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A summary of data collected by the Angler's Daily Log Book and Fishing Tournament Monitoring Programs in 2004-2006

K. A. Smith, M. Hammond and J. Brown







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Department of Fisheries – Research Division Western Australian Fisheries and Marine Research Laboratories 39 Northside Drive, Hillarys Boat Harbour, WA 6025 (PO Box 20, North Beach (Perth) WA 6920) Telephone (08) 9203 0111 Facsimile (08) 9203 0199 www.fish.wa.gov.au



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PART 1 – ANGLER'S DAILY LOG BOOK

INTRODUCTION

Catch information and biological samples collected by recreational anglers in daily log books can provide valuable information about local fish stocks. The numbers and lengths of important recreational target species can be used to monitor their abundance and population structure, which can form the basis of fishery stock assessments. In addition, the total composition of the catch and observations about fish health provide measures of local biodiversity and ecosystem health.

The Department of Fisheries (DoF) Recreational Angler's Daily Log Book Program was launched in March 2004 as part of the DoF Research Angler Program (RAP). The current log book format was based on an earlier version issued by the Department of Fisheries. All anglers still participating in the old version of the log book program were contacted and supplied with new versions during 2004/05.

The current log book is available in 2 formats – "Ocean Edition" and "Estuary Edition". The Ocean Edition is designed for all types of ocean beach and offshore fishing, while the Estuary Edition is designed for all types of estuary and freshwater fishing. Both editions accommodate data on finfish and invertebrate catches. Current log book formats are illustrated in Appendices 1 and 2.

This report summarises the data reported by logbook anglers in 2004 and 2005.

LOG BOOK ANGLER PARTICIPATION RATES

The Estuary Edition of the log book was launched in early 2004 as a 'pilot study' mainly involving estuarine anglers in the metropolitan area. Between March 2004 and June 2005, the number of estuary log books issued to anglers gradually increased from zero to 70 (Fig. 1). During June 2005, the Ocean Edition of the log book was launched. At the same time, a media statement, brochures and other material were released to promote the log book program in general. As a result, angler recruitment to the program increased significantly after this time. Between June 2005 and December 2005, the number of estuary log books issued to anglers increased from 70 to 193 and the number of ocean log books increased from 0 to 231.

FISHING EFFORT

Prior to June 2005, the total number of fishing days reported by log book anglers was approximately 40 days per month (all regions combined). From July to December 2005, the total number of reported fishing days was approximately 150 days per month.

In 2004 and 2005, the majority of fishing effort (in hours) by estuary/river anglers was reported in the West Coast (82%) and South Coast (15%) regions (Table 1). Popular fishing locations included the Swan-Canning, Peel-Harvey estuaries and the Warren and Capel Rivers (Fig. 2). There was no fishing effort by estuary/river anglers in the Gascoyne and only 3% of the reported estuary/river effort was in the North Coast. Fishing effort in each region was proportional to the number of log books issued in each region, with 85% of estuary log books issued to anglers residing in the West Coast, 11% to anglers residing in the South Coast, 1% to anglers residing in the Gascoyne and 3% to anglers residing in the North Coast region. In 2004 and 2005, the majority of fishing effort (in hours) by ocean anglers was reported in the West Coast (67%) (Table 1). Relatively low levels of effort were reported from the South Coast (14%), Gascoyne (14%) and North Coast (5%) regions. Fishing effort by ocean anglers in each region was also proportional to the number of log books issued in each region, with 80% of ocean log books issued to anglers residing in the West Coast, 15% to anglers residing in the South Coast, 2% to anglers residing in the Gascoyne and 3% to anglers residing in the North Coast. Ocean fishing mainly occurred on ocean beaches or in offshore waters near Perth and Mandurah (Fig. 3, 4 and 5).

CATCH COMPOSITION BY SPECIES

Species listed in this report are as identified by log book anglers. Obvious errors are corrected before being entered into the log book database but, otherwise, no attempt has been made by the authors to verify these identifications.

North Coast

In 2004 and 2005, 9 finfish and 2 invertebrate taxa were recorded from estuaries/rivers in the North Coast region (Table 2). The total estuary/river catch contained 185 individual finfish. Seventy five percent of the total catch comprised sea mullet (*Mugil cephalus*). In ocean waters, 20 finfish, 1 invertebrate and 2 elasmobranch (sharks/rays) taxa were reported (Table 3). The total ocean catch contained 67 individual finfish, including estuary cod (*Epinephelus coioides*) (13%) and fingermark bream (*Lutjanus johnii*) (10%).

Gascoyne

In 2004 and 2005, no logbook catches were reported from estuaries/rivers in the Gascoyne region. In ocean waters, 32 finfish, 2 invertebrate and 2 elasmobranch taxa were reported (Table 4). The total ocean catch contained 356 individual finfish, including pink snapper (*Pagrus auratus*) (34%) and yellow-finned whiting (*Sillago schombergkii*) (23%).

West Coast

In 2004 and 2005, a total of 43 finfish, 2 invertebrate and 1 elasmobranch taxa were reported from estuaries/rivers in the West Coast region (Table 5). The total estuary/river catch contained 5808 individual finfish, including black bream (*Acanthopagrus butcheri*) (31%) and blowfish (*Torquigener pleurogramma*) (24%). In ocean waters, 78 finfish, 2 invertebrate and 5 elasmobranch taxa were reported (Table 6). The total ocean catch contained 2747 individual finfish, including Australian herring (*Arripis georgianus*) (36%) and various whiting (*Sillago* spp.) (13%).

South Coast

In 2004 and 2005, a total of 13 finfish taxa were reported from estuaries/rivers in the South Coast region (Table 7). No invertebrates or elasmobranchs were reported. The total estuary/ river catch contained 803 individual finfish, including black bream (66%) and King George whiting (*Sillaginodes punctata*) (14%). In ocean waters, 28 finfish, 2 invertebrate and 2 elasmobranch taxa were reported (Table 8). The total ocean catch contained 510 individual finfish, including Australian herring (28%), King George whiting (20%) and silver trevally (*Pseudocaranx dentex*) (14%).

PROPORTION OF RETAINED AND RELEASED FISH IN CATCH

In 2004 and 2005, log book anglers reported the retained/released status of the majority of catches. Only 2% of estuary/river catches and 6% ocean catches were of unknown status.

In all regions, estuary/river anglers tended to release a higher proportion of their catch than ocean anglers (Fig. 6). More than 50% of the total estuary/river catch was released in each region. Less than 50% of the ocean catch was released in the West Coast and South Coast regions (where the majority of the ocean catch was taken in 2004/05).

LENGTHS OF KEY SPECIES

Lengths described in this section are those of all fish measured by log book anglers, including retained and released fish. In 2004 and 2005, logbook anglers provided a size measurement for 51% of the total reported catch.

Australian herring. The majority of fish were between 180 and 280 mm TL (Fig. 7). Fish caught in estuaries on the West Coast exhibited a slightly wider size range than ocean-caught fish. The length distributions of ocean-caught fish from the West Coast and South Coast were similar, with modal sizes of 230 and 220 mm, respectively. The modal size of estuary-caught fish (~ 250 mm) was greater than ocean-caught fish.

The majority of fish were above the length-at-maturity (~196 mm for males, ~215 mm for females). The maximum lengths reported by log book anglers were well below the maximum size (~410 mm) recorded for this species. There is currently no legal minimum length for this species.

Tailor. The majority of fish were between 200 and 400 mm TL (Fig. 7). On the West Coast, ocean-caught fish were slightly larger than estuary-caught fish. The modal size of ocean-caught fish was \sim 300 mm, which coincides with the length-at-maturity and the legal minimum length for this species. Overall, approximately half of all fish hooked by log book anglers were below the legal minimum length and were probably immature.

The maximum lengths reported by log book anglers were well below the maximum size (\sim 1200 mm) recorded for this species.

Pink snapper. Only a small number of fish were reported by log book anglers, mainly from ocean waters in the Gascoyne region (Fig. 7). Fish were between 350 and 700 mm TL. Almost all of these fish were above the length-at-maturity (~380 mm in Gascoyne ocean waters) and the legal minimum length (410 mm) for this species in this region. The maximum lengths reported by log book anglers were well below the maximum size (~1300 mm) recorded for this species.

Common blowfish. Despite not being targeted, a large number of this species were hooked by log book anglers in ocean and estuary waters of the West Coast region. Fish were mostly between 60 and 200 TL mm, although the average size was larger in estuarine waters (Fig. 8). The length distribution of the total catch, including fish at the maximum length (~230 mm) for this species, suggested that anglers in estuarine and ocean waters hooked all size/age classes of this species. Approximately 50% of the total catch were below the length-at-maturity (~125 mm).

Sea garfish. Fish caught in ocean waters of the West Coast and South Coast regions were mostly between 300 and 450 TL mm (Fig. 8). Almost all fish were above the length-at-maturity (~250 mm) for this species. There is currently no legal minimum length for this species.

Tarwhine. Most fish were caught in estuarine and ocean waters of the West Coast region. Estuary-caught fish were mostly between 100 and 260 mm TL (Fig. 8). The average size of ocean-caught fish was slightly larger, typically ranging between 180 and 320 mm. Most fish caught were above the length-at-maturity (~175 mm). However, >50% of ocean-caught fish and almost all estuary-caught fish were below the legal minimum length (~250 mm).

The maximum lengths reported by log book anglers were well below the maximum size (~800 mm) recorded for this species.

Trumpeter. At least 2 species of trumpeter (Family: Teraponidae) were reported by log book anglers, primarily from estuarine waters in the West Coast region. Six-lined trumpeter ranged between 100 and 240 mm TL, while yellowtail trumpeter were mostly between 120 and 260 mm (Fig. 9). A significant proportion of yellowtail trumpeter hooked by log book anglers were below the length-at-maturity (~150 mm). Size at maturity for six-lined trumpeter is unknown. There is currently no legal minimum length for these species.

King George whiting. Fish were reported from ocean and estuarine waters of the West Coast and South Coast. The lengths of fish hooked by log book anglers tended to be smaller on the West Coast (ranging from 160 to 320 mm TL) than on the South Coast (200 to 400 mm). Most fish hooked by log book anglers from ocean and estuarine waters of the South Coast were above the legal minimum length (280 mm). A higher proportion of undersized fish were hooked by log book anglers from the West Coast, especially in estuarine waters where >50% of fish hooked were undersized (Fig. 10).

Virtually all fish hooked by log book anglers in all areas were below the length-at-maturity (~410 mm) (Fig. 10). The exception was a small number of large fish taken in ocean waters of the West Coast.

Yellow-finned whiting. Fish were mainly reported from estuarine and ocean waters of the West Coast region. The majority of estuary-caught fish were between 180 and 330 mm TL, while ocean-caught fish were 150 to 260 mm (Fig. 10). A small proportion of landings were below the length-at-maturity (~200 mm). There is currently no legal minimum length for this species.

Silver Trevally. Fish were reported from estuarine and ocean waters of the West Coast and South Coast regions. The length of fished hooked by log book anglers ranged from 100 to 400 mm, with most fish between 200 and 300 mm. Almost half of fish hooked by log book anglers were below the legal minimum length for silver trevally (250 mm). All fish were well below the maximum reported size (~940 mm) for this species.

Some sand trevally (*Pseudocaranx wrightii*) may have been misidentified and reported as silver trevally by anglers. These two species are very similar in appearance and it would be difficult to verify the individual catches of these species. However, it is likely that the majority of fish were silver trevally. Firstly, the maximum size of sand trevally is only ~220 mm, suggesting that the larger fish were indeed silver trevally. Also, other evidence (anecdotal reports and fishery-independent surveys) have found silver trevally to be the more common species in coastal waters in recent years.

Black bream. Data reported in log books suggests that the size structure of black bream stocks vary considerably between estuaries. The average size of fish hooked by anglers was smaller in West Coast estuaries than in South Coast estuaries (Fig. 12). Most fish in South Coast estuaries were between 200 and 400 mm TL, whereas fish in West Coast estuaries were mostly between 150 mm and 350 mm. Exceptions were the Murchison River stock, where fish were mostly between 200 and 400 mm and the Blackwood River/Hardy Inlet stock, where fish were mostly 100 mm to 200 mm. Interestingly the data suggests differences in size structure over relatively small spatial scales. In particular, the average length of fish hooked in the Canning River was smaller than in the Swan River, despite these two rivers being part of the same estuarine system.

Overall, the majority of fish hooked by log book anglers were above the length-at-maturity (~220 mm), except in the Blackwood River/Hardy Inlet where nearly all hooked fish were immature. In West Coast estuaries (except the Murchison River), approximately half of fish were below the legal minimum length (250 mm) whereas in South Coast estuaries most fish were above the legal length.

CATCH RATES OF SELECTED SPECIES

The limited quantity of log book data available to December 2005 precludes the calculation of meaningful catch rates for most species in this report. The catch rates of three relatively abundant species (black bream, Australian herring, common blowfish) at selected locations are illustrated in Figure 13. These preliminary data suggest that, in future, log book data will be useful to identify temporal and spatial differences in recreational angler catch rates of numerous species. For example, data suggest a seasonal trend in the catch rate of Australian herring in West Coast estuaries with catch rate peaking in winter/spring.

FISH HEALTH

Log book anglers recorded the occurrence of seasonal outbreaks of 'red-spot' disease in the Swan-Canning Estuary in 2004 and 2005 (Fig. 14). The disease was mainly recorded in black bream. Catch rates of infected fish peaked in spring.

PART 2 – FISHING TOURNAMENT MONITORING

INTRODUCTION

Catch information and biological samples collected by recreational anglers during fishing tournaments can provide an excellent 'snapshot' survey of local fish stocks. The numbers and lengths of important recreational target species caught during tournaments can be used to monitor their abundance and population structure, which can form the basis of fishery stock assessments. In addition, the total composition of the catch during each tournament provides a measure of local biodiversity and ecosystem health.

The Recreational Fishing Tournament Monitoring program commenced in summer 2004/05, as part of the DoF Research Angler Program (RAP). The main objective of the program is to encourage and assist fishing tournament organisers and competitors to collect research data, and thus contribute to the sustainable management of their local fish stocks.

Research data was collected by RAP from 4 tournaments in 2004/05 and from 8 in 2005/06 (Fig. 14). This is a relatively small number of events compared to the total number of fishing tournaments that occur annually in Western Australia. However, 2004/05 was the first year of this monitoring program and it is anticipated that the number of annual events will increase in future years.

Prior to each event, tournament organisers were contacted by RAP and asked whether researchers would be permitted to collect 'catch card' data and/or biological samples at the event. RAP worked in collaboration with DoF research staff, university students, Volunteer Fisheries Liaison Officers (VFLO's) and other volunteers to attend events and collect information.

This report summarises the data reported by anglers on RAP catch cards during fishing tournaments in 2004/05 and 2005/06. It also summarises catch card data collected by the Melville Amateur Angling Club Inc. (MAAC) between 2000 and 2006 at their 'Swanfish' tournament. Since 2000, the club has issued their own catch cards (in consultation with the Department of Fisheries) to individual competitors as part of the tournament registration package.

Finally, this report provides a brief summary of the biological samples collected during tournaments in 2004/05 and 2005/06. These samples contribute to numerous DoF and university research projects and it is beyond the scope of this report to fully describe the outcomes of these projects. Further information can be obtained from the researchers responsible for each project.

ISSUING OF CATCH CARDS

At each event, a catch card was issued per competitor (shore-based tournaments) or per boat (boat-based tournaments). On each occasion, the format of the catch cards was modified to suit the individual event.

The RAP catch cards asked competitors to record their name, fishing location, the total number of each species caught and the size (length or weight) of the first 4 or 5 individuals of each species. Unlike RAP cards, Swanfish cards issued between 2000 and 2006 did not ask anglers to report the length of any fish. All catch cards recorded information on all fish caught

- regardless of whether kept or released.

Examples of catch cards are illustrated in Appendices 3 to 6.

To encourage tournament competitors to complete and return catch cards, all returned cards went into a random draw for a prize valued between \$50 and \$300. Prizes for returned catch cards were either donated by local sponsors (e.g. tackle shops) or funded by RAP. Prizes were usually in the form of a tackle shop gift voucher.

The number of RAP catch cards issued per event varied from approximately 50 to 3400, depending on the size of the event (Table 9). The proportion of cards returned by competitors was relatively low at all events, but tended to be higher at shore-based tournaments (Fig. 15). The higher proportion of returned catch cards at shore-based events may partly reflect the comparative ease with which shore-based fishers can complete a catch card compared to those operating at sea. However, the return rates probably also reflected the varying degree to which tournament organisers were able to promote the catch card program at each event.

Experience gained at tournaments in 2005 and 2006, along with further consultation with tournament organisers, will be used to develop new strategies to increase the proportion of catch cards returned at future events. Options such as allowing anglers to mail catch cards to RAP after a tournament and alternative methods of promotion at each event will be investigated.

CATCH COMPOSITION AND CATCH RATES

Species in this report are reported as identified by anglers. Obvious errors are corrected before being entered into the fishing tournament database but, otherwise, no attempt has been made by the authors to verify these identifications.

North Coast

No data were obtained from North Coast tournaments in 2005 or 2006.

Gascoyne

In the Gascoyne region, catch cards were issued at one tournament (the Shark Bay Fishing Fiesta) in 2005. No data were obtained in 2006.

At the 2005 Shark Bay Fishing Fiesta, a total of 309 finfish and 2 squid from a total of 35 taxa were reported on catch cards. This represented an average of 31 fish hooked per vessel during this 6 day, boat-based event. The most commonly reported species at this tournament were blue-lined emperor (*Lethrinus laticaudis*) (28 % of the total reported catch), pink snapper (*Pagrus auratus*) (17 %), western butterfish (*Pentapodus vitta*) (12 %) and tuskfish (*Choerodon* spp.) (9%) (Table 10).

West Coast

Swanfish

Catch cards were issued to all competitors at Swanfish from 2000 to 2006. This shore-based event is held each February in the Swan-Canning Estuary. The total number of finfish reported at Swanfish ranged between 1,199 in the 2000 tournament and 10,180 in the 2005 tournament, including between 17 and 24 taxa per year (Table 11). Toadfish (*Torquigener pleurogramma*)

represented 37, 61 and 54% of these annual catches in 2004, 2005 and 2006, respectively. Prior to 2004, most competitors did not report toadfish (and not all competitors reported toadfish in later years) and so catch cards provided incomplete data on this species. Excluding toadfish, the total annual reported catch at Swanfish was between 1,174 and 4,002 fish. This represented an average of between 2.7 and 3.6 finfish hooked per catch card during this 2 day event.

From 2004 onwards, competitors were asked to report the number of fishers associated with each card. Up to 10 fishers were reported per card but >90% of cards listed 1-4 fishers and approximately 50% cards listed only 1 fisher (Fig. 16). For most cards, the average catch rate (total number of fish per card) was similar regardless of the number of fishers listed on the card.

The following 12 species comprised 97-98% of the total finfish catch (excluding toadfish) at Swanfish each year: black bream (*Acanthopagrus butcheri*), yellowtail trumpeter (*Amniataba caudavittata*), bar-tailed flathead (*Platycephalus endrachtensis*), tarwhine (*Rhabdosargus sarba*), whiting (*Sillaginidae*) (various), tailor (*Pomatomus saltatrix*), six-lined trumpeter (*Pelates sexlineatus*), small-toothed flounder (*Pseudorhombus jenynsii*), Australian herring (*Arripis georgianus*), cobbler (*Cnidoglanis macrocephalus*), pink snapper and silver trevally (*Pseudocaranx dentex*) (Table 11). The annual catch rates of these species were estimated by two methods: i) the total reported number of individuals of each species expressed as a percentage of the total reported catch of finfish, and ii) the average number of individuals of each species reported per catch card. Both methods yield similar trends in annual catch rates for all species.

The 7-year period spanned by Swanfish catch cards is relatively short and so, not surprisingly, few clear directional trends are evident among the catch rates of key species. A decline in the catch rate of pink snapper and an increase in the catch rate of tailor between 2000 and 2006 were the exceptions (Fig. 17).

Other tournaments

In 2005, RAP catch cards were issued at one tournament in the West Coast region - the Australian Anglers Association (AAA) State Rock and Beach Angling Championship. This is a shore-based tournament that is held at different times and locations each year. In 2005, the event was held in the 'Capes' region (i.e. from Busselton to Blackwood River) during May. A total of 659 finfish from a total of 20 taxa were reported on catch cards, representing an average of 14.3 fish hooked per fisher during this 2 day event. The most commonly reported species were Australian herring (58% of total reported catch), silver trevally (10%), western rock blackfish (*Girella tephraeops*) (7%), wrasse (Labridae) (5%) and whiting (Sillagindae) (4%) (Table 12).

In 2006, RAP catch cards were issued at 5 tournaments in the West Coast region - the Kalbarri Sports Fishing Classic (shore- and boat-based), the Bunbury Offshore Fishing Classic (boat-based), the Naturaliste Bluewater Classic (shore- and boat-based, held in Busselton), the AAA State Rock and Beach Angling Championship (shore-based, held in Jurien) and the AAA State Boat Angling Championship (boat-based, held in Jurien).

In Kalbarri, a total of 181 finfish from 26 taxa were reported on catch cards by boat-based fishers. A further 44 fish from 2 taxa were reported by shore-based fishers. These data represented average boat- and shore-based catch rates of 12.1 and 6.3 fish hooked per catch card, respectively, during this 3 day event. The species most commonly reported by boat-based

fishers were red-throat emperor (*Lethrinius miniatus*) (27% of the total reported offshore catch), pink snapper (25%), dhufish (*Glaucosoma hebraicum*) (9%), north-west snapper (Lethrinidae) (8%) and tuna (Scombridae) (Table 13). Shore based river fishers reported black bream (98% of reported shore-based catch) and yellowtail trumpeter (2%).

In Bunbury, a total of 202 finfish from a total of 31 taxa were reported on catch cards, representing an average of 6.5 fish hooked per fisher during this 1 day, boat-based event. The most commonly reported species were whiting (Sillaginidae) (16%), Australian herring (13%), silver trevally (12%), dhufish (10%), flathead (Platycephalidae) and southern fiddler ray (*Trygonorhina fasciata*) (7%) & Table 14).

At the Naturaliste Bluewater Classic (in the Busselton to Blackwood River region), a total of 74 finfish from 11 taxa were reported on catch cards by shore-based fishers, and further 61 fish from 18 taxa were reported by boat-based fishers (Table 15). Average catch rates were 14.8 fish hooked per shore-based fisher and 12.2 fish hooked per vessel during this 3 day event. The species most commonly reported by shore-based fishers were whiting (Sillaginidae) (59% of total shore-based catch), Australian herring (9%), silver trevally (7%) and flathead (Platycephalidae) (7%). The main species reported by boat-based anglers were tailor (15% of total boat-based catch), dhufish (15%), breaksea cod (*Epinephelus armatus*) (11%) and pink snapper (10%).

At the AAA State Rock and Beach Angling Championship in Jurien Bay, 387 finfish from 15 taxa were reported on catch cards, representing an average of 13.3 fish hooked per fisher during this 2 day event. The dominant species in the catch were Australian herring (56% of total shore-based catch), tailor (11%) and southern sea garfish (*Hemirhamphus melanochir*) (11%) (Table 16).

At the AAA State Boat Angling Championship in Jurien Bay, only one catch card was returned, which listed dhufish and pink snapper as the main species caught (Table 16).

South Coast

In the South Coast region, RAP catch cards were issued at 1 tournament (Esperance) in 2005 and 2 tournaments (Esperance and Bremer Bay) in 2006.

In 2005, a total of 309 finfish from 23 taxa were reported on catch cards at the Esperance Archipelago Offshore Angling Classic, representing an average of 19.3 fish hooked per vessel during this 1 day, boat-based event. The most commonly reported species were Australian herring (17% of total reported catch), bight redfish (*Centroberyx gerrardi*) (11%), swallowtail (*Centroberyx lineatus*) (10%), bonito (*Sarda orientalis*) (10%), breaksea cod (9%), queen snapper (*Nemadactylus valenciennesi*) (8%) and whiting (Sillaginidae) (8%)(Table 17).

In 2006, 142 finfish from 11 taxa were reported on catch cards in Esperance, representing an average of 20.3 fish hooked per vessel. The main species caught in 2006 were bight redfish (39% of total catch), breaksea cod (24%), queen snapper (13%) and swallowtail (10%) (Table 17). Australian herring, bonito and numerous other species were absent from the reported catch in 2006, probably reflecting a difference in fishing location between years. Poor weather forced most competitors to fish close to the shore in 2005.

In 2006, a total of 269 finfish from 26 taxa were reported on catch cards at the Bremer Bay Offshore Fishing Classic, representing an average of 33.6 fish hooked per vessel during this 2

day, boat-based event. The most commonly reported species were silver trevally (19% of total reported catch), bight redfish (19%), Australian herring (13%), breaksea cod (13%), queen snapper (7%) and pink snapper (6%) (Table 18).

LENGTHS OF KEY SPECIES

Lengths of fish described below were recorded on catch cards by competitors during fishing tournaments in 2005 and 2006. Lengths include both retained and released fish.

Australian herring. Fish measured by anglers at tournaments in 2005 and 2006 ranged in size from 150 to 320 mm TL (Fig. 19). The size ranges of fish caught on the South Coast and the West Coast were similar, although few fish were measured on the South Coast. The majority of fish caught in both regions were above the length-at-maturity (~196 mm for males, ~215 mm for females). All fish were well below the maximum size (~410 mm) recorded for this species. There is currently no recreational legal minimum length for Australian herring. The average length of fish reported on the West Coast was slightly smaller in 2006 than in 2005.

Pink snapper. Fish ranged in size from 230 to 900 mm TL (Fig. 19). The size range of pink snapper reported in the Gascoyne (230 to 900 mm) was greater than that reported on the West and South Coasts. The majority of all fish reported in all regions were above the length-at-maturity (~400 mm) and the legal minimum length (410 mm). The largest fish (900 mm), reported from the Gascoyne region, was well below the maximum size (~1300 mm) for this species.

Breaksea cod. Fish ranged in size from 150 to 500 mm TL (Fig. 20). The size range reported on the South Coast (150 to 500 mm) was greater than that reported on the West Coast (300 to 500 mm). The majority of all fish reported from both regions were above the length-at-maturity (~250mm for males and ~300 mm for females) and the legal minimum length (300 mm) for this species. The average length of fish caught on the South Coast was similar in 2005 and 2006.

Silver trevally. Fish ranged in size from 100 to 500 mm TL (Fig. 20). The average size of fish caught on the South Coast was slightly larger than on the West Coast, although the largest fish (500 mm) caught on the South Coast was well below the maximum size for this species (~940 mm). On the West Coast, approximately 50% of reported fish were below the length-atmaturity (~280 mm) in 2005 and 2006.

Some sand trevally (*Pseudocaranx wrightii*) may have been misidentified and reported as silver trevally by anglers. These two species are very similar in appearance and it would be difficult to verify the individual catches of these species. However, it is likely that the majority of fish were silver trevally. Firstly, the maximum size of sand trevally is only ~220 mm, suggesting that the larger fish were indeed silver trevally. Also, other evidence (anecdotal reports and fishery-independent surveys) have found silver trevally to be the more common species in coastal waters in recent years.

Bight redfish. Reported landings of this species mostly occurred on the South Coast. Fish ranged in size from 150 to 600 mm TL (Fig. 20). While the average lengths of fish were similar between Esperance and Bremer Bay, a far greater size range of redfish was reported by anglers in Esperance during 2005 and 2006 (150 to 600 mm) than by anglers in Bremer Bay during 2006 (270 to 430 mm). The majority of fish caught at both tournaments were above the length-

at-maturity (~225mm) and the legal minimum length (300 mm) for this species. Fish reported from Esperance were relatively large (up to 600 mm), approaching the maximum recorded size for this species (660 mm).

Dhufish. Reported landings of this species mostly occurred on the West Coast. Fish ranged in size from 200 to 770 mm TL (Fig. 20). The majority of fish caught at tournaments were above the length-at-maturity (~320mm) but a significant proportion were below the legal minimum length (500 mm). All reported fish were well below the maximum reported size (122 cm) for dhufish.

Queen snapper. Reported landings of this species mostly occurred on the South Coast. Fish ranged in size from 300 to 900 mm TL (Fig. 20). A similar size range was reported in 2005 and 2006. All fish were above the legal minimum length (300 mm). The largest fish (900 mm) was approaching the maximum reported size (100 cm) for this species.

BIOLOGICAL SAMPLE COLLECTION

In 2005 and 2006, biological samples were collected by RAP-affiliated researchers at numerous fishing tournaments. Researchers included DoF staff, Volunteer Fisheries Liaison Officers and Murdoch University students. Samples comprised either i) filleted fish frames that were donated by competitors after a tournament, or ii) otoliths and/or gonads extracted from fish that were 'loaned' to researchers by competitors during tournaments. Samples were generally collected by researchers at the 'weigh-in' of each tournament.

Information gathered from each fish included length, reproductive status and age. In 2005, biological information from 3 species were collected from one tournament West Coast region (Table 19). In 2006, information from a total of 10 species were collected from 7 tournaments in the West Coast and South Coast regions. At each event, samples were obtained from between 1 and 89 individuals per species.

To facilitate the collection of samples, RAP published a poster in August 2005 entitled "*Wanted! Researchers need filleted frames of these species*..." (Appendix 7). The poster was updated and re-issued in March 2006 to include species being studied by Murdoch University students (Appendix 8). Posters were distributed to tournament organisers to display at the event and were also posted at various locations including boat ramps, fishing clubs and tackle shops in the area of the tournament. The latest version of this poster is available from the DoF website http://www.fish.wa.gov.au.

Note: additional biological samples that are not listed in this report may have been collected in 2005 and 2006 at fishing tournaments by researchers not affiliated with RAP.

Table 1.Total fishing effort (hours) reported by log book anglers in 2004 and 2005 and proportion
of effort spent in each region.

	Angler log	book effort 2004-	05	
	Estuar	y/river	Oce	an
Region	Hours	%	Hours	%
North Coast	101	3	58	5
Gascoyne	0	0	147	14
West Coast	2427	82	727	67
South Coast	448	15	158	14
Total	2976	100	1090	100

Table 2.Total estuary/river catch reported (including retained and released fish) by log book
anglers in North Coast region, 2005 (no catch in 2004).

Common Name	Species	Total	% of catch
Mullet, Sea	Mugil cephalus	153	75
Catfish, Fork-Tailed	Arius spp.	14	7
Cods, general	Serranidae	8	4
Blowfish, Common	Torquigener pleurogramma	4	2
Salmon, Giant threadfin	Polydactylus macrochir	2	1
Barramundi	Lates calcarifer	1	< 1
Bottom Fish		1	< 1
Hardyheads/Silversides, general	Atherinidae	1	< 1
Herring, Giant	Elops hawaiensis	1	< 1
Prawn, River	Metapenaeus dalli	18	9
Crab, Mud Green	Scylla serrata	2	1

Table 3.Total ocean catch reported (retained and released) by log book anglers in North Coast
region, 2005 (no catch in 2004).

Common Name	Species	Total	% of catch
Estuary Cod	Epinephelus coioides	10	13
Bream, Fingermark	Lutjanus johnii	8	10
Queenfishes, general	Scomberoides spp	6	8
Seaperch, Stripey (Spanish Flag)	Lutjanus carponotatus	6	8
Trevally, Giant	Caranx ignobilis	6	8
Tarwhine	Rhabdosargus sarba	4	5
Queenfish, Talang	Scomberoides commersonnianus	4	5
Emperor, Spangled	Lethrinus nebulosus	3	4
Trout, Coral	Plectropomus leopardus	3	4
Tuskfish, Blue	Choerodon cyanodus	3	4
Catfish, Fork-Tailed	Arius spp.	2	3
Emperor, Red	Lutjanus sebae	2	3
Mackerels, general	Scombridae	2	3
Trevally, Silver	Pseudocaranx dentex	2	3
Barracuda	Sphyraena barracuda	1	1
Emperor, Blue-Lined (Black Snapper)	Lethrinus laticaudis	1	1
Mackerel, Frigate	Auxis thazard	1	1
Mangrove Jack	Lutjanus argentimaculatus	1	1
Rankin Cod	Epinephelus multinotatus	1	1
Sweetlips, general	Haemulidae	1	1
Crab, Mud Brown	Seylla olivacea	9	11
Shark, Tawny Nurse	Nebrius ferrugineus	2	3
Rays, Shovelnose & general	Rhinobatidae	1	1

Table 4.Total ocean catch reported (retained and released) by log book anglers in Gascoyne
region, 2005 (no catch in 2004).

Common Name	Species	Total	% of catch
Snapper, Pink	Pagrus auratus	144	34
Whiting, Yellow-Finned	Sillago schomburgkii	96	23
Mackerel, Queensland School	Scomberomorus queenslandicus	24	6
Tailor	Pomatomus saltatrix	12	3
Trevally, Golden	Gnathanodon speciosus	9	2
Wrasse/Gropers, general	Labridae	9	2
Butterfish, Western	Pentapodus vitta	6	1
Emperor, Blue-spotted	Lethrinus punctulatus	6	1
Snappers/Bream, general	Sparidae	5	1
Cod, Black-Tipped	Epinephelus fasciatus	4	1
Emperor, Red	Lutjanus sebae	4	1
Emperor, Sweetlip (Red Throat)	Lethrinus miniatus	4	1
Groper, Baldchin	Choerodon rubescens	4	1
Emperor, Spangled	Lethrinus nebulosus	3	1
Mackerel, Australian Spotted	Scomberomorus munroi	3	1
Other Finfish (17 taxa)		23	6
Crab, Blue manna	Portunus pelagicus	41	10
Squids, general	Cephalopodidae	19	5
Elasmobranchs (2 taxa)	-	3	1

Table 5.Total estuary/river catch reported (retained and released) by log book anglers in West
Coast region, 2004 and 2005.

Common Name	Species	Total	% of catch
Bream, Black	Acanthopagrus butcheri	1814	31
Blowfish, Common	Torquigener pleurogramma	1397	24
Herring, Australian	Arripis georgianus	568	10
Bream, Silver (Tarwhine)	Rhabdosargus sarba	399	7
Tailor	Pomatomus saltatrix	327	6
Whiting, Yellow-Finned (Western Sand)	Sillago schomburgkii	198	3
Trumpeter, Yellowtail	Amniataba caudavittatus	193	3
Trumpeter, Six Lined (Striped Trumpeter)	Pelates sexlineatus	139	2
Trevally, Skipjack/Silver	Pseudocaranx dentex	120	2
Mackerel, Blue	Scomber australasicus	102	2
Whiting, King George	Sillaginodes punctata	88	2
Whiting, general/Sand	Sillaginidae	70	1
Flathead, Bar-tailed	Platycephalus endrachtensis	59	1
Snapper, Pink	Pagrus auratus	57	1
Trumpeters/Grunters, general	Teraponidae	30	1
Salmon, Australian	Arripis truttaceus	27	<1
Flatheads, general	Platycephalidae	16	<1
Trout, Rainbow	Oncorhynchus mykiss	16	<1
Whiting, Trumpeter	Sillago maculata	13	<1
Cod, Estuary/Slimy Cod	Epinephelus coioides	10	<1
Other Finfish (23 taxa)		93	2
Crab, Blue manna	Portunus pelagicus	69	1
Other Invertebrates or Elasmobranchs (2 taxa)		3	<1

Table 6.Total ocean catch reported (retained and released) by log book anglers in West Coast
region, 2005 (no catch in 2004).

Common Name	Species	Total	% of catch
Herring, Australian	Arripis georgianus	1012	36
Trevally, Skipjack/Silver	Pseudocaranx dentex	342	8
Whiting, general/Sand	Sillaginidae	207	7
Blowfish, Common	Torquigener pleurogramma	177	6
Tailor	Pomatomus saltatrix	135	5
Garfishes	Hemiramphidae	132	5
Tarwhine	Rhabdosargus sarba	116	4
Whiting, Yellow-Finned	Sillago schomburgkii	64	2
Whiting, King George	Sillaginodes punctata	60	2
Dhufish, Western Australian	Glaucosoma hebraicum	53	2
Whiting, Western School	Sillago vittata	34	1
Snapper, Pink	Pagrus auratus	27	1
Flatheads, general	Platycephalidae	26	1
Pufferfishes, Toadfishes & Tobies	Tetraodontidae	26	1
Cod, Breaksea	Epinephelides armatus	23	1
Trumpeters/Grunters, general	Teraponidae	22	1
Wrasse/Gropers, general	Labridae	20	1
Sweep, Banded	Scorpis georgianus	18	1
Sergeant Baker	Aulopus purpurissatus	17	1
Whiting, School Southern / Silver	Sillago bassensis	17	1
Butterfish, Western	Pentapodus vitta	16	1
Rockcod, Rankin's (White-Blotched)	Epinephelus multinotatus	15	1
Emperor, Sweetlip (Red Throat)	Lethrinus miniatus	14	< 1
Scad, Yellowtail	Trachurus novaezelandiae	13	< 1
Sweep, Sea	Scorpis aequipinnis	12	< 1
Wrasse, Western King	Coris auricularis	10	< 1
Other Finfish (52 taxa)		139	5
Crab, Blue manna	Portunus pelagicus	51	2
Squids, general	Cephalopodidae	33	1
Elasmobranchs (5 taxa)		12	1

Table 7.Total estuary/river catch reported (retained and released) by log book anglers in South
Coast region, 2004 and 2005.

Common Name	Species	Total	% of catch
Bream, Black	Acanthopagrus butcheri	528	66
Whiting, King George	Sillaginodes punctata	114	14
Trout, Rainbow	Oncorhynchus mykiss	57	7
Flathead, Southern Blue-Spotted	Platycephalus speculator	52	7
Redfin Perch	Perca fluviatilis	14	2
Flatheads, general	Platycephalidae	13	2
Herring, Australian	Arripis georgianus	7	1
Snapper, Pink	Pagrus auratus	6	1
Trout, Brown	Salmo trutta	6	1
Tailor	Pomatomus saltatrix	3	< 1
Flathead, Bar-tailed	Platycephalus endrachtensis	1	< 1
Herring, Giant	Elops hawaiensis	1	< 1
Trevally, Skipjack/Silver	Pseudocaranx dentex	1	< 1

Table 8.Total ocean catch reported (retained and released) by log book catch in South Coast
region, 2005. (no catch in 2004).

Common Name	Species	Total	% of catch
Whiting, King George	Sillaginodes punctata	147	28
Herring, Australian	Arripis georgianus	102	20
Trevally, Skipjack/Silver	Pseudocaranx dentex	80	14
Garfishes	Hemiramphidae	33	6
Cod, Breaksea	Epinephelides armatus	23	4
Snapper, Red (Nannygai)	Centroberyx gerrardi	19	4
Salmon, Australian	Arripis truttaceus	15	3
Swallowtail	Centroberyx lineatus	14	3
Leatherjackets, general	Monacanthidae	12	2
Wrasse/Gropers, general	Labridae	11	2
Snapper, Pink	Pagrus auratus	8	2
Snapper, Queen (Blue Morwong)	Nemadactylus valenciennesi	7	1
Sweep, Sea	Scorpis aequipinnis	6	1
Samson Fish/Sea Kingfish	Seriola hippos	5	1
Other Finfish (14 taxa)		28	
Squids, general	Cephalopodidae	6	1
Other Invertebrates or Elasmobranchs (3 taxa)		4	

Year	Tournament	Date(s) held	Cards issued	Cards returned
2004	Swanfish	28-29 Feb 04	~3435	976
2005	Swanfish	26-27 Feb 05	3413	1408
	Esperance Archipelago Offshore Angling Classic	1 Mar 05	~80	16
	Shark Bay Fishing Fiesta	7-13 May 05	~80	10
	AAA State Rock and Beach Angling Championship	28-29 May 05	~80	46
2006	Swanfish	25-26 Feb 06	~3330	864
	Kalbarri Sports Fishing Classic	3-5 Mar 06	~50	22
	Bremer Bay Offshore Fishing Classic	4-5 Mar 06	~45	8
	Bunbury Offshore Fishing Classic	5 Mar 06	~140	29
	Naturaliste Bluewater Classic	10-12 Mar 06	~50	10
	Esperance Archipelago Offshore Angling Classic	19 Mar 06	~80	7
	AAA State Boat Angling Championship	4 Mar 06	~80	1
	AAA State Rock and Beach Angling Championship	25-26 Mar 06	~50	29

Table 9.Numbers of catch cards issued and returned at recreational fishing tournaments in 2004-
2006.

Table 10.	Total catch of all species reported on catch cards by anglers at the 'Shark Bay Fishing
	Fiesta', May 2005. (n = 10 cards).

Common Name	Species	Total
Blue-lined emperor	Lethrinus laticaudis	89
Pink snapper	Pagrus auratus	52
Western butterfish	Pentapodus vitta	36
Tuskfish (combined)	Choerodon spp.	29
Whiting (combined)	Sillaginidae	11
Chinaman fish	Symphorus nematophorus	10
Unidentified		10
Flathead	Platycephalidae	8
Trumpeter	Teraponidae	8
Tailor	Pomatomus saltatrix	7
Spangled emperor	Lethrinus nebulosus	5
Sweetlips	Haemulidae spp.	5
Yellowtail scad	Trachurus novaezelandiae	4
Five banded wrasse	Hemigymnus fasciatus	3
Garfish	Hemiramphidae	3
Queensland school mackerel	Scomberomorus queenslandicus	3
Rankin cod	Epinephelus multinotatus	3
Estuary cod	Epinephelus coioides	2
Mulloway	Argyrosomus hololepidotus	2
Slender suckerfish	Echeneis naucrates	2
Spanish mackerel	Scomberomorus commerson	2
Stripey seaperch	Lutjanus carponotatus	2
Wrasse	Labridae	2
Bronze whaler	Carcharhinus brachyurus	1
Brown banded catshark	Chiloscyllium punctatum	1
Coral trout	Plectropomus leopardus	1
Goatfish	Mullidae	1
Leatherjacket	Monacanthidae	1
Lizardfish	Synodontidae	1
North-west blowfish	Lagocephalus sceleratus	1
Snook	Sphyraena novaehollandiae	1
Tarwhine	Rhabdosargus sarba	1
Tiger shark	Galeocerdo cuvieri	1
Western yellowfin bream	Acanthopagrus latus	1
Squid	Loliginidae	2

Common Name	Species	2000	2001	2002	2003	2004	2005	2006
Toadfish	Torquigener pleurogramma	22	107	369	67	1541	6190	2834
Black bream	Acanthopagrus butcheri	701	821	788	1610	889	1755	1401
Yellowtail trumpeter	Amniataba caudavittatus	124	429	392	527	577	739	265
Bar-tailed flathead	Platycephalus endrachtensis	103	306	471	474	250	243	121
Tarwhine	Rhabdosargus sarba	28	135	289	392	192	387	186
Whiting (combined)	Sillaginidae	43	205	260	222	268	242	70
Tailor	Pomatomus saltatrix	10	114	81	82	115	375	183
Unidentified		27	130	181	327	108	23	17
Six-lined trumpeter	Pelates sexlineatus	25	109	48	142	131	35	45
Small-toothed flounder	Pseudorhombus jenynsii	22	70	93	64	29	40	23
Australian herring	Arripis georgianus	7	36	17	29	18	47	65
Cobbler	Cnidoglanis macrocephalus	46	30	40	52	7	9	19
Pink snapper	Pagrus auratus	14	24	18	22		33	13
Silver trevally	Pseudocaranx dentex	1	5	8	28	1	9	19
Mulloway	Argyrosomus hololepidotus	12	10	20	12	11	3	
Gobbleguts	Apogon rueppellii	6	1	4	2	13	12	16
Mullet	Mugil cephalus, Aldrichetta forsteri	3	4	29	1	4	3	1
Western butterfish	Pentapodus vitta			6	8	11	4	
Wrasse	Labridae		2	1	1	1	17	1
Yellowtail scad	Trachurus novaezelandiae	2	2	12			6	
Snook	Sphyraena novaehollandiae		7					
Ray	Rajiformes			1	3	1	1	1
Whitebait	Hyperlophus vittatus							5
Garfish	Hemiramphidae				1	2		1
Blue mackerel	Scomber australasicus			1			2	
Bonito	Sarda orientalis							3
Pilchard	Sardinops neopilchardus						2	
Gurnard	Triglidae						2	
Shark	Elasmobranchii				1	1		

Table 11.Total catch of all species reported by anglers on catch cards at 'Swanfish', held in
February each year, 2000 to 2006.

Table 11 (cont).

Common Name	Species	2000	2001	2002	2003	2004	2005	2006
Port Jackson shark	Heterodontus portusjacksoni						1	
Giant herring	Elops hawaiensis				1			
Long finned pike	Dinolestes lewini		1					
Sampson fish	Seriola hippos			1				
Leatherjacket	Monacanthidae				1			
Blue swimmer crab	Portunus pelagicus	3	9	1	2	10	6	1
Squid	Loliginidae			1				
Number of cards		436	694	823	1119	976	1439	864

Table 12.Total catch of all species reported by anglers at the 'Australian Anglers Association State
Rock and Beach Angling Championship - Cape to Cape', May 2005 (n = 46 cards)

Common Name	Species	Total
Australian herring	Arripis georgianus	383
Silver trevally	Pseudocaranx dentex	65
Western rock blackfish	Girella tephraeops	43
Wrasse (combined)	Labridae	32
Whiting (combined)	Sillaginidae	27
Australian salmon	Arripis truttaceus	19
Tarwhine	Rhabdosargus sarba	19
Sea trumpeter	Pelsartia humeralis	18
Yellowtail trumpeter	Amniataba caudavittatus	12
Sweep	Scorpididae	13
Bullseye	Pempherididae	10
Western wirrah	Acanthistius serratus	5
Rock cod	Serranidae	3
Wobbegong	Orectolobus spp.	3
Leatherjacket	Monacanthidae	2
Western blue devil	Paraplesiops meleagris	2
Mullet	Mugil cephalus, Aldrichetta forsteri	1
Pike	Dinolestes lewini	1
Port Jackson shark	Heterodontus portusjacksoni	1

Table 13.Total catch of all species reported on catch cards by anglers at the 'Kalbarri Sports
Fishing Classic', March 2006. (n = 22 cards).

Common Name	Species	shore (river)	offshore
Red throat emperor	Lethrinus miniatus		49
Pink snapper	Pagrus auratus		46
Black bream	Acanthopagrus butcheri	butcheri 43	
Dhufish	Glaucosoma hebraicum		16
North-west snapper	Lethrinidae		14
Tuna (combined)	Scombridae		8
Tuskfish (combined)	Choerodon spp.		5
Blue spotted emperor	<i>Lethrinus</i> sp.		5
Chinaman fish	Symphorus nematophorus		5
Baldchin groper	Choerodon rubescens		4
North-west blowfish	Lagocephalus sceleratus		4
Spanish mackerel	Scomberomorus commerson		4
Shark	Elasmobranchii		3
Breaksea cod	Epinephelus armatus		2
Western wirrah	Acanthistius serratus		2
Wrasse	Labridae		2
Coral trout	Plectropomus leopardus		1
Estuary cod	Epinephelus coioides		1
Grass emperor	Lethrinus laticaudis		1
Queen snapper	Nemadactylus valenciennesi		1
Red emperor	Lutjanus sebae		1
Rock cod	Serranidae		1
Samsonfish	Seriola hippos		1
Sergeant baker	Aulopus purpurissatus		1
Silver trevally	Pseudocaranx dentex		1
Tarwhine	Rhabdosargus sarba		1
Yellowtail trumpeter	Amniataba caudavittatus	1	
Octopus	Octopus sp.		2

Table 14.	Total catch of all species reported on catch cards by anglers at the 'Bunbury Offshore
	Fishing Classic', March 2006. (n = 21 cards).

Common Name	Species	Total
Whiting (combined)	Sillaginidae	33
Australian herring	Arripis georgianus	27
Silver trevally	Pseudocaranx dentex	24
Dhufish	Glaucosoma hebraicum	20
Flathead	Platycephalidae	15
Southern fiddler ray	Trygonorhina fasciata	15
Pink snapper	Pagrus auratus	8
Wrasse	Labridae	8
Breaksea cod	Epinephelides armatus	7
Parrot fish	Scaridae	5
Leatherjacket	Monacanthidae	4
Western foxfish	Bodianus frenchii	4
Blue mackeral	Scomber australasicus	3
Sea sweep	Scorpis aequipinnis	3
Sergeant baker	Aulopus purpurissatus	3
Baldchin groper	Choerodon rubescens	2
Gurnard	Triglidae	2
Harlequin fish	Othos dentex	2
Queen snapper	Nemadactylus valenciennesi	2
Samson fish	Seriola hippos	2
Bight redfish	Centroberyx gerrardi	1
Cod	Serranidae	1
Eel	Muraenidae	1
Garfish	Hemiramphidae	1
Goatfish	Mullidae	1
Hammerhead shark	<i>Sphyrna</i> sp.	1
Shark	Elasmobranchii	1
Snook	Sphyraena novaehollandiae	1
Tailor	Pomatomus saltatrix	1
Western red scorpioncod	Scorpaena sumptuosa	1
Squid	Cephalopodidae	3
Cuttlefish	Sepiidae	1

Table 15.Total catch of all species reported on catch cards by anglers at the 'Naturaliste Bluewater
Classic', March 2006. (n = 6 shore + 4 offshore cards).

Common Name	ommon Name Species		
Whiting (combined)	Sillaginidae	44	
Tailor	Pomatomus saltatrix	2	9
Dhufish	Glaucosoma hebraicum		9
Flathead	Platycephalidae	5	4
Silver trevally	Pseudocaranx dentex	5	4
Australian herring	Arripis georgianus	7	
Breaksea cod	Epinephelus armatus		7
Pink snapper	Pagrus auratus		6
Tarwhine	Rhabdosargus sarba	2	4
Australian salmon	Arripis truttaceus	2	2
Bight redfish	Centroberyx gerrardi		3
Samsonfish	Seriola hippos		3
Wobbegong	Orectolobus sp.	3	
Toadfish	Torquigener pleurogramma	2	
Port Jackson shark	Heterodontus portusjacksoni		2
Shovel nose ray	Rhinobatidae & Rhynchobatidae		2
Bronze whaler	Carcharhinus brachyurus	1	
Eel	Anguillidae		1
Gurnard	Triglidae		1
Mulloway	Argyrosomus hololepidotus		1
Queen snapper	Nemadactylus valenciennesi		1
Scorpionfish	Scorpaenidae		1
Sea sweep	Scorpis aequipinnis		1
Stingray	Elasmobranchii	1	
Squid	Cephalopodidae		1

Table 16.Total catch of all species reported on catch cards by anglers at the 'Australian Angling
Association State Rock and Beach Championships' (shore) and the 'Australian Anglers
Association State Boat Angling Championship' (offshore) Jurien Bay, March 2006. (n =
29 shore + 1 offshore cards).

Common Name	Species	shore	offshore	
Australian herring	Arripis georgianus	217		
Tailor	Pomatomus saltatrix	44		
Southern sea garfish	Hyporhamphus melanochir	43		
Silver trevally	Pseudocaranx dentex	18		
Whiting (combined)	Sillaginidae	18		
Flathead	Platycephalidae	13		
Flounder	Bothidae	10		
Mulloway	Argyrosomus hololepidotus	9		
Dhufish	Glaucosoma hebraicum		9	
Pink snapper	Pagrus auratus		7	
Western butterfish	Pentapodus vitta	5		
Wrasse	Labridae	3		
North-west blowfish	Lagocephalus sceleratus	2		
Striped sea pike	Sphyraena obtusata	2		
Dart	<i>Trachinotus</i> sp.	1		
Snook	Sphyraena novaehollandiae	1		
Yellowtail scad	Trachurus novaezelandiae	1		
Baldchin groper	Choerodon rubescens		1	
Breaksea cod	Epinephelus armatus		1	
Queen snapper	Nemadactylus valenciennesi		1	

Table 17.Total catch of all species reported on catch cards by anglers at the 'Esperance
Archipelago Offshore Angling Classic', March 2005 and 2006. (n = 16 + 7 cards).

Common Name	Species	2005	2006
Bight redfish	Centroberyx gerrardi	34	55
Breaksea cod	Epinephelus armatus	28	34
Australian herring	Arripis georgianus	53	
Queen snapper	Nemadactylus valenciennesi	26	18
Swallowtail	Centroberyx lineatus	30	14
Bonito	Sarda orientalis	30	
Whiting (combined)	Sillaginidae	25	
Harlequin fish	Othos dentex	11	7
Sergeant baker	Aulopus purpurissatus	18	
Snook	Sphyraena novaehollandiae	5	5
Wrasse	Labridae	10	
Silver trevally	Pseudocaranx dentex	8	1
Rock cod	Serranidae	8	
Samsonfish	Seriola hippos	4	4
Pike	Dinolestes lewini	4	
Sweep	<i>Scorpis</i> sp.	2	2
Western rock blackfish	Girella tephraeops	3	
Australian salmon	Arripis truttaceus	2	
Gummy shark	Mustelus antarcticus	2	
Western blue devil	Paraplesiops meleagris	2	
Western foxfish	Bodianus frenchii	2	
Blue groper	Achoerodus gouldii		1
Dhufish	Glaucosoma hebraicum	1	
Pink snapper	Pagrus auratus	1	
Yellowtail kingfish	Seriola lalandi		1

Table 18.Total catch of all species reported on catch cards by anglers at the 'Bremer Bay Offshore
Fishing Classic', March 2006 (n = 8 cards)

Common Name	Species	Total
Silver trevally	Pseudocaranx dentex	52
Bight redfish	Centroberyx gerrardi	51
Australian herring	Arripis georgianus	36
Breaksea cod	Epinephelides armatus	34
Queen snapper	Nemadactylus valenciennesi	19
Pink snapper	Pagrus auratus	17
Whiting	Sillaginidae	15
King George whiting	Sillaginodes punctata	9
Flathead	Platycephalidae	8
Horseshoe leatherjacket	Meuschenia hippocrepis	3
Striped sea pike	Sphyraena obtusata	3
Yellowtail kingfish	Seriola lalandi	3
Australian salmon	Arripis truttaceus	2
Dhufish	Glaucosoma hebraicum	2
Goatfish	Mullidae	2
King wrasse	Coris auricularis	2
Samsonfish	Seriola hippos	2
Blue groper	Achoerodus gouldii	1
Bonito	Sarda orientalis	1
Gummy shark	Mustelus antarcticus	1
Harlequin fish	Othos dentex	1
Leatherjacket	Monacanthidae	1
Snook	Sphyraena novaehollandiae	1
Western blue devil	Paraplesiops meleagris	1
Western foxfish	Bodianus frenchii	1
Wrasse	Labridae	1

Location	Date	Researcher	Species	No. of samples
Swan-Canning Estuary	Feb 2004	DoF	Black bream	59
	Feb 2005	DoF, Murdoch	Black bream	33
			Bar-tailed flathead	24
			Mulloway	?
	Feb 2006	DoF, Murdoch	Black bream	29
			Bar-tailed flathead	?
			Mulloway	?
Jurien Bay	Mar 2006	DoF	Dhufish	23
			Pink snapper	22
Kalbarri	Mar 2006	DoF	Dhufish	21
			Pink snapper	89
Bussleton	Mar 2006	DoF, Murdoch	Dhufish	52
			Pink snapper	15
			Western foxfish	4
			Redthroat emperor	?
			Breaksea cod	?
			Samsonfish	?
Bunbury	Mar 2006	DoF	Dhufish	27
			Pink snapper	10
Bremer Bay	Mar 2006	DoF, Murdoch	Dhufish	6
			Bight redfish	72
			Queen snapper	56
			Blue groper	4
			Western foxfish	10
			Harlequin fish	15
			Samsonfish	?
Esperance	Mar 2006	DoF, Murdoch	Bight redfish	38
			Queen snapper	33
			Blue groper	1
			Western foxfish	10
			Harlequin fish	10
			Samsonfish	?

Table 19.Species and number of fish sampled at fishing tournaments in 2005 and 2006 (DoF
– Department of Fisheries, Murdoch – Murdoch University).

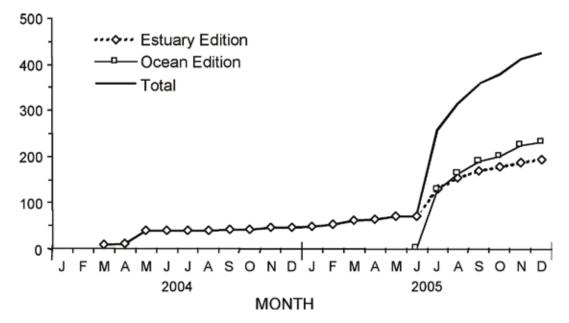


Figure 1. Number (cumulative total) of estuary and ocean log books issued in 2004 and 2005.

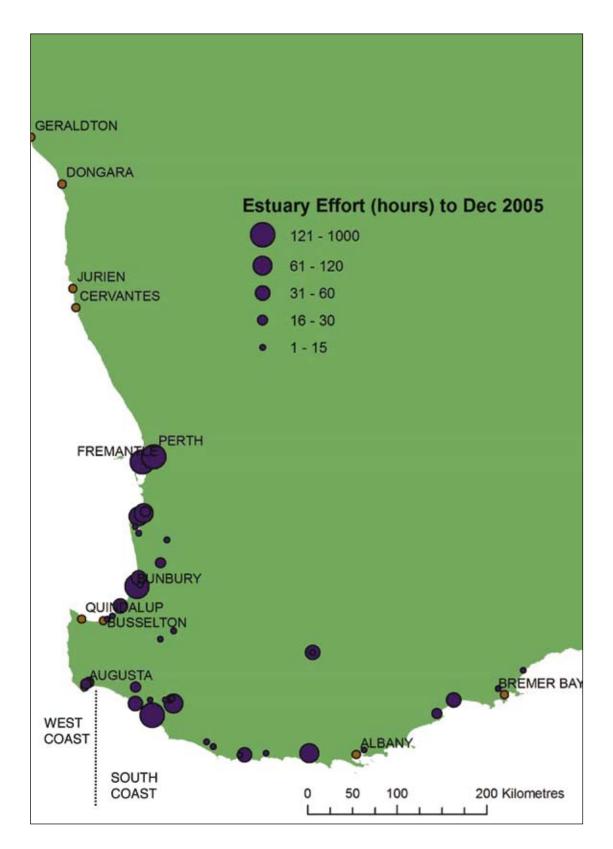


Figure 2. Distribution of fishing effort reported by estuary/river log book anglers in south-western estuaries and rivers, 2004 and 2005.

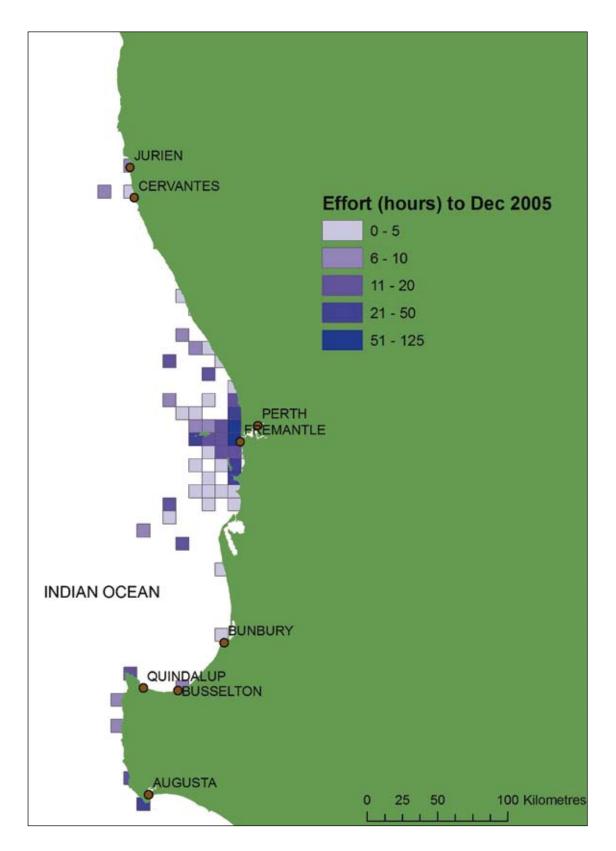


Figure 3. Distribution of fishing effort reported by ocean log book anglers in West Coast ocean waters in 2005 (no fishing in 2004).

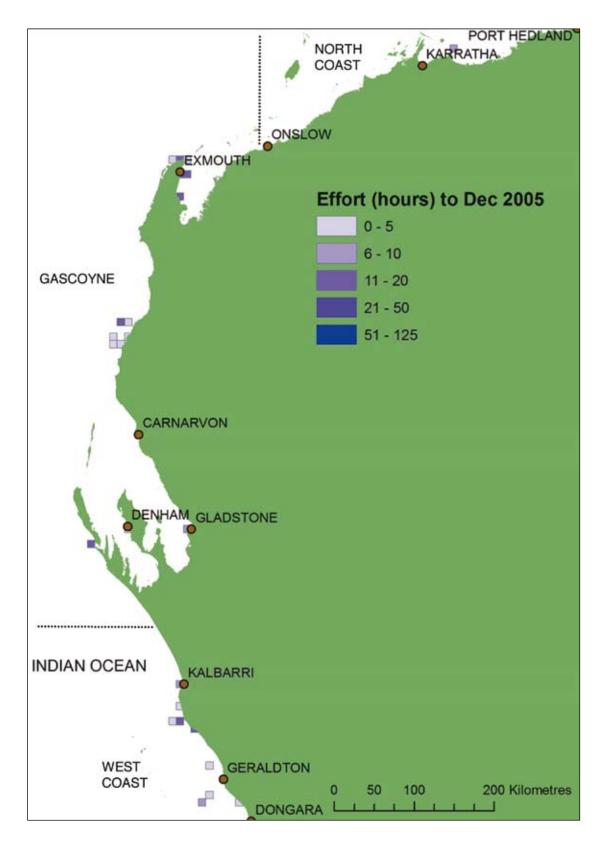


Figure 4. Distribution of fishing effort reported by ocean log book anglers in North Coast and Gascoyne ocean waters in 2005 (no fishing in 2004).

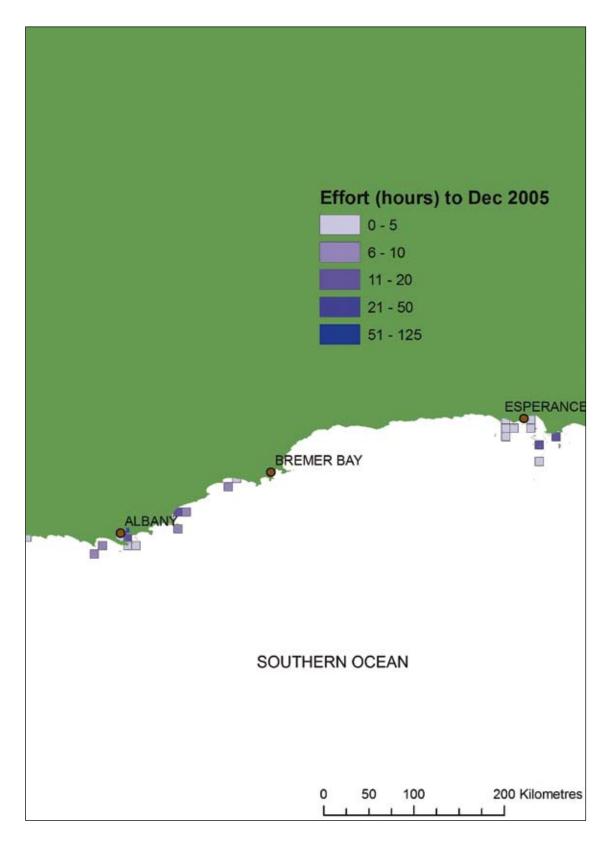


Figure 5. Distribution of fishing effort reported by ocean log book anglers in South Coast ocean waters in 2005 (no fishing in 2004).

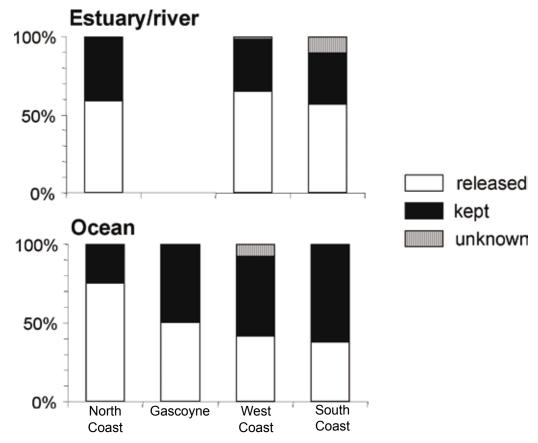


Figure 6. Proportions of released and retained fish in the total catch reported by log book anglers each region, in 2004 and 2005 (all species combined).

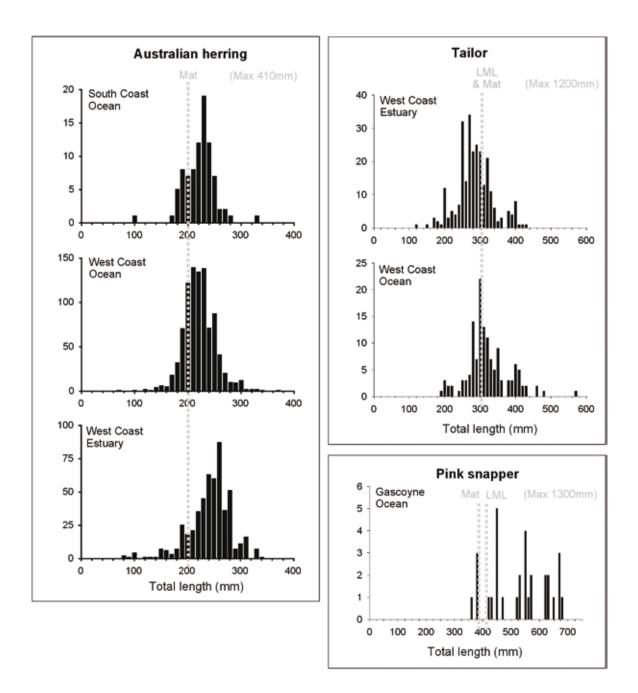


Figure 7. Length frequency distributions of Australian herring (*Arripis georgianus*), tailor (*Pomatomus saltatrix*) and pink snapper (*Pagrus auratus*) (recorded by log book anglers in 2004/05, including retained and released fish (Max – maximum recorded length for this species; Mat – approximate length at maturity; LML – legal minimum length).

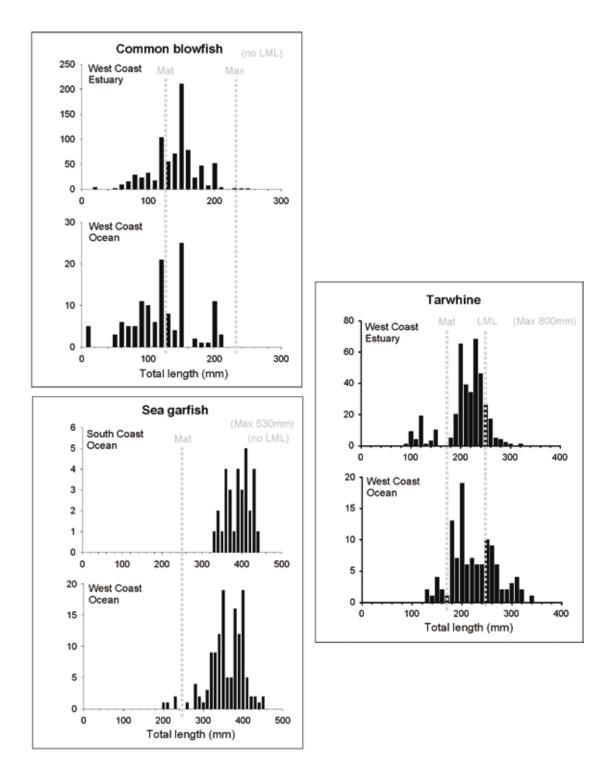


Figure 8. Length frequency distributions of common blowfish (*Torquigener pleurogramma*), sea garfish (*Hyporhamphus australis*) and tarwhine (*Rhabdosargus sarba*) recorded by log book anglers in 2004/05, including retained and released fish (Max – maximum recorded length for this species; Mat – approximate length at maturity; LML – legal minimum length).

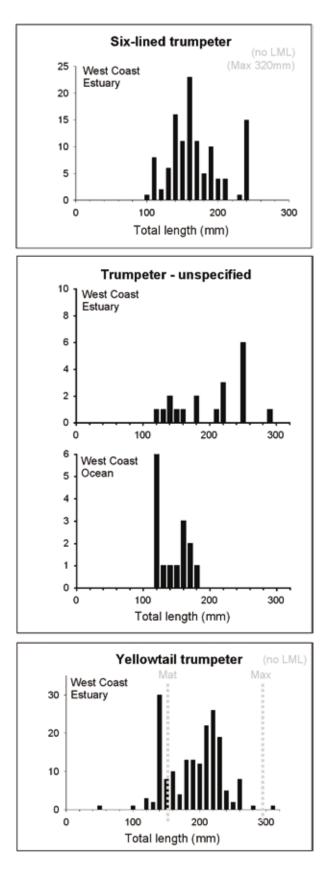


Figure 9. Length frequency distributions of six-lined trumpeter (*Pelates sexlineatus*), unspecified trumpeter (Teraponidae) and yellowtail trumpeter (*Amniataba caudavittatus*) recorded by log book anglers in 2004/05, including retained and released fish (Max – maximum recorded length for this species; Mat – approximate length at maturity; LML – legal minimum length).

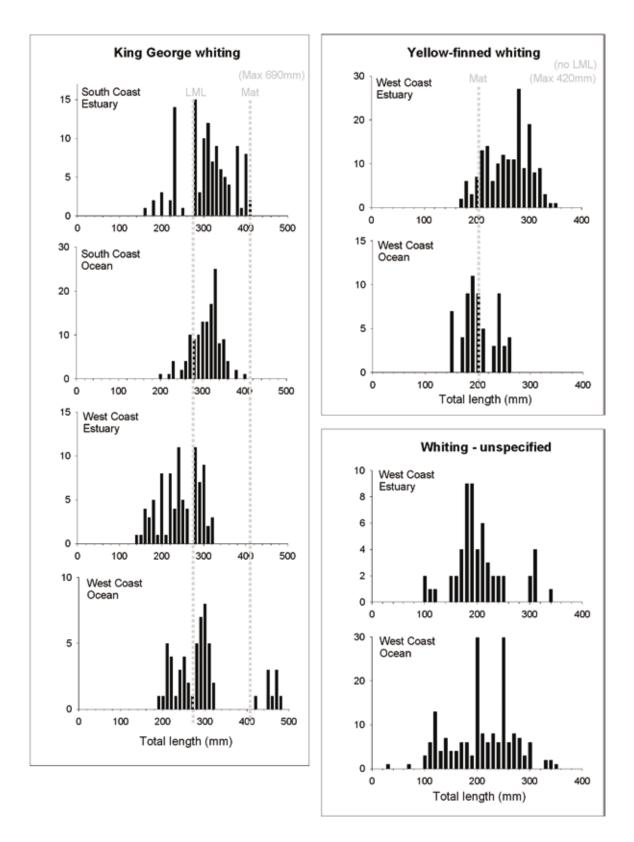


Figure 10. Length frequency distributions of King George whiting (*Sillaginodes punctata*), yellowfinned whiting (*Sillago schomburgkii*) and unspecified whiting (Sillaginidae) recorded by log book anglers in 2004/05, including retained and released fish (Max – maximum recorded length for this species; Mat – approximate length at maturity; LML – legal minimum length).

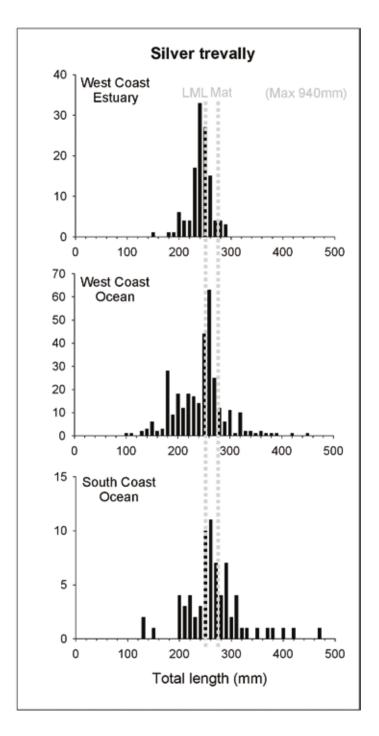
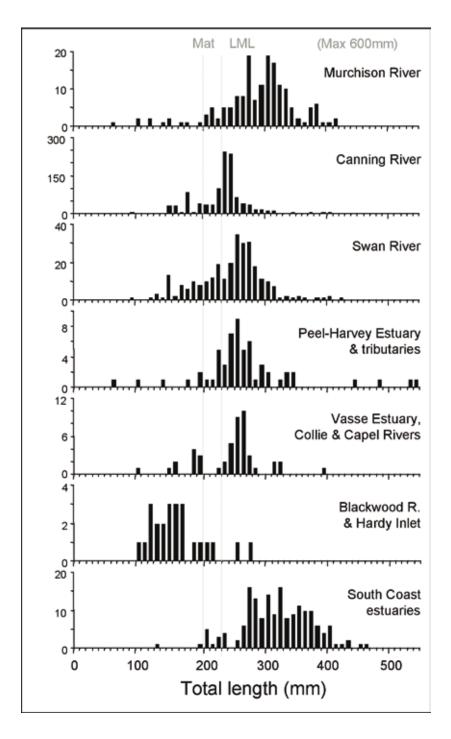


Figure 11. Length frequency distributions of silver trevally (*Pseudocaranx dentex*) recorded by log book anglers in 2004/05, including retained and released fish (Max – maximum recorded length for this species; Mat – approximate length at maturity; LML – legal minimum length).



- Figure 12. Length frequency distributions of black bream (Acanthopagrus butcheri) recorded by log book anglers from estuaries in the West and South Coast regions in 2004/05 (South Coast estuaries have been grouped), including retained and released fish (Max - maximum recorded length for this species; Mat - approximate length at maturity; LML
 - legal minimum length).

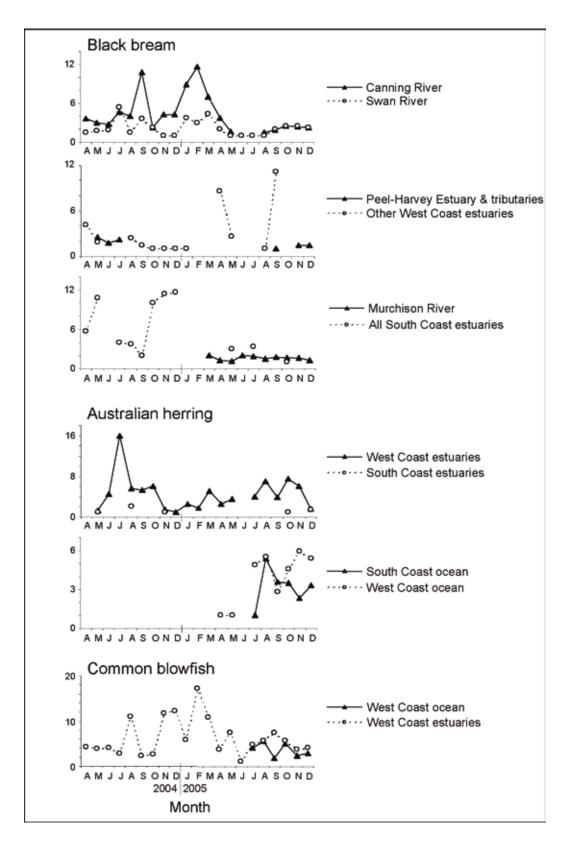


Figure 13. Average catch rate (number of fish per angler day) of selected species by log book anglers in 2004 and 2005 (missing data indicate no recorded fishing effort in month).

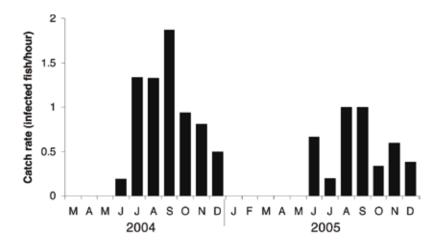


Figure 14. Log book angler catch rate of black bream infected with Epizootic Ulcerative Syndrome (EUS or 'redspot' disease) in the Swan-Canning Estuary, March 2004 to December 2005.

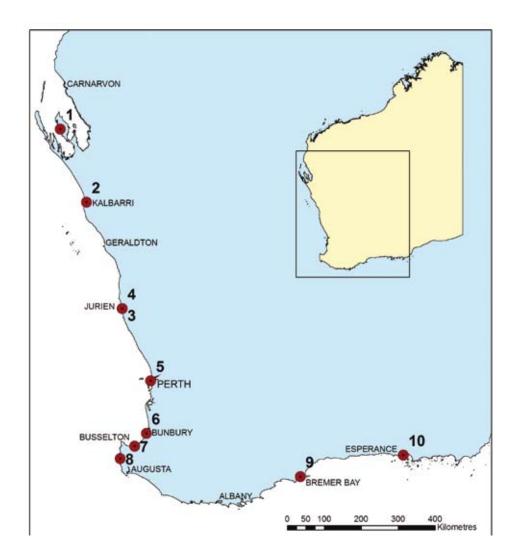


Figure 15. Location of fishing tournaments attended by RAP in 2004-2006.¹ Shark Bay Fishing Fiesta; ² Kalbarri Sports Fishing Classic; ³ AAA State Rock and Beach Angling Championship; ⁴ AAA State Boat Angling Championship; ⁵ Swanfish; ⁶ Bunbury Offshore Fishing Classic; ⁷ Naturaliste Bluewater Classic; ⁸ AAA State Rock and Beach Angling Championship; ⁹ Bremer Bay Offshore Fishing Classic; ¹⁰ Esperance Archipelago Offshore Angling Classic.

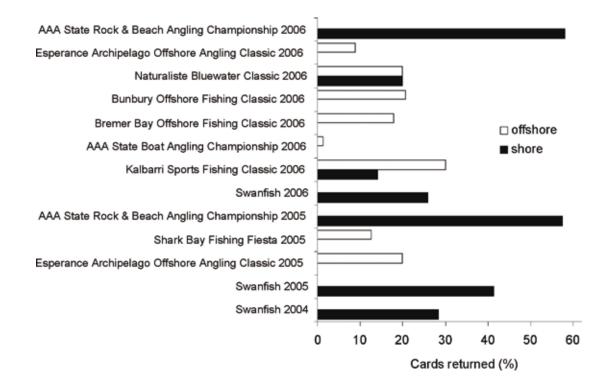


Figure 16. Proportion (%) of catch cards returned by competitors at fishing tournaments, 2004-2006.

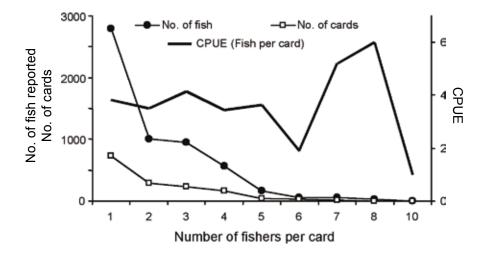


Figure 17. Total number of fish caught, total number of catch cards returned and catch rate (no. of fish per card) for cards listing between 1 and 10 fishers per card at 'Swanfish', 2004 to 2006 (Catch excludes toadfish).

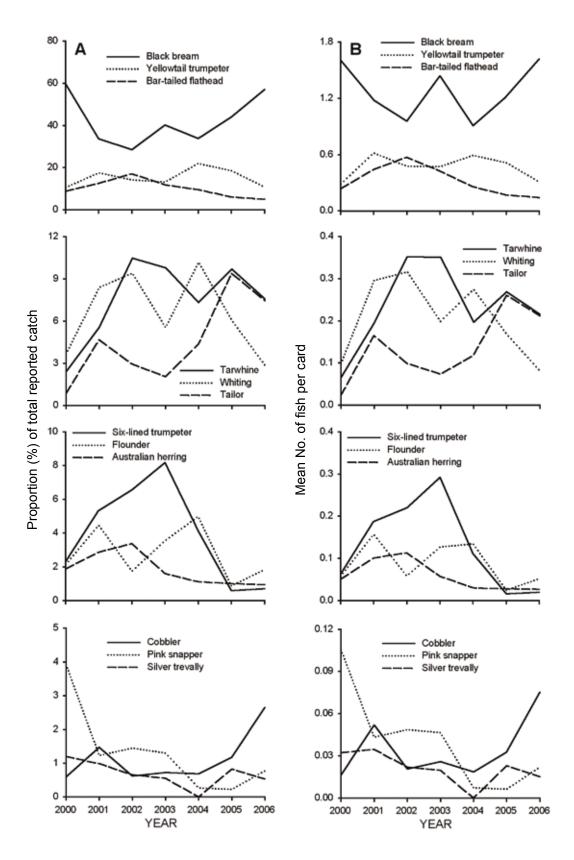


Figure 18. Catch rates of the key species caught at 'Swanfish' from 2000 to 2006, expressed A) as a percentage of the total number of finfish reported and B) by average number reported per catch card.

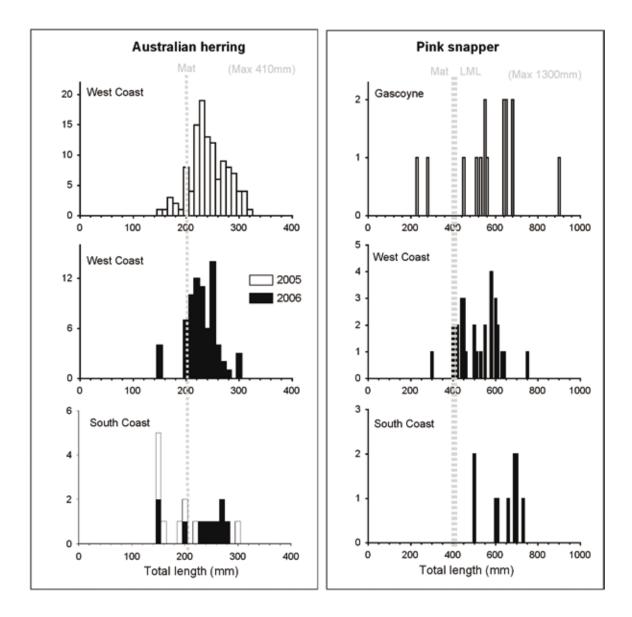


Figure 19. Length frequency distributions of Australian herring (*Arripis georgianus*) and pink snapper (*Pagrus auratus*) reported on catch cards at fishing tournaments in 2005 and 2006, including retained and released fish (Max – maximum length recorded for this species; Mat – approximate length at maturity; LML – legal minimum length).

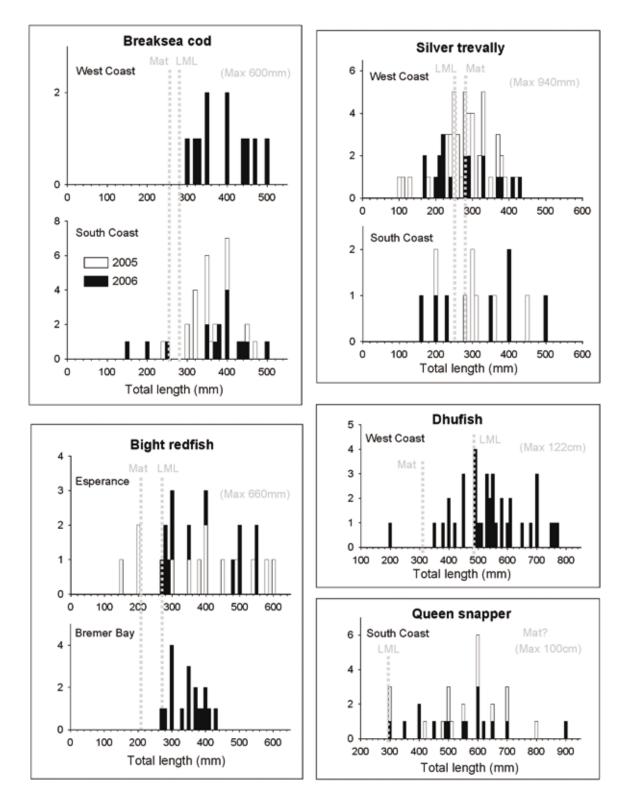
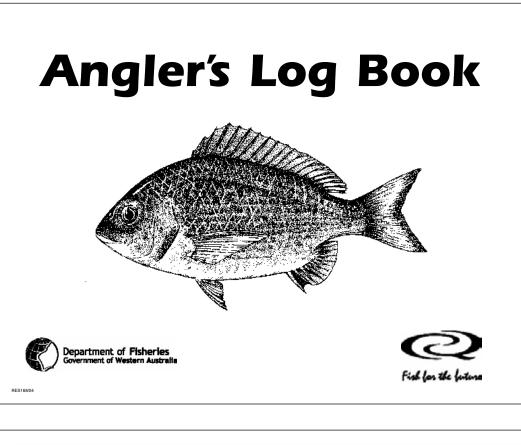


Figure 20. Length frequency distributions of breaksea cod (*Epinephelus armatus*), bight redfish (*Centroberyx gerrardi*), silver trevally (*Pseudocaranx dentex*), dhufish (*Glaucosoma hebraicum*) and queen snapper (*Nemadactylus valenciennesi*) recorded by anglers at tournaments in 2005-2006, including retained and released fish (Max – maximum length recorded for this species; Mat – approximate length at maturity; LML – legal minimum length).

APPENDICES

Appendix 1. Format of Estuary Edition of Anglers Daily Log Book

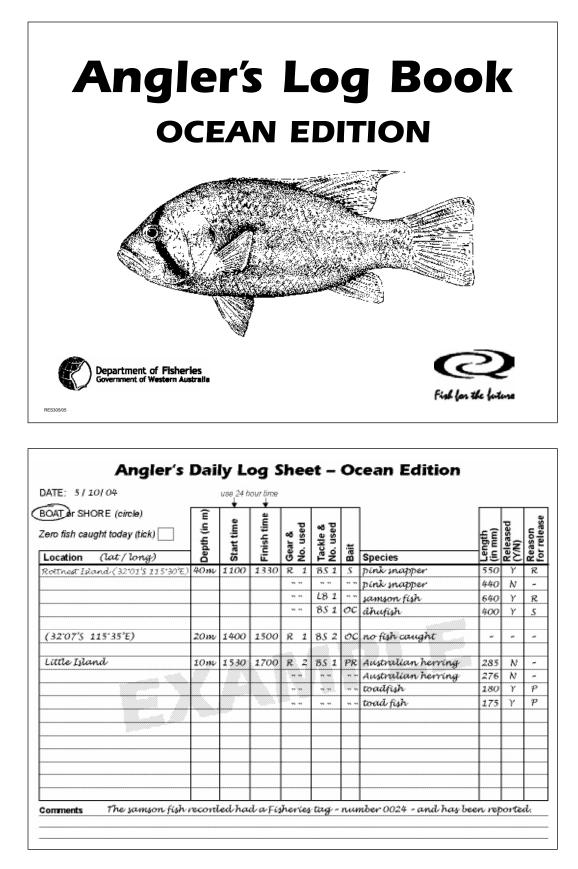


DATE: 5/10/03	use 24 h									_
BOAT of SHORE (circle) Zero fish caught today (tick)	Start time	Finish time	Gear type & No. used	Tackle	Bait	Species	Health	Length (in mm)	Released (Y/N)	Reason
Swan R, Causeway	1500	1630	R 1	8	ΡI	striped trumpeter	H	190	γ	1
				× ··		błack bream	Ħ	305	N	
				~ "		black bream	H	210	Y	
				~ "		yellowtad grunter	H	180	Y	
Swan R. Narrows	1700	1930	R Z	8	PI	black bream	0	290	N	-
Sauter, nutrowy	4700	4930			P L = 0	bar tailed flathead	H	285	Y	1
				n u		vellowtail grunter	76	225	Ŷ	
		- 20.				tailor	#	310	N	-
						yellowtail grunter	H	210	γ	
						black bream	76	310	N	
						blowfish	76	150	N	
				·• ··	~ "	blowfish	Ħ	165	N	
Canning R, Canning Bridge	2000	2100	R 2	8	PR	nofish			-	-

Appendix 1 (continued).

Instru	ctions
THIS LOG BOOK IS FOR ESTUARY AND RIVER FISHING ONLY. ONLY RECORD YOUR OWN PERSONAL FISHING INFORMATION. DO <u>NOT</u> RECORD CATCHES OF OTHER ANGLERS IN THIS LOG BOOK.	 Record the code for the type of Tackle used to catch each fish. Record the code for the type of Bait used to catch each fish.
Start a new page for each day of fishing. You can use more than 1 page per day. If you use several pages in one day, make sure you write the date on all pages.	 Record the Species of each fish caught, e.g. "black bream", "rainbow trout", etc.
If you went fishing and caught zero fish, record this by ticking the box at top of log sheet. Then record location, start/finish times, gear, tackle and bait used.	 Record the code for the Health of each fish that you kept or released. Use the comments section at bottom of page if you need to add extra details. If the fish appears healthy, then write "H".
Complete a separate line for each fish caught. Record details of <u>all</u> fish caught, whether retained or released fish, including details of 'trash' fish such as blowfish. Include as many details as possible about each fish, whether retained or released. • Start time is when you actually started fishing, i.e.	 Record the total Length of each fish caught. For finfish, measure from snout tip to tail tip. For crabs, record carapace width. Use millimetres.
	 Record whether each fish was Released by writing "yes" if released, and "no" if retained.
put a line in the water. Use 24 hour time, e.g. 3 am = 0300, 6:45 pm = 1845, etc.	 If you released the fish, then record the code for the Reason for release.
 Record the code (see inside front cover) for the Gear used to catch each fish and the number of this gear being used at the time, e.g. if you were using 2 handlines, then write "H 2". 	See inside front cover for codes.

		CODES		
GEAR	TACKLE	BAIT	FISH HEALTH	REASON FOR RELEASE
R = rod	B = bait	PR = prawn	H = appears	
H = handline	L = lure	PI = pippy	healthy	S = size limit
D = drop net	F = fly	W = worms	R = fin/tail rot	B = bag limit
·	•		U = ulcer	R = prefer to
S = scoop net		M = maggots	P = parasites	release
N = set, haul or		F = small fish	·	P = poor eating
throw net		C = crab	O = other (specify in	
O = other		e – oquid	comments	
		S = squid	section)	
		O = other		

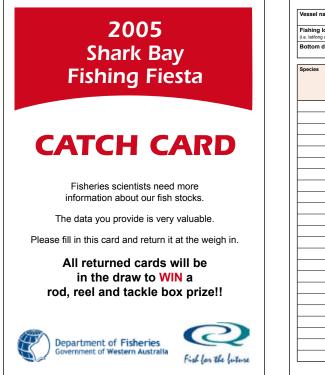


Appendix 2 (continued).

Instru	ctions
THIS LOG BOOK IS FOR OCEAN BEACH AND OFFSHORE FISHING ONLY. ONLY RECORD YOUR OWN PERSONAL FISHING INFORMATION. DO <u>NOT</u> RECORD CATCHES OF OTHER ANGLERS IN THIS LOG BOOK.	• Record the code (see inside front cover) for the Gear used to catch each fish and the number of this gear being used at the time, e.g. if you were using 2 handlines, then write "H 2".
Start a new page for each day of fishing. You can use more than 1 page per day. If you use several pages in one day, make sure you write the date on all pages.	 Record the code for the type of Tackle used to catch each fish and the number of sets of tackle used on the line, e.g. if you have two sets of gange baited hooks, then write "BG 2"
If you went fishing and caught zero fish, record this by ticking the box at top of page. Then record location, depth, start/finish times, gear, tackle and bait used. Complete a separate line for each fish caught. Record	• Record the code for the type of Bait used to catch each fish.
	 Record the Species of each fish caught, e.g. "dhufish", "Australian herring", etc.
details of <u>all</u> fish caught, whether retained or released, including details of 'trash' fish such as blowfish. Include as many details as possible about each fish.	 Record the total Length of each fish caught. For finfish, measure from snout tip to tail tip. For crabs record carapace width. Use millimetres.
 Location can be recorded as latitude/longitude or as a well-recognised, precise name (e.g. Halls Head, Mandurah). 	 Record whether each fish was Released by writing "yes" if released, and "no" if retained.
 Record the Depth of where you are fishing in metres. 	 If you released the fish, then record the code for the Reason for release.
 Start time is when you actually started fishing, i.e. put a line in the water. Use 24 hour time, e.g. 3 am = 0300, 6:45 pm = 1845, etc. 	See inside front cover for codes.

	CO	DES	
GEAR R = rod H = handline N = set, haul or throw net D = drop net S = scoop net J = jig PN = prawn net O = other	TACKLEBS = bait on single hookBG = bait on gang of hooksL = lureLB = lure plus barbless hookF = fly	BAITPR = prawnPI = pippyW = wormsM = maggotsF = small fishC = crabS = squidML = mulieOC = octopusLB = live baitSB = strip baitMU = multipleO = other	REASON FOR RELEASE S = size limit B = bag limit R = prefer to release P = poor eating

Appendix 3. Catch card from the 2005 Shark Bay Fishing Fiesta.



Vessel name:							
Fishing location(s): (i.e. lat/long or name of region)							
Bottom depth range(s)	:						
Species	Total number of this species	Size (length or weight) of the first 4 of this species caught					
	captured (include all retained and released fish)	Fish 1	Fish 2	Fish 3	Fish 4	Measure used (cm kg. etc.)	
		1					

Appendix 4. Catch card from the 2006 Naturaliste Bluewater Classic.



Vessel or competitor n	ame:						
Fishing location(s): (i.e. lat/long or name of region)							
Species	Total number of this species	becies 5 of this species caught					
	captured (include all retained and released fish)	Fish 1	Fish 2		Fish 4		Meas used kg, e

Appendix 5. Catch card from the 2006 Kalbarri Sports Fishing Classic.



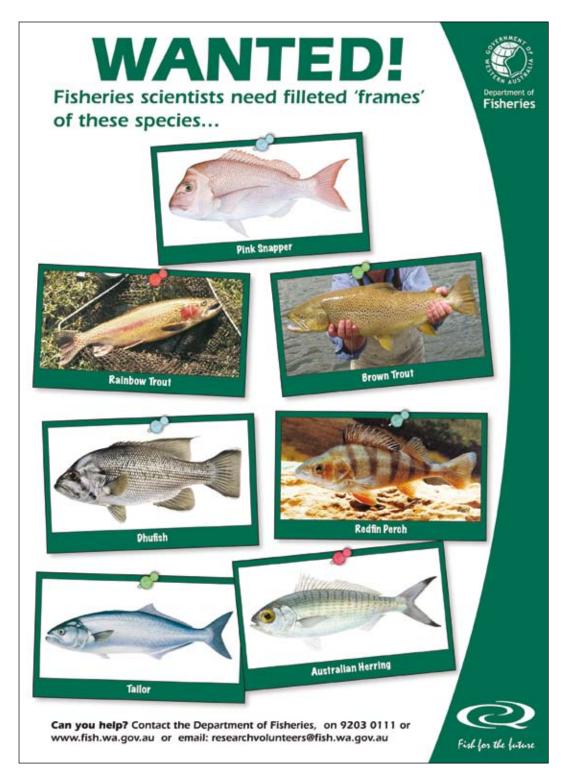
Fishing location(s): (i.e. lat/long or name of region)							
(i.e. latitiong or name of region) Bottom depth range(s):							
3 (1)							
Species	Total number of this species captured	Size (length or weight) of the first 4 of this species caught					
	(include all retained and released fish)	Fish 1	Fish 2	Fish 3	Fish 4	Measure used (cm kg. etc.)	

Appendix 6. Catch card from the 2006 Swanfish tournament.

Your competition number	Getaway
Total number of fish caught	Camping & Outdoor
Would you have fish the river and weekend had Swanfish not been on?	Fishing & Boating Equipment
Fisher Fish for the future of the future	sponsors of SWANFISH 'Catch Count Card'
Please include blowfish.	This is your 'Catch Count Card'.
Giant Herring will not be considered for the most unusual prize. Please enjoy the experience of capturing this great little fighter and return it to the water unharmed.	Return this to the weigh-in - you may win a prize valued at \$200.00
Thank you,	in the Special Catch Count Card Draw
Melville Amateur Angling Club Inc.	Please complete & return your 'Catch Count Card.
Conservationally Concerned - Recreationally Responsible SWANFISH ORGANISERS	The information will be used by the Department of Fisheries for Research on fish stocks in the Swan & Canning Estuary

Species	Number Caught	Number Kept	Number Undersize Released	Number Legal Size Released
Black Bream				
Flathead		с. С		
Flounder				
Yellowtail trumpeter				
Mulloway				
Tailor				
Tarwhine				*
Toadfish (blowfish)				
Whiting				
Other				
Other				
Other				

Appendix 7. 'Frames wanted' poster, August 2005 edition.



Appendix 8. 'Frames wanted' poster, March 2006 edition.

