Gulf of Papua and southern Gulf of Carpentaria data are largely based upon).

As can be seen from Table 2, there is not a great similarity between families represented in the Kakadu area and in Darwin Harbour. The only family in common is the Gobiidae, the most speciose family at both localities. The faunal assemblage of Darwin Harbour is more

similar to that of Port Essington, and includes reef associated families such as the Serranidae, Pomacentridae and Apogonidae, probably due to the presence of rocky and coral reefs admixed with mangroves and estuaries (Larson and Williams 1997).

In summary, this survey has produced baseline data about the Kakadu estuarine fish fauna, but there is not sufficient information available to make statements as to the comparative “quality” of any of the habitats (other than recognising Field Island’s uniqueness within the Park).

Field Island and its fish fauna is worthy of closer examination, as it appears to be quite diverse, despite lower collecting effort undertaken in comparison with other areas (collecting around Field Island did not include beam trawling, due to the extensive rocky reefs). Additional survey work of the Park is required, using the same techniques and amount of time (collecting effort), so that the fish fauna of its rivers can be further identified and more closely compared. In an ideal world, potential seasonal differences in the fish fauna should also be considered. However, given the large size of the rivers and the considerable logistical difficulties which can arise in the wet season, a comparative wet season survey may not be feasible. An annual dry season survey would likely be the most efficient way of monitoring the marine and estuarine fish fauna of Kakadu National Park.

Table 1. Species collected from each river or general area; most large mobile fishes such as sharks and rays excluded.

Species	Wildman River	West Alligator Head	West Alligator River	South Alligator River	East Alligator River	Field Island
<i>Taeniura lymma</i>						X
<i>Ilisha lunula</i>		X				
<i>Papuengr. micropinna</i>	X	X	X		X	
<i>Setipinna tenuifilis</i>		X	X	X	X	
<i>Stolepho. andhraensis</i>			X	X		
<i>Stole. brachycephalus</i>	X	X	X	X	X	X
<i>Thryssa aestuaria</i>		X			X	
<i>Thryssa brevicauda</i>	X	X	X		X	
<i>Thryssa hamiltoni</i>	X				X	X
<i>Muraenesox bagio</i>					X	
<i>Muraen. macropterus</i>		X				X
<i>O. rutidodermatoides</i>		X			X	
<i>Ogilbia</i> sp.						X
<i>Harpadon translucens</i>			X	X		
<i>Arius armiger</i>	X	X	X	X	X	X
<i>Arius graeffei</i>		X			X	X
<i>Arius leptaspis</i>	X	X			X	X
<i>Arius mastersi</i>		X			X	
<i>Cinetodus froggatti</i>	X				X	
<i>Nedystoma cf dayi</i>	X				X	
<i>Nedystoma</i> sp.					X	
<i>Euristhmus lepturus</i>	X	X			X	
<i>Paraplotosus mulleri</i>						X
<i>Plotosus canius</i>		X			X	
<i>Arrhamph. sclerolepis</i>					X	X
<i>Strongyl. strongylura</i>		X		X		X
<i>Hipp. parvicarinatus</i>		X				
<i>Hipp. pencillus</i>		X				
<i>Cheroscor. tridactyla</i>	X		X	X		
<i>Scorpaena picta</i>						X
<i>Pa. nematophthalmus</i>						X
<i>Platy. endrachtensis</i>			X			
<i>Platycephalus indicus</i>	X	X			X	
<i>Suggrundus bosschei</i>						X
<i>Ambassis interrupta</i>	X					
<i>Ambassis nalua</i>						X
<i>Ambassis vachelli</i>		X				
<i>Lates calcarifer</i>		X	X		X	X
<i>Centrogen. vaigiensis</i>						X
<i>Epinephelus coioides</i>						X
<i>Congrog. subducens</i>		X				X
<i>Amniat. caudavittata</i>		X				X
<i>Terapon jarbua</i>		X				
<i>Apogon timorensis</i>						X
<i>Apogon ruepelliae</i>						X
<i>Siphamia roseigaster</i>				X		
<i>Sillago analis</i>		X				X
<i>Sillago sihama</i>		X				X
<i>Alepes melanoptera</i>	X		X		X	
<i>Caranx ignobilis</i>						X
<i>Sc. commersonianus</i>					X	X

Species	Wildman River	West Alligator Head	West Alligator River	South Alligator River	East Alligator River	Field Island
<i>Plecto. celebicus</i>						X
<i>Plecto. multivittatum</i>						X
<i>Pomadasys kaakan</i>						X
<i>Lutjanus johnii</i>		X			X	
<i>Lutanjus russelli</i>						X
<i>Scaevius millii</i>						X
<i>Leiognathus equulus</i>		X				
<i>Secutor ruconius</i>		X				
<i>Gerres macrosoma</i>						X
<i>Collichthys lucidus</i>	X	X	X	X	X	
<i>Nibea microgenys</i>	X	X	X	X	X	
<i>Nibea soldado</i>	X	X				
<i>Nibea squamosa</i>	X				X	
<i>Protonib. diacanthus</i>		X				
<i>Selenot. multifasciata</i>		X				X
<i>Rhinopr. pentanemus</i>			X	X		
<i>Chelmon muelleri</i>						X
<i>Leptobrama muelleri</i>	X				X	X
<i>Toxotes chatareus</i>	X	X			X	
<i>Abudef. bengalensis</i>						X
<i>Pomace. darwiniensis</i>						X
<i>Liza alata</i>					X	
<i>Liza subviridis</i>					X	
<i>Liza tade</i>		X				X
<i>Liza vaigiensis</i>	X	X				X
<i>Rhinomugil nasutus</i>		X			X	X
<i>Valamugil buchanani</i>		X				X
<i>Valamugil cunnesius</i>	X	X			X	
<i>Eleuth. tetradactylum</i>	X	X	X		X	X
<i>Polynemus sheridani</i>	X	X	X	X	X	
<i>Polynemus verekeri</i>	X		X	X	X	
<i>Choerodon cyanodus</i>						X
<i>Halichoe. dussumieri</i>						X
<i>Opistog. darwinensis</i>						X
<i>Omobran. germaini</i>						X
<i>Omobran. rotundiceps</i>						X
<i>Salarias spaldingi</i>						X
<i>Notograptus guttatus</i>		X				X
Gobiidae new genus	X		X			
<i>Acentrogob. caninus</i>		X				
<i>Acent. viridipunctatus</i>		X				
<i>Amoya sp.</i>		X				
<i>Amoya gracilis</i>		X				
<i>Apocryptodon n. sp.</i>		X				
<i>Boleophth. birdsongi</i>					X	
<i>B. caeruleomaculatus</i>		X				
<i>Brachy. brachysoma</i>		X	X		X	
<i>Calamiana n. sp.</i>	X					
<i>Drombus triangularis</i>		X				X
<i>Glossogobius sp. 1</i>					X	
<i>Gnatholepis sp.</i>						X
<i>Gobiops. macrostoma</i>			X		X	
<i>Gobiopterus sp.</i>		X		X	X	
<i>Istigobius diadema</i>						X

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Species	Wildman River	West Alligator Head	West Alligator River	South Alligator River	East Alligator River	Field Island
<i>Istigo. nigroocellatus</i>						X
<i>Mugilogobius mertoni</i>		X				
<i>Oxuderces wirzi</i>		X				
<i>Palutrus</i> sp.						X
<i>Pe. novaeguineensis</i>	X	X			X	
<i>Pseudogobius</i> sp. 2		X			X	
<i>Pseudogobius</i> sp. 3		X				
? <i>Redigobius</i> sp.		X				
<i>Scartel. histophorus</i>		X			X	
<i>Silhouettea evanida</i>		X				
<i>Yongeich. nebulosus</i>		X				X
<i>Bostrychus sinensis</i>		X				
<i>Butis butis</i>		X				
? <i>Butis koilomatodon</i>		X				
<i>Prionobutis microps</i>	X	X	X	X	X	
<i>Kurtus gulliveri</i>	X		X	X	X	
<i>Scomb. semifasciatus</i>						X
<i>Aseragg. klunzingeri</i>			X			
<i>Brachirus selheimi</i>		X			X	
<i>Pardachir. poropterus</i>		X		X		
<i>Rendahl. jaubertensis</i>	X	X				
<i>Cynogloss. bilineatus</i>		X				
? <i>Cynogloss. kopsi</i>			X			
<i>Paraplagusia blochi</i>		X		X	X	
<i>Paraplag. longirostris</i>	X	X		X	X	
<i>Trixiptichthys weberi</i>						X
<i>Para. choirocephalus</i>						X
<i>Marilyna darwinii</i>		X				
<i>Marilyn. meraukensis</i>	X	X		X	X	X
<i>Cyclich. hardenbergi</i>		X				
<i>Diodon liturosus</i>		X				

Table 2. Top eight most speciose families (and number of species per family) in Kakadu compared with the Roper River area, the southern Gulf of Carpentaria, Gulf of Papua, Bing Bong Creek/McArthur River area and Darwin Harbour. Data for Gulf of Carpentaria and Gulf of Papua from Russell and Houston (1989); data for Bing Bong/McArthur from Larson (1992); data for Roper from Larson (1996); data for Darwin Harbour from Larson and Williams (1997).

Kakadu	Roper River area	McArthur/Bing Bong	S Gulf of Carpentaria	Gulf of Papua	Darwin Harbour
Gobiidae (30)	Gobiidae (28)	Gobiidae (15)	Carangidae (21)	Carangidae (29)	Gobiidae (65)
Engraulitidae (11)	Engraulitidae (10)	Leiognathidae (5)	Clupeidae (13)	Scorpaenidae (17)	Apogonidae (21)
Ariidae (9)	Sciaenidae (5)	Terapontidae (4)	Scorpaenidae (12)	Clupeidae (15)	Syngnathidae (18)
Mugilidae (8)	Clupeidae (5)	Clupeidae (3)	Apogonidae (12)	Sciaenidae (14)	Pomacentridae (12)
Sciaenidae (8)	Ariidae (4)	Atherinidae (3)	Leiognathidae (12)	Ariidae (13)	Serranidae (12)
Cynoglossidae (8)	Cynoglossidae (4)	Platycephalidae (3)	Gobiidae (12)	Engraulitidae (12)	Carangidae (10)
Carcharhinidae (7)	Mugilidae (4)	Serranidae (3)	Soleidae (12)	Tetraodontidae (12)	Leiognathidae (9)
Clupeidae (4)	Sillaginidae (4)	Callionymidae (3)	Ariidae (11)	Leiognathidae (11)	Hemiramphidae (9)

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APPENDIX 1 - PRELIMINARY CHECKLIST OF MARINE AND ESTUARINE FISHES FROM KAKADU NATIONAL PARK

HELEN K. LARSON

This is a preliminary list only. For each species is given the original citation for the species name, including type locality, and the locality of the first known record from within the Alligator Rivers/Kakadu area or from the Northern Territory, if unknown from Kakadu. Some species, previously recorded by Bishop *et al.* (1980, 1990) as occurring in estuarine (tidal) areas of Kakadu, are not listed here as they are actually freshwater fishes (e.g. *Craterocephalus stercusmuscarum*, *Glossamia aprion*). Some reliable sight records, of additional species, by Garry Lindner and the Grice family of Sandfly Beach are included.

Family Stegastomatidae

Stegastoma fasciatum (Hermann, 1783)

Squalus fasciatus Hermann, 1783: 302 (based on *Squalus varius* Seba, 1758).

Stegastoma tigrinum - Paradice and Whitley 1927: 96 (Clarence Strait, NT).

Sight record by John Grice.

Family Carcharhinidae

Carcharhinus leucas (Valenciennes, 1839)

Carcharias (Prionodon) leucas Valenciennes, in Muller and Henle, 1839: 42-43 (Antilles).

Carcharhinus mckaili - Taylor 1964: 56 (Cahill's Crossing, East Alligator River).

Carcharhinus sorrah (Valenciennes, 1839)

Carcharias (Prionodon) sorrah Valenciennes, in Muller and Henle, 1839: 45 ("Indien, Java, Madagaskar").

Carcharhinus spallanzani - Munro 1958: 8 (NT).

HL 97-35 (not kept), HL 97-53 (released).

Galeocerdo cuvieri (Peron and LeSueur, 1822)

Squalus cuvier Peron and LeSueur, 1822: 351 (northwest coast of New Holland).

Galeocerdo arcticus - Paradice and Whitley 1927: 78 (Pellew Islands).

Sight record by John and Kim Grice.

Nebrius ferrugineum (Lesson, 1830)

Scyllium ferrugineus Lesson, 1830: 95 (type locality unknown).

Nebrius concolor - Russell and Houston 1989: 79 (Arafura Sea).

Sight record by John and Kim Grice.

Negaprion acutidens Ruppell, 1837

Carcharias acutidens Ruppell, 1837: 65 (Djedda, Saudi Arabia, Red Sea).
Aprionodon acutidens - Paradice and Whitley 1927: 78 (Pellew Is.).
HL 97-51 (released, not retained).

Rhizoprionodon acutus (Ruppell, 1837)

Carcharias acutus Ruppell, 1837: 65 (Djedda, Red Sea).
Rhizoprionodon acutus - Taylor 1964: 55 (Groote Eylandt).
RW 97-21.

Rhizoprionodon taylori (Ogilby, 1915)

Physodon taylori Ogilby, 1915: 117 (Townsville, northern Queensland).
Protozygaena taylori - Whitley 1940: 107 (Pellew Is.).
HL 97-35.

Family Sphyrnidae

Eusphyrna blochi (Cuvier, 1816)

Zygaena Blochii Cuvier, 1816: 127 (no type locality designated).
Eusphyrna blochi - Compagno 1984: 541 (Northern Territory).
Observed, but not collected, at HL 97-35.

Family Rhynchobatidae

Rhina ancylostoma Bloch and Schneider, 1801

Rhina ancylostomus Bloch and Schneider, 1801: 352 (Coromandel).
Rhina ancylostoma. - Russell and Houston 1989: 79 (Arafura Sea).
Sight record by John Grice.

Rhynchobatos djiddensis (Forsskal, 1775)

Raja djiddensis Forsskal, 1775: 18 (Djedda, Red Sea).
Rhynchobatus djiddensis - Russell and Houston 1989: 79 (Arafura Sea).
Sight record by John Grice.

Family Pristidae

Pristis microdon Latham, 1794

Pristis microdon Latham, 1794: 280 (no type locality given).
Pristis (leichardtii?) - Pollard 1974: 65 (Rock Hole Billabong and channel).

Family Dasyatidae

Dasyatis fluviatorum Ogilby, 1908

Dasyatis fluviatorum Ogilby, 1908: 6 (Brisbane River, Queensland, above tides). -
Pollard 1974: 64 (vicinity of Cahill's Crossing).
HL 97-2.

Himantura chaophraya Monkolprasit and Roberts, 1990

Himantura chaophraya Monkolprasit and Roberts 1990: 204 (Chaophraya River, Thailand). - Last and Stevens 1994: 399-400 (South Alligator).

Dasyatis fluviorum - Merrick and Schmida 1984: 42 ("freshwater reaches of the South Alligator River") [misidentification - Last and Stevens 1994].

Sight record, HL 97-43.

Himantura uarnak (Forsskal, 1775)

Raja uarnak Forsskal, 1775: pl.18, ix (Loheia, Red Sea).

Trygon uarnak - Macleay 1878: 366 (Port Darwin).

Sight record by Garry Lindner.

Taeniura lymma (Forsskål, 1775)

Raja lymma Forsskål, 1775: 17 (Loheia, Red Sea).

Taeniura lymma - McCulloch 1920: 41 (Port Darwin).

Sight record, HL 97-50.

Family Myliobatididae

Aetobatis narinari (Euphrasen, 1790)

Raja narinari Euphrasen, 1790: 217 (West Indies).

Aetobatus punctatus - Whitley 1940: 224-225 (Port Darwin).

Sight record by John Grice.

Family Megalopidae

Megalops cyprinoides (Broussonet, 1782)

Clupea cyprinoides Broussonet, 1782: 39 (Tanna, New Hebrides).

Megalops setipinnis - Richardson 1843: 493 (Port Essington).

RW 97-12, possibly of this species.

Family Clupeidae

Escualosa thoracata (Valenciennes, 1847)

Kowala thoracata Valenciennes, in Cuvier and Valenciennes, 1847: 363 (Pondicherry, India).

Escualosa thoracata - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-6, RW 97-17, RW 97-30, RW 97-31.

Herklotsichthys sp.1 - Davis and May 1989: 159 (East Alligator River mouth).

Ilisha sp.

HL 97-7, RW 97-5 (possibly *I. lunula*).

Ilisha lunula Kailola, 1986

Ilisha lunula Kailola, 1986: 51-57 (Arafura Sea, 11° 43'S 136° 18'E; King Creek, Shoal Bay; Chambers Bay, Van Diemen Gulf, west of Murganella Creek)
HL 97-9.

Ilisha megaloptera (Swainson, 1839)

Platygaster megalopterus Swainson, 1839: 294 (based on "Jangarloo" of Russell, 1803).

Ilisha megaloptera - Davis and May 1989: 159 (East Alligator River mouth).

Family Engraulidae

Engraulidae

HL 97-4 - postlarval; HL 97-14, HL 97-21.

Papuengraulis micropinna Munro, 1964

Papuengraulis micropinna Munro, 1964: 150-2 (S of Port Romilly, Gulf of Papua). - Davis and May 1989: 159 (East Alligator River mouth).
HL 97-6, HL 97-7, RW 97-5, RW 97-16, RW 97-30.

Setipinna tenuifilis Valenciennes, 1848

Engraulis tenuifilis Valenciennes, 1848: 62 (Rangoon, Burma).

Setipinna tenuifilis - Paxton *et al.* 1989: 160 (NT).

Setipinna godvari - Davis and May 1989: 159 (East Alligator River mouth).
RW 97-2, RW 97-5, RW 97-10, RW 97-16, RW 97-19, RW 97-30.

Stolephorus sp. - Bishop *et al.* 1981; 1990. Magela mouth, East Alligator River.
HL 97-19, HL 97-33.

Stolephorus andhraensis Babu Rao, 1966

Stolephorus andhraensis Babu Rao, 1966: 103 (Waltair, Kakinada, India). - Paxton *et al.* 1989: 160 (Shoal Bay, NT).
RW 97-6, RW 97-17.

Stolephorus brachycephalus Wongratana, 1983

Stolephorus brachycephalus Wongratana, 1983: 401 (E. side of Daru Wharf, Gulf of Papua, Papua New Guinea).

HL 97-5, HL 97-6, HL 97-7, HL 97-9, HL 97-56, RW 97-1, RW 97-2, RW 97-5, RW 97-6, RW 97-11, RW 97-12, RW 97-16, RW 97-30, RW 97-31.

Species not recorded previously from the NT.

Stolephorus commersoni Lacepede, 1803

Stolephorus commersonii Lacepede, 1803: 381 (Mauritius). - Davis and May 1989: 159 (East Alligator River mouth).

Stolephorus indicus van Hasselt, 1823

Engraulis indicus van Hasselt, 1823: 329 (Vishakhapatnam, India; Java, Indonesia).

Stolephorus indicus - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-8, HL 97-54, RW 97-6, RW 97-28.

Thryssa aestuaria (Ogilby, 1910)

Anchovia aestuaria Ogilby, 1910: 4 (Brisbane R., Queensland, Australia).

Thryssa aestuaria - Wongratana 1987: 108 ("northern coast of Australia"); - Paxton *et al.* 1989: 161 (NT).

HL 97-5, HL 97-6, HL 97-9, HL 97-45, RW 97-30.

Thryssa brevicauda Roberts, 1978

Thryssa brevicauda Roberts, 1978: 29 (mangrove creek, Lower Fly River, PNG). -

Wongratana 1987: 108 (Shoal Bay of Northern Territory).

HL 97-5, HL 97-9, HL 97-14, RW 97-19, RW 97-24, RW 97-30.

Thryssa hamiltoni (Gray, 1834)

Thryssa hamiltoni Gray, 1835: plate 92 (no locality).

Thrissocles hamiltoni - Paradise and Whitley 1927: 79 (Darwin).

HL 97-42, HL 97-56, RW 97-31.

Thryssa kammalensis (Bleeker, 1849)

Engraulis kammalensis Bleeker, 1849: 13 (Madura Strait near Kammal and Surabaya).

Thryssa kammalensis - Davis and May 1989: 159 (East Alligator River mouth).

Thryssa setirostris (Broussonet, 1782)

Clupea setirostris Broussonet, 1782: text and plate 2, no pagination (Pacific Ocean near Tanna Is, Society Group.)

Thryssa setirostris - Davis and May 1989: 159 (East Alligator River mouth).

Family Muraenosocidae

Muraenesox bagio (Hamilton, 1822)

Muraena bagio Hamilton, 1822: 24, 364 (Ganges River, India).

Muraenesox bagio - Russell and Houston 1989: 80 (Arafura Sea).

RW 97-30.

Family Ophichthidae

Muraenichthys macropterus Bleeker, 1857

Muraenichthys (Scolenchelys) macropterus Bleeker, 1857: 91 (Ambon I., Moluccas Is., Indonesia).

Muraenichthys macropterus - Collette 1983: 101 (East Vernon Is., Croker I.).

HL 97-10, HL 97-50, HL 97-55.

Ophichthus rutidermatoides Bleeker, 1853

Ophisurus rutidermatoides Bleeker, 1853: 31 (Batavia, Java, Indonesia).

This species has not been previously recorded from the NT.

HL 97-31, HL 97-48.

Family Bythitidae

Ogilbia sp. HL 97-50, HL 97-55.

Family Harpadontidae

Harpadon translucens Saville-Kent, 1889

Harpadon translucens Saville-Kent, 1889: 222, 234 (Ord River, Cambridge Gulf). -

Davis and May 1989: 159 (East Alligator River mouth).

RW 97-6, RW 97-11, RW 97-17.

Family Ariidae

Arius sp. (*agreutes* MS name)

Mouth of Wildman River (NTM S.11189-001).

Also sight record by Garry Lindner.

Arius armiger De Vis, 1884

Arius armiger De Vis, 1884: 454 (New Britain [in error]). - Davis and May 1989: 159 (East Alligator River mouth).

97-38, HL 97-39 (released), HL 97-47 (released), HL 97-56 (released), RW 97-1, RW 97-2, RW 97-4, RW 97-6, RW 97-11, RW 97-13, RW 97-15, RW HL 97-5, HL 97-11, HL 97-14, HL 97-15, HL 97-18, HL 97-20, HL 97-23, HL 97-17, RW 97-19, RW 97-21, RW 97-26, RW 97-30.

Arius berneyi Whitley, 1941

Tachysurus (Pararius) berneyi Whitley, 1941: 9-11 (pools of the Flinders R., near Hughenden and Richmond, Qld).

Arius berneyi - Davis and May 1989: 159 (E. Alligator R. mouth).

This may be a misidentification by Davis and May.

Arius graeffei Kner and Steindachner, 1866

Arius graeffei Kner and Steindachner, 1866: 383 (Samoa; locality doubtful). - Bishop *et al.* 1990: Table 16 (Cahill's Crossing).

HL 97-2, HL 97-11, HL 97-42, HL 97-49.

Arius leptaspis (Bleeker, 1862)

Hexanematichthys leptaspis Bleeker 1862: 27 (southwest New Guinea).

Arius leptaspis - Taylor 1964: 81 (Roper River, and East Alligator).

HL 97-28, HL 97-39, HL 97-43, HL 97-53 (released), HL 97-56 (released).

Arius mastersi Ogilby, 1898

Arius mastersi Ogilby, 1898: 34 (Northern Australia [Port Darwin]).
HL 97-2, HL 97-28, HL 97-37, RW 97-21.

Arius proximus Ogilby, 1898

Arius proximus Ogilby, 1898: 280 (Port Darwin, NT).
Arius proximus? - Pollard 1974: 16 (above causeway at Cahill's Crossing).
AMS I.16827-001.

Cinetodus froggatti Ramsay and Ogilby, 1886

Arius froggatti Ramsay and Ogilby, 1886: 14 (Strickland River).
Cinetodus froggatti - Merrick and Schmida 1984: 121 (upper Roper system).
HL 97-14, HL 97-16, HL 97-20, RW 97-27.

Nedystoma sp. (*cf dayi*)

HL 97-19, HL 97-20, HL 97-41, HL 97-42.

Nedystoma sp. (long snout)

HL 97-41.

Family Plotosidae

Euristhmus lepturus (Gunther, 1864)

Cnidoglanis lepturus Gunther, 1864: 28 (Sydney, NSW).
Euristhmus lepturus - Paxton *et al.* 1989: 223 (NT).
HL 97-2, HL 97-31, HL 97-37, HL 97-56.

Paraplotosus mulleri (Klunzinger, 1879)

Cnidoglanis mulleri Klunzinger, 1879: 411 (Port Darwin, NT).
HL 97-50, HL 97-54.

Plotosus canius Hamilton, 1922

Plotosus canius Hamilton, 1822: 142 (Ganges). - Gomon and Taylor 1982: 2 (northern Australia).
HL 97-2, HL 97-37.

Family Hemiramphidae

Arrhamphus sclerolepis Gunther, 1866

Arrhamphus sclerolepis Gunther, 1866: 277 (?New Zealand (=Australia)). - Macleay 1878: 364 (Darwin).
HL 97-42, RW 97-31, RW 97-33.

Zenarchopterus caudovittatus (Weber, 1908)

Hemiramphus (Zenarchopterus) dispar Weber, 1908: 229-230 (mouth of Merauke River). - Taylor 1964: 106 (East Alligator River).

Family Belonidae

Strongylura strongylura van Hasselt, 1823

Belone strongylura van Hasselt, 1823: 130 (Vishakhapatnam, India; Java, Indonesia).
HL 97-24, HL 97-30, RW 97-31.

Family Syngnathidae

Hippichthys parvicarinatus (Dawson, 1978)

Syngnathus parvicarinatus Dawson, 1978: 288-291 (Dinah Beach, Darwin). - Paxton
et al. 1989: 420 (Darwin and East Alligator River, NT).

Hippichthys parvicarinatus - Davis and May 1989: 159 (East Alligator River).
HL 97-31.

Hippichthys penicillus (Cantor, 1849)

Syngnathus penicillus Cantor, 1849: 1368 (Sea of Pinang, Malaya).

Hippichthys (Parasyngnathus) penicillus - Dawson 1985: 101 (NT map).
HL 97-31.

Family Scorpaenidae

Cheroscorpaena tridactyla Mees, 1964

Cheroscorpaena tridactyla Mees, 1964: 1 (off Frederik Hendrik I., New Guinea). -
Davis and May 1989: 159 (East Alligator River mouth).
HL 97-14, HL 97-19, HL 97-20, RW 97-6, RW 97-15.

Scorpaena picta (Cuvier, 1829)

Scorpaena picta Cuvier (ex Kuhl and van Hasselt), in Cuvier and Valenciennes, 1829:
321 (Java).

Sebastapistes bynoensis - Macleay 1878: 353 (Port Darwin).
HL 97-55.

Family Platycephalidae

Platycephalid sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

Papilloculiceps nematophthalmus (Gunther, 1860)

Platycephalus nematophthalmus Gunther, 1860: 184 (Victoria, Port Essington, NT).
HL 97-50, HL 97-55.

Platycephalus endrachtensis Quoy and Gaimard, 1825

Platycephalus endrachtensis Quoy and Gaimard, 1825: 353 (Shark's Bay, WA). -
Taylor 1964: 286 (Groote Eylandt).
HL 97-11.

Platycephalus indicus (Linnaeus, 1758)

Callionymus indicus Linnaeus, 1758: 250 (Asia).

?*Platycephalus endrachtensis* - Taylor 1964: 286 (Groote Eylandt).

Platycephalus indicus - Paxton *et al.* 1989: 469 (NT).
HL 97-10, HL 97-19, HL 97-20, HL 97-48.

Suggrundus bosschei (Bleeker, 1860)

Platycephalus bosschei Bleeker, 1860: 140 (Muntok, Batavia).

Insidiator bosschei - McCulloch 1914: 139 (Port Darwin).

HL 97-55.

Family Ambassidae

Ambassis sp.

HL 97-31, HL 97-49 (juveniles).

Ambassis interruptus Bleeker, 1852

Ambassis interrupta Bleeker, 1852: 696 (Celebes).

Ambassis dalyensis - Rendahl 1922: 187 (Daly River, NT).

HL 97-20.

Ambassis nalua (Hamilton, 1822)

Chanda nalua Hamilton, 1822: 107 (Ganges).

Ambassis nalua - Paradise and Whitley 1927: 84 (Darwin).

RW 97-31.

Ambassis vachelli Richardson, 1846

Ambassis vachellii Richardson, 1846: 221 (Canton, China).

Ambassis dussumieri - Klunzinger 1879: 345 (Port Darwin).

HL 97-10.

Family Centropomidae

Lates calcarifer (Bloch, 1790)

Holocentrus calcarifer Bloch, 1790: 100 (Japan).

Lates calcarifer - Pollard 1974: 35 (above and below Cahill's Crossing, East Alligator River, Rock Hole Billabong).

HL 97-2, HL 97-13, HL 97-37, HL 97-38 (released), HL 97-39 (released), HL 97-40 (released), HL 97-42 (released), HL 97-43 (released), HL 97-46 (released), HL 97-47 (released), HL 97-50.

Family Serranidae

Serranid sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

Centrogenys vaiigiensis (Quoy and Gaimard, 1824)

Scorpaena vaiigiensis Quoy and Gaimard, 1824: 324 (Waigiou).

Centropristes scorpaenoides - Richardson 1842: 120 (Port Essington).

HL 97-54.

Epinephelus coioides (Hamilton, 1822)

Bola coioides Hamilton, 1822: 82, 369 (Large Gangetic estuaries, India).

Epinephelus suillus - Paxton et al. 1989: 498 (NT).

HL 97-49, HL 97-50.

Epinephelus lanceolatus (Bloch, 1790)

Holocentrus lanceolatus Bloch, 1790: 92 (East Indies).
Epinephelus lanceolatus - Taylor 1964: 173 (Groote Eylandt).
 Sight record by Garry Lindner.

Family Pseudochromidae

Congrogadus subducens (Richardson, 1843)

Machaerium subducens Richardson, 1843: 175 (Port Essington).
 HL 97-10, HL 97-50, HL 97-54, HL 97-55.

Family Teraponidae

Amniataba caudavittata (Richardson, 1845)

Datnia caudavittata Richardson, 1845: 24 (Harvey River, W.A.).
Therapon caudavittatus - Macleay 1878: 384 (Port Darwin).
 HL 97-10, HL 97-31, HL 97-50, HL 97-54, HL 97-55, RW 97-33.

Terapon jarbua (Forsskal, 1775)

Sciaena jarbua Forsskal, 1775: 12 (Djeddah, Red Sea).
Therapon jarbua - Klunzinger 1879: 349 (Port Darwin).
 HL 97-31.

Family Apogonidae

Apogon timorensis Bleeker, 1854

Apogon timorensis Bleeker, 1854: 207 (Kupang, Timor I., s. Malay Archipelago).
Apogon darnleyensis - Whitley 1951: 64 (WA, Qld and N.Territory).
 HL 97-50, HL 97-54, HL 97-55.

Apogon rueppelliae Gunther, 1859

Apogon ruppellii Gunther, 1859: 236 (Victoria, Port Essington, NT.).
 HL 97-50, HL 97-54, HL 97-55.

Siphamia roseigaster (Ogilby, 1886)

Apogon roseigaster Ogilby, 1886:viii (Parramatta R., N. S. W., Australia).
 RW 97-9.

Family Sillaginidae

Sillaginidae - HL 97-4 - postlarval; HL 97-21 (small juveniles).

Sillago sp.

HL 97-9, HL 97-10.

Sillago sp.1 - Davis and May 1989: 159 (East Alligator River mouth).

Sillago analis Whitley, 1943

Sillago analis Whitley, 1943: 184 (Shark's Bay, WA). - Whitley 1954: 27 (Melville Island).

HL 97-31, RW 97-31, RW 97-33.

Sillago sihama (Forsskal, 1775)

Atherina sihama Forsskal, 1775: 70 (Lohaja, Red Sea).

Sillago sihama - Paradise and Whitley 1927: 89 (Darwin).

HL 97-1, HL 97-9, HL 97-10, HL 97-31, HL 97-50.

Family Rachycentridae

Rachycentron canadus (Linnaeus, 1766)

Gasterosteus canadus Linnaeus, 1766: 491 (Carolina, USA).

Rachycentron canadus - Stevens, Davis and Church 1982: 42 (E of Melville Island).

Sight record by John Grice.

Family Carangidae

Alepes melanoptera Swainson, 1839

Alepes melanoptera Swainson, 1839: 248 (Vishakhapatnam). - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-19, HL 97-20, RW 97-2, RW 97-30.

Caranx ignobilis (Forsskal, 1775)

Scomber ignobilis Forsskal, 1775: 55 (Red Sea).

Caranx ignobilis - Klunzinger 1879: 377 (Port Darwin).

RW 97-33.

Parastromateus niger (Bloch, 1795)

Stromateus niger Bloch, 1795: 93 (no locality)

Parastromateus niger - Paxton et al. 1989: 581 (NT).

NTM S.11189-002, mouth of Wildman River.

Scomberoides commersonianus Lacepede, 1801

Scomberoides commersonianus Lacepede, 1801: 50 (Madagascar).

Scomberoides lysan - Gunther 1860: 471 (Port Essington).

HL 97-42, HL 97-51 (released), HL 97-53 (released).

Family Haemulidae

Plectorhynchus celebicus Bleeker, 1873

Plectorhynchus celebicus Bleeker, 1873: 285 (Makasar, Celebes).

HL 97-54. New record for the Northern Territory.

Plectorhinchus gibbosus (Lacepede, 1802)

Holocentrus gibbosus Lacepede, 1802: 344, 389 (Suriname).
Plectorhinchus nigrus - Taylor 1964: 204 (Nightcliff, Darwin).
 Sight record by John Grice.

Plectorhinchus multivittatum Macleay, 1879

Diagramma multivittatum Macleay, 1879: 349 (Port Darwin).
 HL 97-50.

Pomadasys kaakan (Cuvier, 1830)

Pristipoma kaakan Cuvier, 1830: 244 (India).
Pomadasys kaakan - Russell and Houston 1989: 82 (Arafura Sea).
 HL 97-53.

Family Lutjanidae

Lutjanus johni (Bloch, 1792)

Anthias johnii Bloch, 1792: 113 (Suratta).
Lutjanus johnii - Macleay 1878: 347 (Port Darwin).
 HL 97-35, RW 97-21.

Lutjanus russelli (Bleeker, 1849)

Mesoprion russelli Bleeker, 1849: 41 (Malay-Moluccan Archipelago).
Lutianus russelli - Paradise and Whitley 1927: 85 (Pellew Islands).
 HL 97-50, HL 97-54, HL 97-55.

Family Nemipteridae

Scaevius milii (Bory, 1823)

Cantharis milii Bory, 1823: 160 (Shark Bay).
Scolopsis longulus Richardson, 1842: 389 (Port Essington, Torres Strait).
 HL 97-50.

Family Leiognathidae

Leiognathus sp. - small juvenile, unable to identify to species, HL 97-7.
Leiognathus sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

Leiognathus equulus (Forsskal, 1775)

Scomber equula Forsskal, 1775: 58, xii (Luhaiya, Yemen, Red Sea).
Leiognathus equulus - Davis and May 1989: 159 (East Alligator River mouth).
 HL 97-9.

Secutor ruconius (Hamilton, 1822)

Chanda ruconius Hamilton, 1822: 106, 371 (Ganges River).
Leiognathus ruconius - Taylor 1964: 217 (Thompson Bay, Port Langdon).

HL 97-7.

Family Gerreidae

Gerres sp. - Midgley 1973: appendix D, 3 (Cannon Hill Lagoon).

Gerres macrosoma Bleeker, 1854

Gerres macrosoma Bleeker, 1854: 56 (Sindangole, Halmahera, Indonesia). - Collette 1983: 98 (East Vernon Is, Croker I.).

HL 97-50.

Family Lobotidae

Coius polota Hamilton, 1822

Coius polota Hamilton, 1822: 95, 370 (Ganges R. estuaries, India).

Datnoides quadrifasciatus - Davis and May 1989: 159 (East Alligator River mouth).

This is the only record of this genus from the Northern Territory.

Family Sparidae

Acanthopagrus berda (Forsskal, 1775)

Sparus berda Forsskal, 1775: 32 (Red Sea).

Acanthopagrus berda - Bishop *et al.* 1981 (Cahill's Crossing).

RW 97-32 (sight record only, released).

Family Sciaenidae

Sciaenid sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

Sciaenid sp. 2 - Davis and May 1989: 159 (East Alligator River mouth).

Austronibea oedogenys Trewavas, 1977

Austronibea oedogenys Trewavas, 1977: 374-5 (Repulse Bay, Qld; southern PNG; Gulf of Carpentaria). - Davis and May 1989: 159 (East Alligator River mouth).

Collichthys lucidus Richardson, 1844

Sciaena lucida Richardson, 1844: Pl. 44 (figs. 3-4) (China Seas).

Collichthys lucidus - Bishop *et al.* 1981: Table 4.16 (Magela mouth).

HL 97-14, HL 97-15, HL 97-16, HL 97-19, HL 97-20, HL 97-21, RW 97-1, RW 97-3, RW 97-4, RW 97-6, RW 97-7, RW 97-10, RW 97-11, RW 97-12, RW 97-14, RW 97-15, RW 97-16, RW 97-17, RW 97-22, RW 97-24, RW 97-26, RW 97-27, RW 97-28, RW 97-29, RW 97-30.

Johnius macropterus (Bleeker, 1835)

Umbrina macropterus Bleeker, 1853: 254 (Priaman, Sumatra, Indonesia).

Johnius (Johnius) macropterus - Davis and May 1989: 159 (East Alligator River mouth).

Johnius novaeguineae (Nichols, 1950)

Collichthys novaeguineae Nichols, 1950: 2 (Merauke R., S New Guinea).

Johnius (Johnieops) novaeguineae - Davis and May 1989: 159 (East Alligator River mouth).

Johnius weberi Hardenberg, 1936

Johnius weberi Hardenberg, 1936: 251 (Telok Pekadai, Kapaus R., Borneo).

Johnius (Johnieops) weberi - Davis and May 1989: 159 (East Alligator River mouth).

Nibea sp. - Bishop *et al.* 1981: Table 4.16 (Magela mouth).

Nibea microgenys Sasaki, 1992

Nibea microgenys Sasaki, 1992: 5-7 (Shoal Bay, King Creek, Buffalo Creek, Howard River).

HL 97-5, HL 97-14, HL 97-15, HL 97-16, HL 97-18, HL 97-19, HL 97-20, RW 97-1, RW 97-2, RW 97-3, RW 97-4, RW 97-6, RW 97-7, RW 97-8, RW 97-11, RW 97-13, RW 97-14, RW 97-16, RW 97-19.

Nibea soldado Lacepede, 1802

Holocentrus soldado Lacepede, 1802: 344, 389 ("Cayenne" [=Indo-Pacific]).

Johnius mulleri - Marshall 1964: 214 (Northern Territory).

HL 97-5, HL 97-7, HL 97-19, HL 97-35.

Nibea squamosa Sasaki, 1992

Nibea squamosa Sasaki, 1992: 1-5 (Shady Camp, Chambers Bay, Victoria River).

HL 97-47, HL 97-56.

Otolithes ruber (Schneider, 1801)

Johnius ruber Bloch and Schneider, 1801: 75 (Tranquebar, India).

Otolithes ruber - Davis and May 1989: 159 (East Alligator River mouth).

Protonibea diacanthus (Lacepede, 1802)

Lutjanus diacanthus Lacepede, 1802: 240 (no locality).

Sciaena diacanthus - Taylor 1964: 218 (Groote Eylandt).

HL 97-35 (not retained).

Family Scatophagidae

Scatophagus argus (Linnaeus, 1766)

Chaetodon argus Linnaeus, 1766: 464 (India).

Scatophagus argus var. *ocellatus* Klunzinger, 1871: 566-567 (Port Darwin).

Scatophagus sp. - Midgley 1973: appendix D, 3 (Cannon Hill Lagoon).
Sight record by Garry Lindner.

Selenotoca multifasciata (Richardson, 1846)

Scatophagus multifasciatus Richardson, 1846: 57 (King George's Sound, WA). -
Macleay 1878: 353 (Port Darwin).

Selenotoca multifasciata - Davis and May 1989: 159 (East Alligator River mouth).
HL 97-31, HL 97-50, RW 97-33.

Family Rhinoprenidae

Rhinoprenes pentanemus Munro, 1964

Rhinoprenes pentanemus Munro, 1964: 179 (Gulf of Papua). - Pender, Willing and
Ramm 1992: 68 (Joseph Bonaparte Gulf, Melville).

RW 97-1, RW 97-6, RW 97-10, RW 97-11, RW 97-12, RW 97-16, RW 97-17.

Family Chaetodontidae

Chelmon muelleri (Klunzinger, 1879)

Chelmo Mulleri Klunzinger, 1879: 361 (no locality given [Australia]).

Chelmo muelleri - Ahl 1923: 14 (Port Darwin).

HL 97-50.

Family Leptobramidae

Leptobrama muelleri Steindachner, 1878

Leptobrama muelleri Steindachner, 1878: 388 (Queensland). - Lyle and Timms 1984:
73 (NT, cruise C).

HL 97-18, HL 97-36, HL 97-42, HL 97-56 (released).

Family Toxotidae

Toxotes chatareus (Hamilton, 1822)

Coius chatareus Hamilton, 1822: 101, 370 (mouthes of the Ganges).

Toxotes chatareus - Bishop *et al.* 1981: Table 4.16 (Magela mouth, Cahill's Crossing).

HL 97-4, HL 97-36, HL 97-56 (released).

Family Pomacentridae

Abudefduf bengalensis (Bloch, 1787)

Chaetodon bengalensis Bloch, 1787: 110 (Bengal).

Glyphisodon palmeri - Paradise and Whitley 1927: 92 (Pellew Islands).

HL 97-50.

Dischistodus darwiniensis (Whitley, 1928)

Pomacentrus darwiniensis Whitley, 1928: 297 (Darwin).
HL 97-50, HL 97-54.

Family Mugilidae

Mugilidae

Small juveniles unidentified to genus from stations HL 97-1, HL 97-4, HL 97-17.

Mugilid sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

Liza sp.

Small juveniles, unidentifiable to species, from HL 97-2, HL 97-10, HL 97-31, HL 97-37.

Liza alata (Steindachner, 1892)

Mugil alatus Steindachner, 1892: 364 (Madagascar Rivers and Antananarivo Bay).

Liza diadema - Pollard 1974: 65 (Rock Hole Billabong).
HL 97-36.

Liza subviridis (Valenciennes, 1836)

Mugil subviridis Valenciennes, in Cuvier & Valenciennes, 1836: 115 (Malabar, India).

Liza dussumieri - Pollard 1974: 66 (Cahill's Crossing).
HL 97-42, HL 97-48.

Liza tade (Forsskal, 1775)

Mugil crenilabis var. *tade* Forsskal, 1775: 74 (Red Sea).

Liza tade - Larson 1987: 148 (Kakadu Stages 1 and 2).
HL 97-10, HL 97-31, HL 97-49, HL 97-53, RW 97-33.

Liza vaigiensis (Quoy and Gaimard, 1825)

Mugil vaigiensis Quoy and Gaimard, 1825: 337 (Waigiou). - Macleay 1878: 359 (Port Darwin).

HL 97-31, HL 97-56 (released), RW 97-31.

Rhinomugil nasutus (De Vis, 1883)

Mugil nasutus De Vis, 1883: 621 (Cardwell, Qld).

Squalomugil nasutus - Pollard 1974: 66 (Cahill's Crossing).

HL 97-10, HL 97-27, HL 97-30, HL 97-33, HL 97-37, HL 97-46 (sight record only), HL 97-48, RW 97-31.

Valamugil sp.

HL 97-2, HL 97-26, HL 97-33.

Valamugil buchanani (Bleeker, 1853)

Mugil buchanani Bleeker, 1853: 99 (Hooghly River).

Valamugil buchanani - Taylor 1964: 120 (Emerald R., Groote Eylandt).
HL 97-31, HL 97-49, HL 97-53.

Valamugil cunnesius Valenciennes, in Cuvier and Valenciennes, 1836

Mugil cunnesius Valenciennes, in Cuvier and Valenciennes, 1836: 114 (Moluccas; Malabar and Bombay, India).

Mugil longimanus - Paradise and Whitley 1927: 81 (Pellew Is.).
HL 97-10, HL 97-37, RW 97-31.

Family Polynemidae

Polynemidae

HL 97-4 - postlarval.

Eleutheronema tetradactylum (Shaw, 1804)

Polynemus tetradactylus Shaw, 1804: 155 (India).

Polynemus coecus Macleay, 1878: 354 (Port Darwin).

HL 97-2, HL 97-9, HL 97-14, HL 97-19, HL 97-30, HL 97-35, HL 97-37, HL 97-42, HL 97-56 (released), RW 97-31.

Polynemus sp. juveniles

HL 97-33.

Polynemus sheridani (Macleay, 1884)

Polynemus sheridani Macleay, 1884: 21 (Mary R., Queensland, Australia). - Bishop *et al.* 1981: Table 4.16 (Magela mouth).

HL 97-2, HL 97-11, HL 97-12 (skeletonised), HL 97-18, HL 97-19, HL 97-23 (one skeletonised), HL 97-29 (not kept), HL 97-37, HL 97-39, HL 97-43 (released), HL 97-46 (released), HL 97-47 (released), HL 97-56 (released).

Polynemus verekeri Saville-Kent, 1889

Polynemus verekeri Saville-Kent 1889: 222, 234 (Ord R., Cambridge Gulf, Northern Terr., Australia). - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-14, HL 97-19, HL 97-20, RW 97-6, RW 97-7, RW 97-10, RW 97-11, RW 97-12, RW 97-14, RW 97-15, RW 97-17, RW 97-22, RW 97-24, RW 97-27, RW 97-30.

Family Labridae

Choerodon cyanodus Richardson, 1843

Labrus cyanodus Richardson, 1843: 355 (Port Essington).

HL 97-50, HL 97-54.

Halichoeres dussumieri (Valenciennes, 1839)

Julis Dussumieri Valenciennes, in Cuvier and Valenciennes, 1839: 478 (coast of Malabar).

PlatyGLOSSUS dussumieri - McCulloch 1929: 312 (NT).

HL 97-50, HL 97-54, HL 97-55.

Family Opistognathidae

Opisthognathus darwinensis Macleay, 1878
Opisthognathus darwinensis Macleay, 1878: 355 (Port Darwin).
HL 97-50, HL 97-54.

Family Blenniidae

Omobranchus germaini (Sauvage, 1883)
Petroscirtes germaini Sauvage, 1883: 158 (New Caledonia).
HL 97-50, HL 97-55. New record for the Northern Territory.

Omobranchus rotundiceps rotundiceps (Macleay, 1881)
Petroscirtes rotundiceps Macleay, 1881: 9 (Port Jackson).
Omobranchus rotundiceps rotundiceps - Springer and Gomon 1975: 68 (N of Darwin,
E.Alligator R., Cape Arnhem, Groote Eylandt).
HL 97-50, HL 97-55.

Salarias spaldingi Macleay, 1878
Salarias spaldingi Macleay, 1878: 359 (Port Darwin).
HL 97-50, HL 97-55.

Family Notograptidae

Notograptus guttatus Gunther, 1867
Notograptus guttatus Gunther, 1867: 63-64 (Cape York). - Macleay 1878: 359 (Port
Darwin).
HL 97-10, HL 97-50, HL 97-54, HL 97-55.

Family Callionymidae

Callionymid sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

Family Gobiidae

Gobiidae - unidentified juvenile, HL 97-6.

Gobiidae

HL 97-14, HL 97-19, RW 97-6.
These specimens represent a previously unknown new genus.

Acentrogobius caninus (Valenciennes, 1837)
Gobius caninus Valenciennes, in Cuvier and Valenciennes, 1837: 86 (Java, Indonesia).
Acentrogobius caninus - Blaber *et al.* 1992: 9 (Groote Eylandt).
HL 97-10.

Acentrogobius viridipunctatus (Valenciennes, 1837)

Gobius viridipunctatus Valenciennes, in Cuvier and Valenciennes, 1837: 62 (Bombay, India).

HL 97-31.

Not previously recorded from the NT.

Amoya sp.

HL 97-3, HL 97-10, HL 97-21, HL 97-31, HL 97-34.

There are probably two species included in this material, and both may be undescribed.

Amoya gracilis Bleeker, 1875

Ctenogobius gracilis Bleeker, 1875: 127 (Singapore).

Oligolepis moloanus - Collette 1983: 99 (East Vernon Is.).

HL 97-31.

Apocryptodon n. sp.

?*Apocryptodon* sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-10.

This is a previously recognised new species; it is being described by the author and Doug Hoese of AMS. Davis and May's material remains to be examined.

Boleophthalmus birdsongi Murdy, 1989

Boleophthalmus birdsongi Murdy, 1989: 12-14 (Liverpool River, NT).

HL 97-40, HL 97-45 (sight record only), HL 97-48.

Boleophthalmus caeruleomaculatus McCulloch and Waite, 1918

Boleophthalmus caeruleomaculatus McCulloch and Waite, 1918: 79 (Adelaide River).

- Davis and May 1989: 159 (East Alligator River mouth).

HL 97-3, HL 97-34.

Brachyamblyopus sp. (juvenile)

HL 97-8, HL 97-34, RW 97-11.

Brachyamblyopus brachysoma (Bleeker, 1853)

Amblyopus brachysoma Bleeker, 1853: 510 (Priaman, Sumatra, Indonesia).

HL 97-7, RW 97-7, RW 97-28.

This species has not been formally recorded from the NT previously. This and the following species may be confused.

Brachyamblyopus rubristriatus (Saville-Kent, 1889)

Amblyopus rubristriatus Saville-Kent, 1889: 235 (Cambridge Gulf and Port Darwin, northern Australia).

Brachyamblyopus rubristriatus - Davis and May 1989: 159 (East Alligator River mouth).

Calamiana n. sp.

Gobiid sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-17. This is a previously recognised new species.

Drombus triangularis (Weber, 1911)

Gobius triangularis Weber, 1911: 150 (Ambon).

Drombus triangularis - Blaber *et al.* 1992: 9 (Groote Eylandt).

?*Drombus* sp.1 - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-10, HL 97-31, HL 97-50, HL 97-54, HL 97-55.

Glossogobius giuris (Hamilton, 1822)

Gobius giuris Hamilton, 1822: 51 (Gangetic Provinces, India).

Glossogobius giuris - Bishop *et al.* 1981: Table 4.16 (Cahill's Crossing, Rock Hole).

Glossogobius n. sp.

Glossogobius sp. 1 - Larson 1987: 148 (Kakadu Stages 1 and 2).

HL 97-48.

This is a previously known undescribed species.

Gnatholepis sp.

HL 97-50, HL 97-54, HL 97-55.

This species is known from north-western Australia, and is undescribed.

Gobiopsis macrostoma Steindachner, 1861

Gobiopsis macrostoma Steindachner, 1861: 291 (Bombay, India). - Davis and May 1989: 159 (East Alligator River mouth).

RW 97-2, RW 97-29.

Gobiopterus sp.

This is a previously known, possibly undescribed species, resembling *G. chuno* Hamilton.

HL 97-3, HL 97-4, HL 97-5, HL 97-6, HL 97-7, HL 97-21, HL 97-31, HL 97-33, RW 97-12, RW 97-24.

Istigobius diadema (Steindachner, 1877)

Gobius diadema Steindachner, 1877: 232 (Hong Kong).

HL 97-50. This species has not been formally recorded from the NT previously.

Istigobius nigroocellatus (Gunther, 1874)

Gobius nigroocellatus Gunther, 1874: 101 (Bowen, Qld).

Innoculus nigroocellatus - Whitley 1952: 26 (Melville Bay and Cape Arnhem).

HL 97-54, HL 97-55.

Mugilogobius mertoni (Weber, 1911)

Gobius mertoni Weber, 1911: 37, figs 5-6 (Panua Bori River near Sungei Manumbai, Aru Island, Indonesia) (in part).

Mugilogobius sp. 14 - Blaber *et al.* 1992: 9 (Groote Eylandt).

HL 97-31 (possibly); HL 97-32.

Oxuderces wirzi (Koumans, 1938)

Apocryptodon wirzi Koumans, 1938: 26 (Papua New Guinea).

Oxuderres [sic] *dentatus* - Bishop *et al.* 1981: Table 4.16 (tidal creek, Magela mouth).
HL 97-1, HL 97-3, HL 97-34.

Palutrus sp.

HL 97-50, HL 97-55.

The *Palutrus* species from northern Australia appears to be undescribed (D.F. Hoese, pers. comm.).

Periophthalmus novaeguineensis Eggert, 1935

Periophthalmus cantonensis novaeguineensis Eggert, 1935: 61 (Merauke, Irian Jaya).

?*Periophthalmus* sp. - Bishop *et al.* 1981: Table 4.16 (Magela mouth, Cahill's Crossing).

Periophthalmus novaeguineensis - Murdy 1989: 42 (Northern Territory).

HL 97-1, HL 97-3, HL 97-17, HL 97-31, HL 97-37, HL 97-45, HL 97-48.

Pseudogobius sp. 2

HL 97-3, HL 97-31, HL 97-32, HL 97-37, HL 97-45.

This species might be *Pseudogobius poicilosoma* Bleeker; further work is in progress.

Pseudogobius sp. 3

HL 97-10, HL 97-31.

This is a previously recognised undescribed species.

?*Redigobius* sp.

HL 97-31. One small specimen, possibly of this genus.

Scartelaos histophorus Valenciennes, 1837

Boleophthalmus histophorus Valenciennes, in Cuvier and Valenciennes, 1837: 210 (Bombay, India; Suarte, Ganges R.).

Scartelaos histophorus - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-3, HL 97-30, HL 97-34, HL 97-38.

Also a juvenile, possibly of this species, from HL 97-1.

Silhouettea evanida Larson and Miller, 1986

Silhouettea evanida Larson and Miller, 1986: 110-118 (Mindil Beach, Darwin).

HL 97-1, HL 97-3, HL 97-30, HL 97-31, HL 97-34.

Taenioides sp.

Unidentifiable to species, HL 97-5.

Taenioides jacksoni Smith, 1943

Taenioides jacksoni Smith, 1943: 70, fig. 2 (St Lucia, Zululand, South Africa). - Davis and May 1989: 159 (East Alligator River mouth).

Yongeichthys nebulosus (Forsskal, 1775)

Gobius nebulosus Forsskal, 1775: 24 (Red Sea).

Rhinogobius nebulosus - McCulloch 1929: 375 (NT).

HL 97-10, HL 97-50, HL 97-54, HL 97-55.

Family Eleotrididae

Bostrychus sinensis Lacepede, 1801

Bostrychus sinensis Lacepede, 1801: 140, 141 (China).

HL 97-31.

This is the first formal record of this species from the NT.

Butis butis (Hamilton, 1822)

Cheilodipterus butis Hamilton, 1822: 57, 367 (Ganges River, below Calcutta, India).

Butis sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

HL 97-31.

Butis koilomatodon (Bleeker, 1849)

Eleotris koilomatodon Bleeker, 1849: 21 (Madura, Indonesia).

Prionobutis microps - Rendahl 1922 (Daly River, NT).

Small specimen, possibly of this species, from HL 97-5.

Prionobutis microps (Weber, 1908)

Pogoneleotris microps Weber, 1908: 258 (Tawarin R. and Merauke R., New Guinea).

Prionobutis microps - Bishop *et al.* 1981: Table 4.16 (Cahill's Crossing).

HL 97-10, HL 97-14, HL 97-15, HL 97-20, HL 97-31, HL 97-33, HL 97-34,
HL 97-48, RW 97-1, RW 97-9, RW 97-13, RW 97-24.

Family Kurtidae

Kurtus gulliveri Castelnau, 1878

Kurtus gulliveri Castelnau, 1878: 233 (Norman River, Gulf of Carpentaria). - Bishop *et al.* 1981: Table 4.16 (Magela mouth).

HL 97-13, HL 97-14, HL 97-43, HL 97-46, HL 97-47, HL 97-56, RW 97-1,
RW 97-2, RW 97-12, RW 97-22, RW 97-24, RW 97-25, RW 97-27, RW 97-28, RW
97-30, RW 97-40, RW 97-41.

Family Scombridae

Scomberomorus semifasciatus (Macleay, 1884)

Cybium semifasciatum Macleay, 1884: 205-206 (Burdekin R., Qld).

Scomberomorus semifasciatus - Munro 1943: 82, 91 (Port Darwin).

HL 97-53.

Family Trichiuridae

Lepturacanthus savala (Cuvier, 1829)

Trichiurus savala Cuvier, 1829: 219 (Pondicherry, India). - Davis and May 1989: 159 (East Alligator River mouth).

Family Bothidae

Bothidae
HL 97-34.

Family Soleidae

Soleidae
HL 97-34 (tiny juvenile).

Aseraggodes klunzingeri Weber, 1908

Pardachirus klunzingeri Weber, 1908: 250 (Merauke River, PNG).

Aseraggodes klunzingeri - Pollard 1974: 66-67 (Rock Hole Billabong, Cahill's Crossing).
RW 97-3.

Brachirus selheimi (Macleay, 1882)

Synaptura selheimi Macleay, 1882: 71 (Palmer River, Qld).

Brachirus selheimi - Larson and Martin 1990: 76 (East and South Alligator Rivers).
Specimens, possibly of this species, from HL 97-31, RW 97-25.

Pardachirus poropterus (Bleeker, 1851)

Achirus poropterus Bleeker, 1851: 410 (Batavia and Padang). - Klunzinger 1879: 408 (Port Darwin).
HL 97-2, HL 97-26.

Rendahlia jaubertensis (Rendahl, 1921)

Achirus jaubertensis Rendahl, 1921: 16 (Cape Jaubert, NW Aust).

Pardachirus jaubertensis - Davis and May 1989: 159 (East Alligator River mouth).
HL 97-5, HL 97-6, HL 97-9, HL 97-20.

Family Cynoglossidae

Cynoglossus sp.
HL 97-37, RW 97-2, RW 97-6, RW 97-25.

Cynoglossus bilineatus (Lacepede, 1802)

Achirus bilineatus Lacepede, 1802: 6 (China; East Indies).

Cynoglossus sindensis - Ogilby 1910: 37 (Crocker Island).
HL 97-2.

Cynoglossus heterolepis Weber, 1910

Cynoglossus heterolepis Weber, 1910: 237 (Lorentz River, PNG). - Taylor 1964: 294 (East Alligator River).

?*Cynoglossus kopsi* (Bleeker, 1851)

Plagusia kopsi Bleeker, 1851: 494 (Rio, Bintang Island, SE of Singapore).

Cynoglossus kopsi - Russell and Houston 1989: 84 (Arafura Sea).
RW 97-7, possibly of this species.

Cynoglossus maculipinnis Rendahl, 1921

Cynoglossus maculipinnis Rendahl, 1921: 17 (northwest Australia). - Davis and May 1989: 159 (East Alligator River mouth).

Paraplagusia bilineata (Bloch, 1787)

Pleuronectes bilineatus Bloch, 1787: 29, Pl. 188 (China).

Paraplagusia bilineata - Davis and May 1989: 159 (East Alligator River mouth).

Paraplagusia guttata - Davis and May 1989: 159 (East Alligator River mouth).

Paraplagusia blochi (Bleeker, 1851)

Plagusia blochii Bleeker 1851:411 (Batavia, Cheribon, Tegal, Tjilatjap, Samarang, Rembang, Surabaya, Pasurman, in seas).

HL 97-5, HL 97-21, HL 97-26, HL 97-28, HL 97-37.

This species has not formally been recorded from the NT before.

Paraplagusia longirostris Chapleau, Renaud and Kailola, 1991

Paraplagusia longirostris Chapleau, Renaud and Kailola, 1991: 240-243 (N of Melville Island).

HL 97-19, HL 97-20, RW 97-6, RW 97-15, RW 97-16.

Family Triacanthidae

Trixiphichthys weberi (Chaudhuri, 1910)

Triacanthus weberi Chaudhuri, 1910: 497 (Arakan coast of Burma; Gopalur on Orissa coast; mouth of Hooghly R.).

Trixiphichthys weberi - Russell and Houston 1989: 84 (Arafura Sea).
RW 97-31, RW 97-33.

Family Monacanthidae

Paramonacanthus choirocephalus (Bleeker, 1852)

Monacanthus choirocephalus Bleeker, 1852: 19 (Batavia, Java, Indonesia).

?*Paramonacanthus japonicus* - Russell & Houston 1989: 84 (Arafura Sea).
HL 97-50.

Family Tetraodontidae

Tetraodontid sp. 1 - Davis and May 1989: 159 (East Alligator River mouth).

We have not yet examined Davis and May's material, so this species' identity remains uncertain.

Marilyna darwinii (Castelnau, 1873)

Tetraodon darwinii Castelnau, 1873: 94 (Port Darwin).

HL 97-4, HL 97-10, HL 97-31.

Marilyna meraukensis (De Beaufort, 1955)

Sphoeroides meraukensis De Beaufort, 1955: 53-54 (Merauke R., PNG).

Marilyna meraukensis - Hardy 1982: 12 (Mickett Ck., Shoal Bay).

HL 97-2, HL 97-4, HL 97-10, HL 97-18, HL 97-20, HL 97-21, HL 97-28, HL 97-29, HL 97-33, RW 97-12, RW 97-21, RW 97-31.

Family Diodontidae

Cylichthys hardenbergi (De Beaufort, 1939)

Chilomycterus hardenbergi De Beaufort, 1939: 33 (Merauke, New Guinea).

Cylichthys hardenbergi Gloerfeldt-Tarp and Kailola 1984: 364 (11° 04'S 130° 37'E [Arafura Sea]).

HL 97-5.

Diodon liturosus Shaw, 1804

Diodon liturosus Shaw, 1804: 436 (Indian Seas).

Diodon maculatus - Macleay 1878: 366 (Port Darwin).

HL 97-31.

APPENDIX 2 - LIST OF MARINE MOLLUSCA, COLLECTED DURING THE KAKADU NATIONAL PARK MARINE AND ESTUARINE FISH INVENTORY

RICHARD WILLAN

*Museum and Art Gallery of the Northern Territory
PO Box 4646, Darwin, NT 0801, Australia*

GASTROPODA

Fissurellidae	<i>Diodora jukesii</i>
Neritidae	<i>Nerita balteata</i> <i>Neritina violacea</i>
Littorinidae	<i>Littoraria articulata</i>
Potamididae	<i>Cerithidea cingulata</i> <i>Terebralia sulcata</i>
Turritellidae	<i>Turritella terebra</i>
Naticidae	<i>Polinices didyma</i>
Nassariidae	<i>Nassarius olivaceus</i>
Columbellidae	<i>Mitrella essingtonensis</i>
Olividae	<i>Oliva caldania</i>
Amphibolidae	<i>Salinator fragilis</i>

BIVALVIA

Arcidae	<i>Arca avellana</i> <i>Anadara granosa</i> <i>Barbatia amygdalumtostum</i> <i>Barbatia helblingi</i>
Ostreidae	<i>Saccostrea echinata</i>
Placunidae	<i>Placuna placenta</i>
Mactridae	<i>Mactra alta</i>

Donacidae *Donax faba*
Veneridae *Placamen calophyllum*
Corbulidae *Corbula macgillivrayi*

SCAPHOPODA

Dentaliidae *Antalis cf longitorsa*

CEPHALOPODA

Loliginidae *Loliolus noctiluca*