



Staff in the Regional Services Division are widely dispersed around the coastal areas of WA and are the Department's primary public interface.

AGENCY PERFORMANCE

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Agency Performance – Overview

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The Department of Fisheries is responsible for the sustainable management of fisheries, aquaculture and the aquatic environment. The Department takes a strategic and risk-based approach to fisheries management, setting clear project budgets and coordinating activity across the Department's Aquatic Management, Research, Regional Services and Corporate Services Divisions to deliver the following services:
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Service 1 – Fisheries Management
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Service 2 – Compliance and Education
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Service 3 – Research and Monitoring
.....

Service 4 – Marine Safety
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The Department organises its resources to ensure optimum delivery against identified aquatic management priorities within a five-year planning horizon.

In order to provide a clear idea in practical terms of how the Department of Fisheries provides these services, the divisions and branches who provide a particular service are described below under the service heading, along with the achievements (for 2010/11) and initiatives (for 2011/12) relating to the particular service.

The Department's Corporate Services Division provides human resources, financial and management support to enable the Department to deliver its planned services effectively.

Service 1 – Fisheries Management

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The Department's Aquatic Management Division, in conjunction with the Licensing and Registry Services Branch, has overall responsibility for fisheries management service.
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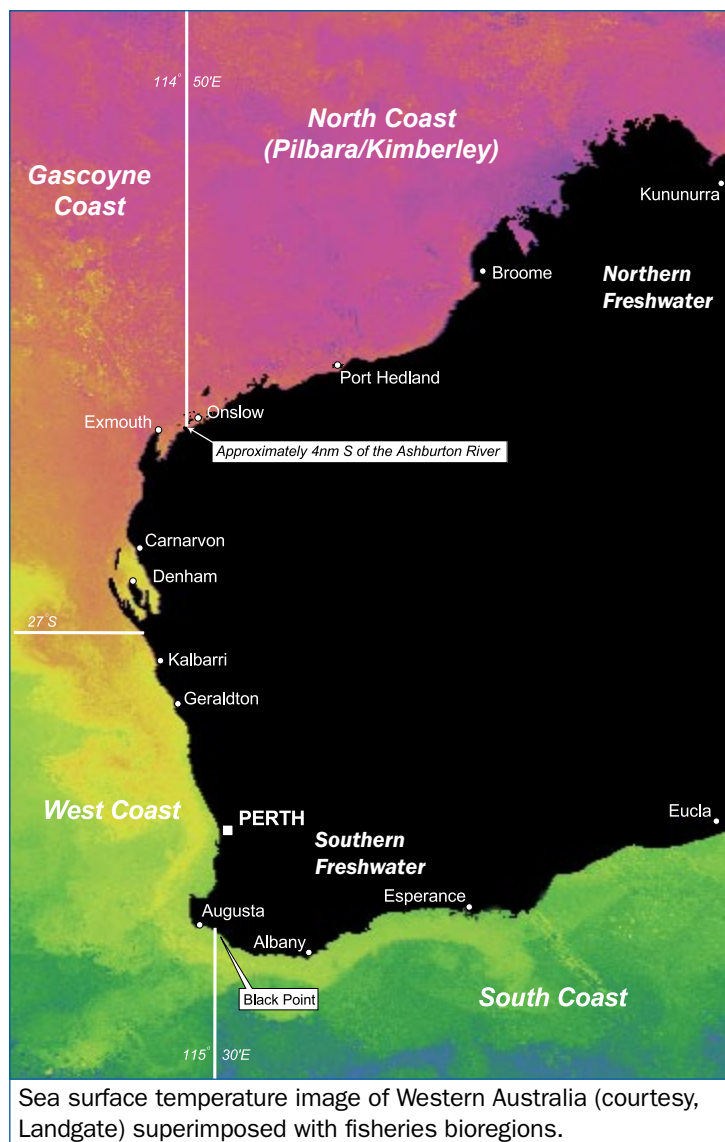
Through collaboration with the Research and Regional Services divisions, the Aquatic Management Division develops, implements and reviews management strategies for fisheries resources of importance to Western Australia's commercial, recreational and indigenous fishing sectors. It is also responsible for the management of the pearling industry, land and marine-based aquaculture and the protection of the marine and aquatic environments.

In addition, the Aquatic Management Division also maintains an expert capability in legislative drafting, legal services and overarching governance, including risk management, audit and annual reporting.

As a regulator, the Department of Fisheries has introduced an integrated fisheries management and operational approach that aims to take into account the needs of all major fishing

groups in the community and the effect of other human activities on the State's ecosystems. The basis of this approach lies in the division of our State into four marine biogeographical regions – the North Coast, the Gascoyne Coast, the West Coast and the South Coast.

These regions haven't randomly been chosen – they reflect the variation of temperatures in our coastal waters, caused by the influence of the Leeuwin Current (see the map on page 68). This warm, tropical current flows south from Indonesia and down WA's coast past Cape Leeuwin and then eastwards along the south coast into the Great Australian Bight and is strongest during the winter months. Each region comes with its own environment, fish species and set of rules.



The Department provides its fisheries management service through the allocation of resources across the following branches.

Aquatic Management Branch

The Aquatic Management Branch undertakes the key wild-stock fishery management functions of the Department of Fisheries. These functions are delivered through two bioregional management groups – the Northern Bioregions group and the South-West Bioregions group – and the West Coast Rock Lobster group.

The two bioregional groups are responsible for the integrated management of all ‘extractive’ (recreational, commercial and customary indigenous) fishing activities within their bioregions.

This branch is supported by the Strategic Fisheries Policy Group, which is responsible for broader issues of policy development and implementation for wild-stock fisheries, as well as administrative matters relating to ‘whole-of-state’ fishery issues.

The activities of the Integrated Fisheries Allocation Advisory Committee (IFAAC), which is responsible for providing advice to the Minister for Fisheries on fish resource allocations between commercial, recreational and customary users, are also supported through the Strategic Fisheries Policy Group.

Aquaculture Branch

The Aquaculture Branch is responsible for the management and regulation of Western Australia's aquaculture industry, which is small by global standards but considered to have capacity for substantial growth in the future. Commercially-produced species include barramundi, mussels, abalone, western rock oyster, silver perch, trout, pearl oysters, yellowtail kingfish, mulloway, marron, yabbies, ornamental species, artemia (brine shrimp used in fish hatchery diets) and algae (for the production of beta carotene, biofuels and biolipids).

The Department's management arrangements are designed to ensure the aquaculture industry is both economically and environmentally sustainable.

Aquatic Environment Branch

The Aquatic Environment Branch is responsible for leading the development of environmental policy frameworks and procedures to protect fish and their habitats throughout Western Australia, including biodiversity protection and aquatic biosecurity. In addition, the Aquatic Environment Branch is also responsible for the development, management and sharing of spatial data gathered by the Department to inform its management decisions and those across government relating to the State's aquatic environment.

The Aquatic Environment Branch provides advice for environmental impact assessments and

proposed exemptions and contributes to State, Commonwealth and regional marine planning initiatives, including the declaration and ongoing management of Fish Habitat Protection Areas and the delivery of Western Australian aquatic natural resource management activities resulting from the Commonwealth Government's 'Caring for Country' program. It is also responsible for freshwater fish protection and management.

In performing its biosecurity functions, the Aquatic Environment Branch collaborates with other state, interstate and national departments.

Legal and Executive Services Branch

The Legal and Executive Services Branch is responsible for the oversight and development of the Department of Fisheries' legislative framework. It also assists the Corporate Executive and officers of the Department in the provision of legal and strategic policy advice, legal interpretation and litigation including matters coming before the State Administrative Tribunal.

The Legal and Executive Services Branch works closely with all areas of the Department in the delivery of legislative priorities and policy advice on 'whole-of-government' issues. In addition, it coordinates the Department's annual reporting and regulatory 'gate-keeping' requirements.

Legislation gazetted by the Department during the 2010/11 financial year is shown in Appendix 3.

Licensing and Registry Services Branch

The Licensing and Registry Services Branch is responsible for the provision of licensing services for commercial fishing, recreational fishing, pearling and aquaculture. It manages the Fisheries Licensing and Management System (FLAMS) and the online renewal and payment facility and maintains a register of authorisations, exemptions and aquaculture leases, pursuant to Part 12 of the *Fish Resources Management Act 1994*.

The register is available to the public on application to the Department of Fisheries' Registrar and the payment of appropriate fees in accordance with section 125 of the *Fish Resources Management Act 1994 (FRMA)*.

Appendix 4 of this Annual Report provides a summary of information recorded on the register during 2010/11 including authorisations, aquaculture leases, security notations and exemptions.

Service 1 – Fisheries Management – Major Achievements in 2010/11

- The first stage in the transition to Individual Transferable Quota catch management in the West Coast Rock Lobster Managed Fishery was carried out, including the allocation of individual catch limits and introduction of a revised regulatory and administrative framework for quota management.
- A new funding model was implemented for the commercial fishing sector. Under the new model, commercial fishers are required to pay a flat fee of 5.75 per cent of the Gross Value Product (GVP) of the fishery in which they operate.
- The Fisheries Licensing and Management System (FLAMS) was modified and enhanced to incorporate ongoing changes to a variety of managed fishery plans including the West Coast Rock Lobster Management Plan.
- Fisheries Adjustment Schemes were established and completed for the Shark Bay Prawn Fishery, Shark Bay Scallop Fishery and the Abrolhos Islands and Mid-west Trawl Fishery. The total value of these schemes was approximately \$34 million.
- An Access Rights Working Group report to the Minister was completed on improving commercial fishing access rights.

- Requirements relating to the use of Sea Lion Exclusion Devices (SLEDs) on pots by commercial rock lobster fishers were expanded to include specified waters at the Abrolhos Islands.
- The Department of Fisheries and industry have completed the requirements for the anticipated Marine Stewardship Council re-certification of the commercial western rock lobster fishery for a further five-year period, when its current certification expires in November 2011.
- The Gascoyne Demersal Scalefish Managed Fishery was established, providing an integrated sustainable demersal scalefish management framework for the waters of the southern Gascoyne.
- The Indian Ocean Territories Aquaculture Development Plan was completed.
- Contributions were made to concurrent State and Commonwealth marine planning processes in the south-west and north-west of WA and to the Kimberley Science and Conservation Strategy.
- Development of a new strategic plan and management plan for the Abrolhos Islands Reserve and associated Fish and Fish Habitat Protection Area was commenced and a wastewater monitoring program implemented for the islands.

- The *Fish Resources Management Amendment (Fees) Bill 2010* and the *Fish Resources Management Amendment (Fees) Bill (No.2) 2010* were passed by the Parliament.
- The *Fish Resources Management Amendment Bill 2011* was introduced to the Parliament.

Service 1 – Fisheries Management – Major Initiatives for 2011/12

- A major state-wide review of recreational fishing management arrangements will be undertaken, with the aim of simplifying management and moving recreational fishing to a resource-based framework.
- A state-wide review of charter management arrangements will be undertaken, focusing on the licensing structure that underpins the management of this industry.
- A trial program to determine the effectiveness of artificial reefs at improving the quality of recreational fishing experiences will be carried out in the south-west of the State.
- The Licensing and Registry Services Unit will make a significant contribution to the development of the business and functional requirements that will lead to the introduction of the new Entitlement Management System for commercial fishers, which will include entitlement trading online.

- The second phase of implementing a full quota catch management system for the West Coast Rock Lobster Managed Fishery will be operational for the season commencing November 2011 and preparations for introducing a new management plan from 2013 made.
- The Department and the Western Australian Fishing Industry Council will work together to introduce changes to commercial rock lobster licensing, which will enable those with a financial stake in the fishery to have their investment more clearly recognised.
- A new management plan will be finalised and implemented for the commercial mackerel fishery.
- Model Management and Environmental Monitoring Plans (MEMP) will be developed for small-scale aquaculture operators and a guidance note written for the preparation of a MEMP for larger-scale operators.
- Aquatic biosecurity policies, standards and procedures will be completed and promoted for both marine and freshwater environments.
- Assessments will be carried out of the cumulative impact (direct and indirect) of coastal and offshore development proposals on the fisheries sector.
- Translocation policies and procedures will be completed and made assessable to clients and the public using the Department's corporate website.
- A number of initiatives will be progressed involving the Abrolhos Islands including the Abrolhos Islands Management Plan, a new body corporate lease, and the development of a new tourism plan and aquaculture policies.
- Spatial interpretation and analysis will be completed to support pre and post incident monitoring for potential oil spill responses.
- New legislation to replace the *Fish Resources Management Act 1994* and the *Pearling Act 1990* will be progressed.

Service 2 – Compliance and Education

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The Regional Services Division has overall responsibility for delivery of the Department of Fisheries' compliance and education services. The division develops and implements compliance, communications and education strategies to ensure fishing behavior is consistent with the Department's 'fish for the future' objective.
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Staff in the Regional Services Division are widely dispersed around the coastal areas of the State and located in five regional offices, 12 district offices, the Department's Perth head office and the Western Australian Fisheries and Marine Research Laboratories at Hillarys, and are the Department's primary public interface.

The Department provides its compliance and education service through the allocation of resources across the following branches.

Regional Services Branch

The Department's Regional Services Branch is responsible for the delivery of fisheries enforcement in recreational and commercial fisheries, the pearling and aquaculture industries, and in Fish

Habitat Protection Areas and marine parks. It also provides some education services, along with marine safety services, on behalf of the Department of Transport.

To maximise efficiency and effectiveness of compliance and at-sea servicing requirements in marine parks and reserves, the Regional Services Branch is also actively involved in joint operational planning and cross-authorisation training with the Department of Environment and Conservation.

A wide range of compliance tools are used by the Regional Services Branch to ensure that the fishing industry and public comply with fisheries legislation. These tools include land and sea patrols, aerial surveillance, covert operations, mobile patrols and educational activities. Compliance strategies are developed and resources allocated to fisheries and associated areas of highest risk through a comprehensive risk assessment process.

The Regional Services Branch has five regional offices – Gascoyne, Metropolitan, Mid-West, North and South – which each control a number of district offices. These regional operational areas are

supported by the Regional Services Branch Perth-based Central Support Services and Strategic Policy sections.

Communications and Education Branch

The Communications and Education Branch aims to build the knowledge, values and attitudes that are necessary to reinforce sustainable community behavior in the aquatic environment. It achieves this by keeping the Western Australian community informed about developments in marine science, fisheries management and compliance, and engaging the community and Department of Fisheries' volunteers in marine education, research, policy and planning processes.

The Communications and Education Branch is comprised of five areas – communications, media liaison, education and volunteers, the Naturaliste Marine Discovery Centre, and Trade and International Relations.

Work commenced in the latter part of the 2010/11 financial year to combine the education and volunteer team with the Naturaliste Marine Discovery Centre to form a community and education unit. The development of this unit recognises the growing importance of involving the community in the Department's management efforts.

Service 2 – Compliance and Education – Major Achievements for 2010/11

State-wide

- A quota catch monitoring system and associated compliance program was implemented for the West Coast Rock Lobster Managed Fishery.
- Twenty-three new trainee Fisheries and Marine Officers were recruited.
- The Department of Fisheries' state-wide schools education program won the Science Outreach Initiative prize at the 2010 Western Australian Science Awards.
- The [Perth Beachcombers Education Kit](#) was recognized as a finalist in the Environmental Education and Communication Category of the 2010 WA Environment Awards.
- The successful development, completion and launch of the Primary School phase of a new interactive curriculum-linked web-based education tool called [Marine WATeRs](#) (Western Australian Teacher Education Resources).
- A range of over 150 technical, educational and promotional print and e-media titles were published, including departmental websites, *Western Fisheries* magazine, research and management reports, log books, recreational fishing guides, species identification guides, posters, stickers, signage, display banners and

other material to support the Department's strategic goals and operations.

- An overseas trade mission to Korea and China was managed for the Department's Chief Executive Officer and six delegates.
- The [WA Fish eNews](#) email newsletter was produced and published every week for the Western Australian fishing industry.
- Over 4,000 school students and more than 10,000 members of the general public visited the Naturaliste Marine Discovery Centre.
- There was continued collaboration with government and non-government agencies that enhance the delivery of fisheries and sustainable natural resource management education programs across the State.

Northern Region

- Mobile patrols of recreational fishing activity were successfully implemented at Broome and Kununurra.
- A new Community Education Officer was appointed to the Northern Bioregion.
- A recreational compliance and education campaign was carried out at Port Hedland.
- A Western Australian Work Safety Award was won for the safety upgrades to the Broome Tropical Aquaculture Park.

Gascoyne Region

- An educational tour of the Gascoyne Region was carried out, which included schools at Denham, Useless Loop, Carnarvon and Exmouth and a number of community events.
- A new rigid inflatable boat, *FD44* was delivered to the Carnarvon District Office, increasing the ability to carry out compliance services across both commercial and recreational fisheries.
- A new mobile recreational fisheries patrol successfully delivered compliance and educational services across the region from Onslow to Kalbarri.

Mid-West Region

- A significant increase was made in the number of education and compliance contacts with land-based recreational fishers, including in the Jurien Bay Marine Park, through the introduction of the mobile patrol service.
- Targeted recreational demersal fishing compliance operations were carried out during the Easter and April school holiday period.
- Public recreation infrastructure was installed at Turtle Bay (East Wallabi Island in the Houtman Abrolhos) in collaboration with the Northern Agricultural Catchment Council.
- A new aquatic guide of the Houtman Abrolhos Islands was produced.

Metropolitan Region

- The Lancelin District Office was re-established to provide compliance services focusing on West Coast Rock Lobster Managed Fishery quota management and west coast demersal scalefish.
- Mobile patrols operating from Hillarys, Fremantle and Mandurah were established, providing additional compliance services in recreational fisheries within the Metropolitan Region and in other key areas around the State when required.
- The Rockingham Office was provided with two four-wheel-drive quad bikes to improve access to recreational fishers on local beaches from Safety Bay to Mandurah. This equipment upgrade has led to a massive increase in efficiency in the number of contacts and inspections in support of new initiatives in west coast demersal scalefish management.
- Five major joint operations were carried out with the WA Police (Peel Region) targeting fishing and drink-driving non-compliance. These operations resulted in 391 vehicles being checked and 41 infringements, eight infringement warnings and 11 prosecution briefs being issued for fisheries-related offences.

Southern Region

- A recreational fishing mobile patrol was established in the Southern Region.
- A collaborative interpretive education program was carried out in conjunction with the Department of Environment and Conservation for Walpole-Nornalup Marine Park.

**Service 2 – Compliance and Education
– Major Initiatives for 2011/12*****State-wide***

- The secondary school phase of the Marine WATERS online education resource will be developed, supported by a further \$150,000 sponsorship from Woodside Energy, extending the resource to Years 7 – 10.
- The new corporate website and an innovative electronic guide to Western Australian recreational fishing rules, providing bag and size limits that can be accessed using third-generation (3G) mobile phones, will be launched.
- Planning and development of the new Intranet will commence to provide a single, easily accessed source of information for staff, integrated into the Department's systems and processes.
- Volunteering and the use of volunteers will be reviewed across the Department of Fisheries.

- A community education officer will be appointed to the Pilbara/Gascoyne regions in a fly-in/fly-out role.
- The interactive equipment, such as touch screens and displays, in the Department's Naturaliste Marine Discovery Centre will be upgraded and enhanced in order to provide a better educational experience through partnerships with similar educational centres such as Scitech and the WA Museum.

Northern Region

- The planning and development of compliance and education programs for services for marine parks in the Kimberley will be progressed with the Department of Environment and Conservation.
- Industry consultation will be conducted for amendments to the Northern Demersal Scalefish Fishery Management Plan as the result of services for marine parks in the Kimberley.
- Formal management arrangements will be progressed for commercial mud crab fishing in the Kimberley.
- The development and implementation of management and compliance service delivery arrangements will continue for the Indian Ocean Territories.

- Assistance will be provided for the development of a barramundi restocking program for Lake Kununurra.

Gascoyne Region

- The Denham Fisheries Office – a multi-agency building incorporating the Department of Environment and Conservation and the Volunteer Marine Safety program – will be completed.
- Stage two of the Gascoyne Demersal Scale Fish Management Plan will be introduced and implemented.
- A new rigid inflatable boat will be delivered to the Denham district, increasing the ability to carry out compliance services across both commercial and recreational fisheries.

Mid-West Region

- An industry education program will be provided to support the 'year-two' changes of the introduction of a quota catch management system in the West Coast Rock Lobster Managed Fishery.
- A number of capital works projects relating to the Abrolhos Islands will be undertaken including the installation of at least 10 new 'courtesy' vessel moorings at safe anchoring areas and key dive sites; a major upgrade of aerodromes; the installation of additional dive trail markers at key dive sites and marine archeological sites; and the construction of a medium-sized patrol vessel to service the islands.

Metropolitan Region

- The Lancelin Office will be provided with two four-wheel-drive quad bikes to improve access to recreational fishers on local beaches between Two Rocks and Wedge Island.
- Assessment and planning for the purchase of a new mobile education trailer will be conducted as part of enhancing the community education program in the Perth metropolitan area and the wider regional areas.

Southern Region

- New management arrangements will be finalised for the South Coast Crustacean Fishery.
- A catch record card for recreational fishers who use Busselton Jetty will be implemented and promoted for data collection purposes to aid fisheries management.
- At-sea compliance capabilities will be increased with delivery of new patrol vessels in Albany and Busselton.

CASE STUDY 1



The lower levels of 'recruitment' of young lobsters into the western rock lobster fishery became evident in the 2010/11 season.

Rock Lobster in Focus – the transition to quota management and the low recruitment of young lobsters

The start of the 2010/11 [*western rock lobster*](#) fishing season heralded the start of a significant process of change for the West Coast Rock Lobster Managed Fishery, as it began the transition from management by input controls towards a full Total Allowable Commercial Catch (TACC)/Individual Transferable Quota (ITQ) output management system. This process will involve substantial change to the management arrangements for the fishery and, as such, is being implemented over a number of years.

The implementation of a TACC/ITQ catch management system will bring a range of benefits to licence holders and operators in the fishery, allowing them greater flexibility in determining how and when they fish. This will provide greater scope to respond to, among other things, seasonal fluctuations in the price of lobsters and changes in the cost of fishing. The increased flexibility should provide licensees and operators with an improved ability to increase their profitability.

From a fishery management perspective, moving to a TACC framework will provide for much more direct control over the catch of the fishery. With input controls used in the past, the catch taken by the fishery varied with the levels of lobster abundance (or catchability) and the values set for

input controls (such as the number of pots that could be used by a fisher, the length of the season or the number of fishing days per week).

However, in recent years, when targeting particular catch 'outcomes' (such as the 5,500 tonne catch target for 2009/10), the use of input controls has required regular review and adjustment of factors such as pot usage, season length or fishing days. This level of 'micro-management' has been difficult for both the rock lobster industry and Government, as it has required frequent changes to the input controls to deliver the desired catch outcome. Moving to a TACC will give certainty about the catch outcome without the need for frequent changes to input controls.

The first year of the move towards a TACC/ITQ framework has required the implementation of catch limits on licences, with the level of the limit varying in accordance with the number of units of (pot) entitlement on the licence and the zone to which the licence related. Thus, for those licensees in Zone B and Zone C, the limit was 81 kg and 75 kg per unit respectively. For Zone A the limit was split into two parts, according to which part of the season the fishing was being carried out in. For the period prior to 15 March the limit was set at 36 kg, and for the period 15 March to 31 August it was set at 51 kg.

The move to weight-based output controls also involved significant changes in the compliance framework for the fishery, with the compliance focus moving away from the quantity of gear used and days fished to the quantity of lobsters landed. This involved the implementation of a weighing and documentation process to record the weights of catches delivered by fishers and to track the consignments of lobsters.

Overall, implementation of the first phase of the TACC/ITQ management went well, with only minor teething issues. Perhaps the major complaint was that the system, as implemented in the 2010/11 season, did not provide the range of benefits (such as within-season transfers) that could be expected with a fully-developed TACC/ITQ system.

Given that the 2010/11 implementation was the first stage of the move to full TACC/ITQ management, it was not expected that the full benefits would be realised in that season. Nevertheless, when difficulties were experienced during January in supplying lobsters into the Chinese market, the flexibility for at least coastal fishery operators to adapt to changing market circumstances by simply delaying their fishing activities was regarded as a welcome feature of the new system.

The need to impose catch limits through explicit catch controls in the 2010/11 season, and catch targets in 2009/10 and 2008/09, arose from declines in the recruitment of young lobsters into the main stocks, as evidenced by

marked reductions in puerulus¹ settlement levels in 2007/08, 2008/09 and 2009/10.

In order to 'flatten out' the overall western rock lobster catch so that reasonable catches could still be taken during the years when the fishery was undergoing lower levels of recruitment, catch targets in the years preceding the entry of these low recruitment years into the main stocks were set at lower levels. This ensured that reasonable catches could be taken in the low recruitment years while still maintaining adequate breeding stock levels.

The lower levels of recruitment to the fishery become evident during the 2010/11 season, with noticeable drops in the relative abundance of smaller lobsters. However, during 2010/11 there were signs that puerulus settlement was improving, although settlement levels were still below the long-term average (see Figure 38 overleaf).

Studies of the likely cause of the period of low recruitment of young lobsters into the stocks strongly suggest that a combination of environmental factors was the primary cause. The studies point towards oceanographic conditions being unfavourable both for the survival of larvae

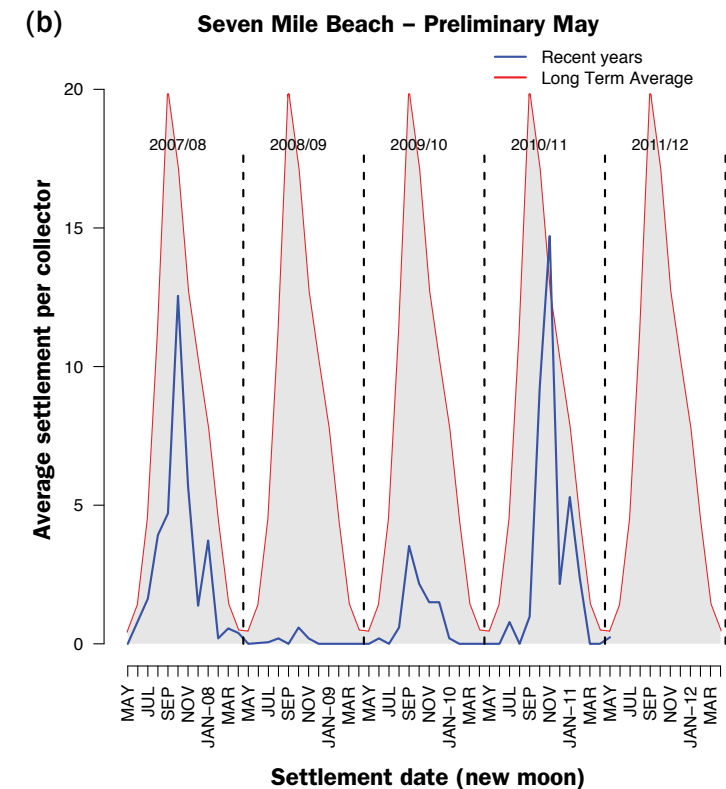
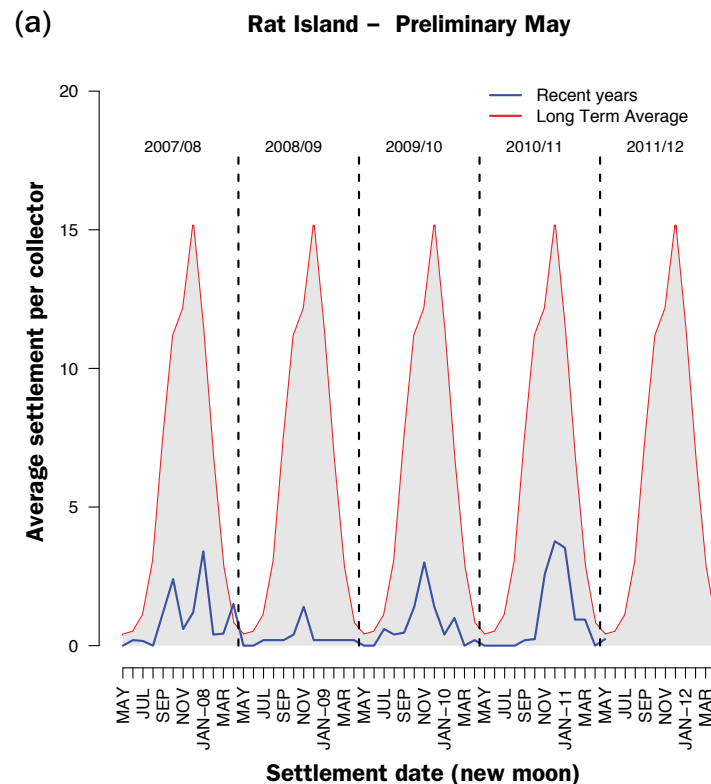
¹ Puerulus are the final stage of the long (around nine-month) larval phase of rock lobsters. Artificial seaweed collectors are placed at various sites along the south and mid-west coasts of WA and used to capture some of these puerulus larvae as they return to 'settle' and grow into adult rock lobsters. The number of puerulus captured is used as an index of the strength of recruitment to the western rock lobster stock.

during the nine-month larval period and for the return to the WA coast of those that survived.

The shift back towards more favourable oceanographic conditions, in particular with the end of the strong *La Niña* weather period as well as the return of a more normal Indian Ocean Dipole pattern of sea surface temperatures, provides a basis for some optimism for a return to normal puerulus

settlement levels. However, even if puerulus settlement returns to more normal levels during 2011/12, it will be three to four years before the first wave of any improved recruitment enters the fishery. On that basis, conservative catch levels will continue to be necessary for the West Coast Rock Lobster Managed Fishery for the next few years.

Figure 38. The graphs nearby show the average monthly settlement of rock lobsters that reach the puerulus stage from May 2007 to March 2012 and the actual settlement until May 2011 at (a) Rat Island (Abrolhos Islands) and (b) Seven Mile Beach puerulus collectors.



Marine Stewardship Council certification of the western rock lobster fishery

In March 2000 an industry-led initiative resulted in the West Coast Rock Lobster Managed Fishery becoming the first fishery in the world to be certified by the [Marine Stewardship Council](http://www.msc.org) (www.msc.org) as a sustainable and well-managed fishery.

The Marine Stewardship Council certification process is considered to be the most rigorous and comprehensive independent fisheries assessment in the world and the West Coast Rock Lobster industry has demonstrated strong leadership in its willingness to embrace this stringent and transparent process. The industry has completed its requirements for the anticipated Marine Stewardship Council re-certification of the commercial western rock lobster fishery for a further five-year period when its current certification expires in November 2011.

More than 300 fisheries are currently engaged in the Marine Stewardship Council program (106 are certified), which together record annual catches of more than seven million tons of seafood, i.e. 12 per cent of the landings for human consumption. Worldwide, over 10,000 seafood products, worth over AUD\$2 billion/year at retail, bear the blue Marine Stewardship Council eco-label.

The Marine Stewardship Council process provides a rigorous independent expert review under three broad principles:

- Stock assessment and harvest strategy (e.g. are the levels of breeding stock and the fishing effort/exploitation sustainable in the long term?)
- The impact of the fishery on the wider ecology (e.g. what is the impact of large scale removal of lobsters, of pots on the seabed [including corals], on bycatch species [e.g. octopus and finfish] and endangered species [e.g. sea lions, turtles, whales]?)
- Management and consultation arrangements (e.g. how robust and flexible is the management framework; are the decision-making processes effective, transparent and inclusive; how are stakeholders – such as commercial and recreational fishers and conservation non-governmental organisations – consulted during the development and implementation of management arrangements?)

The latest Marine Steward Council reports on the western rock lobster fishery can be found at: <http://www.msc.org/track-a-fishery/certified/south-atlantic-indian-ocean/western-australia-rock-lobster>

CASE STUDY 2



Licence fees from the 'Recreational Fishing from Boat Licence' produced around \$25 million to be spent directly on recreational fishing management initiatives.

Recreational Fisheries Management in Focus

RFBL fees help ensure 'fish for the future'

On 1 March 2011, the Department's 'Recreational Fishing from Boat Licence' passed its first anniversary – and has provided a major boost for the future sustainability of some of Western Australia's best-known demersal and nearshore species through its introduction.

In the 12-months since it was introduced, almost 115,000 'RFBLs' were issued to recreational fishers who use powered boats. The successful take-up of the new licence means that the Department of Fisheries has been able to create by far the biggest database of recreational fishers ever compiled in WA, providing its research scientists with vital information to aid the management of fish stocks along the State's coastline.

In addition, the licence fees have generated around \$2.5 million in revenue that has been placed in a recreational fishing account to be spent directly on recreational fishing management initiatives. During 2010/11, the Department had extensive discussions with recreational fishing representative body Recfishwest in considering how the revenue should be spent.

The revenue from the RFBL has so far been used to improve compliance with recreational fishing rules by increasing patrols of Fisheries and



To help research, some 3,000 boat fishers have volunteered to track their own catches and share this information every month for a year. Photo: Ashley Malone

Marine Officers, increase support for Recfishwest's role as the peak body representing recreational fishers, explore the potential of artificial reefs,

develop the Lake Kununurra barramundi broodstock collection and deliver recreational fishing guides and information to a broad official network of tackle shops and other retail outlets. In the future, RFBL monies will continue to be spent on research, management and compliance as well as particular targeted projects such as artificial reefs and restocking programs.

The RFBL has also enabled the creation of a comprehensive database of recreational boat fishers and where they live in WA, providing a platform for highly detailed surveying to be carried out on how much time is spent fishing and what is caught by a huge range of fishers. This will enable a much more accurate estimation of what recreational fishers catch in total over the State than could be achieved simply with regional boat ramp 'creel surveys' previously used mainly by the Department.

Owing to sustainability concerns about fishing for key demersal species, such as [dhufish](#), [pink snapper](#) and [baldchin groper](#), in the West Coast Bioregion (from Kalbarri to Augusta), the Department of Fisheries has needed to concentrate its catch and effort monitoring program in this area in the last five years.

With the information from the database, the Department will now be able to readily contact fishers in the other three bioregions and compile a more accurate picture of what is happening with recreational fishing catches and the amount of

time spent fishing. This will lead to better and more informed management decisions being made.

Some field work, similar to past creel surveys, is still being carried out to estimate the size and weight of different fish species being caught, but the primary estimates of catch and effort will come through a log book program that is being run using the RFBL database.

In late 2010 the Department contacted a random sample of recreational fishers using the database and, in cooperation with partners Recfishwest, Edith Cowan University and Murdoch University, signed-up 3,000 boat fishers from around the State who volunteered to track their own catches and share this information every month for a year.

For the log book survey, 2,000 fishers have been randomly selected from the wider Perth metropolitan area and 1,000 fishers have been similarly selected from regional areas of the State. In addition, in 2011, between 5,000 and 10,000 fishers will be surveyed at boat ramps by researchers at the end of their fishing trip, and catch information will also be gathered from a similar number of fishers who come into contact with the Department's Fisheries and Marine Officers during this period.

The survey work will provide an estimate of the overall recreational boat fishing catch and effort in WA in 2012.

Management strategies succeed in boosting Cockburn Sound crab numbers

Crab fishers benefited during the 2010/11 summer from continuing improvement in blue swimmer crab stocks in Cockburn Sound, off the Perth metropolitan coast.

Stocks of [blue swimmer crabs](#) are recovering well after a three-year total freeze on crab fishing was lifted in the 2009/10 summer and replaced by a limited three-and-a-half-month fishing season. The fishery's continuing recovery enabled Fisheries Minister Norman Moore to extend the 2010/11 recreational season to four-and-a-half months, allowing crabbers to enjoy the pastime over Easter.

The duration of the commercial crab fishing season in Cockburn Sound remained the same as in the previous year (December 15 – March 31), but the minimum size of blue swimmer crabs that commercial fishers were allowed to catch was reduced to 135 mm carapace width from 140 mm.

The Department will continue to monitor crab stocks in Cockburn Sound as a priority for the foreseeable future.

Recreational fishing rules – available on a special flyer – [‘Crabbing for blue swimmer crabs in the West Coast Region’](#) – include a minimum size limit of 127 mm carapace width, a bag limit of 10 crabs per fisher per day, and a boat limit of 20 crabs.



The recreational Cockburn Sound crab fishery was extended to four-and-a-half months during 2010/11, as stocks recovered well after a three-year total freeze on crab fishing, which was lifted in 2009/10.

Hi-tech tagging helps manage Cockburn Sound snapper stocks

Department of Fisheries research carried out in Cockburn Sound during 2010/11 has used high technology acoustic tags to track the movements of pink snapper to and from the area. Cockburn Sound is the only significant spawning area for [pink snapper](#) in the West Coast Bioregion – the stretch of coast running from east of Augusta to the Zuytdorp Cliffs, north of Kalbarri.

Every year, some time between August and December, thousands of adult pink snapper congregate in Cockburn Sound to release their eggs and sperm, as part of what are known as ‘spawning aggregations’. As a result, there is an annual seasonal



Fisheries researcher with a pink snapper (Inset: pink snapper with tags near dorsal fin).

closure to pink snapper fishing in the area (extended as part of a package of management changes in 2005), which runs from October 1 to December 15 to protect these spawning fish.

Fish that join the spawning aggregation in Cockburn Sound reach sexual maturity when they are about six years old and 600 mm in length. These fish are much larger relative to those from other areas in the West Coast Bioregion – which means they can produce relatively larger numbers of eggs – and are thus very important for pink snapper stocks in the entire bioregion.

The Department of Fisheries has been conducting surveys since 2001 to estimate the spawning biomass of snapper that form the aggregations in Cockburn Sound each year. Preliminary estimates suggest the biomass was declining prior to the management changes in 2005, but has subsequently increased as the result of factors such as changing the timing and extending the length of the closure from six to ten weeks, and adjusting the daily bag limit so that a maximum of one fish over 70 cm in length could be taken.

Other factors that have helped to increase the spawning biomass include an influx of mature pink snapper into the Cockburn Sound spawning population from the strong stock recruitment that occurred in 1999.

Send Us Your Skeletons helps fisheries science

Fishers who participated in the '[Send Us Your Skeletons](#)' initiative provided the Department's research division with fish skeletons of a number of demersal fish (those that live on or near the sea bottom) and nearshore fish species, along with the particulars of their catch, including when and where the fish were caught.

Researchers needed the filleted fish skeletons – with head and guts intact – to support research into key finfish species from the West Coast Bioregion (north of Kalbarri to east of Augusta), such as [Western Australian dhufish](#), [pink snapper](#) and [Australian herring](#).

Analysing data collected from fish frames is one of the best ways that fisheries scientists can assess the health of fish stocks, which is used to help manage WA's prized fish stocks more effectively and ensure there are 'fish for the future'. Important information that is collected from fish skeletons includes the length, sex and reproductive stage, and age of the fish.

Recreational fishers were encouraged to drop off their fish skeletons at Department of Fisheries' regional offices and participating tackle stores.

The recreational fishing industry provided great support for 'Send Us Your Skeletons' by providing a number of incentives for skeleton donation. Those fishers who gave their fish frames to the



Fisheries researcher Josh Brown and volunteer Laurie Birchall demonstrate how to remove fillets from a fish and donate its skeleton. Photo: Matthew Terwey

Department went into a prize draw for a number of prizes donated by industry, including a week-long charter fishing trip to the Montebello Islands, courtesy of Montebello Island Charters.

CASE STUDY 3



Trochus shell after commercial polishing.

Aboriginal community commercial fishing: The Western Australian Trochus Fishery

The Bardi Jawi and Mayala Native Title holders¹ of One Arm Point are the only people permitted to commercially harvest trochus shell in the waters of Western Australia. Trochus shell has been commercially harvested by the Bardi Jawi and Mayala people in the waters around the Dampier Peninsula and Buccaneer Archipelago since at least the 1960s.

It is a small fishery based on a single target species of trochus shell (*Trochus niloticus*) being collected by hand, with between two to 15 tonnes exported annually over the past decade. The fishing grounds are located in the remote Kimberley region of Western Australia and include the Native Title area waters of the Bardi Jawi and Mayala people.

The Trochus Fishery is managed under an Instrument of Exemption (see Appendix 4 of this report for details of types of exemptions), permitting community-nominated community members from One Arm Point to take trochus for a commercial purpose in the Bardi Jawi and Mayala Native Title areas. The collectors use boats (mostly four to five-metre long dinghies) to access the outer reefs from which they hand-pick trochus from exposed reef tops during low tides.

¹ Ardyaloon Incorporated is the commercial arm of the Ardyaloon Aboriginal Community Council, located at One Arm Point, representing the Bardi Jawi and Mayala Native Title holders.



Between two to 15 tonnes of trochus shell are exported annually after being collected by hand by the Bardi Jawi and Mayala People.

In 2007, representatives from the One Arm Point Aboriginal community and the Department of Fisheries agreed to a revised set of co-management arrangements for the Trochus Fishery including:

- a maximum size limit of 100 mm (basal shell diameter);
- minimum size limit of 75 mm (basal shell diameter);

- two area closures; and
- an annual quota (15 tonnes).

Under the co-management arrangements all trochus is picked from exposed reef (no diving is permitted) and all shell is sold through one central point.

The Trochus Fishery's low impact collection methods result in minimal impact on reef habitat and the wider ecosystem generally, and there is no bycatch in the fishery.

The co-management approach provides the One Arm Point Aboriginal Community with a sense of ownership and responsibility in managing the stocks to ensure they are sustainable. There is a strong customary marine tenure aspect to the fishery that enhances the sense of ownership of the Community.



All trochus is picked from exposed reef by the Bardi Jawi and Mayala people and all shell is sold through one central point.

Service 3 – Research and Monitoring

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The Research Division is responsible for the delivery of the Department of Fisheries' research and monitoring service. The primary role of the Research Division is to provide timely and quality scientific knowledge and objective advice to support the management, conservation and sustainable use of the State's aquatic resources. Ongoing research, monitoring and assessment programs are focused on supporting the management of the State's major fish stocks and the marine ecosystems that underpin these resources. These activities also contribute to the Department of Fisheries meeting its statutory responsibilities.

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The Research Division's 130-plus staff members, of which over 45 are professionally-qualified research scientists, work within four expertise-based branches (Invertebrate Fisheries, Finfish Fisheries, Biodiversity and Biosecurity, and Stock Assessment and Data Analysis), with monitoring and assessment research projects frequently conducted by multi-disciplinary teams, increasingly in cooperation with external research partners.

The major research activities undertaken by the Research Division are:

- Provision of objective expert scientific advice to assist the Department of Fisheries to implement a comprehensive holistic approach to management of the State's aquatic natural resources (i.e. Ecosystem-Based Fisheries Management).
- Annual reporting on the status of the key fish stocks, fisheries and their associated ecosystems in the *State of the Fisheries and Aquatic Resources* report.
- Maintenance of long-term monitoring programs and databases to enable the scientific assessment of fish stocks and their associated ecosystems.
- Development of new assessment and governance techniques to assist in aquatic management within an integrated, ecosystem-based framework.
- Generating an understanding of the threats to biosecurity and biodiversity specifically associated with aquaculture activities and to the marine and freshwater environments in general.

- Undertaking monitoring and research activities aimed at limiting the potential introduction and impact of marine pest species.
- Investigation of the effects of fishing on stocks, habitats, bycatch species, protected species and the ecosystem in general.
- Undertaking research and development activities to assist with the expansion of the State's aquaculture industry.

Significant scientific advice and contributions are also provided by the Research Division to assist the Department of Fisheries in:

- Negotiating management or governance arrangements with Commonwealth agencies (such as the Department of Sustainability, Environment, Water, Populations and Communities (SEWPaC); the Department of Agriculture, Fisheries and Forestry (DAFF); and the Australian Fisheries Management Authority (AFMA)).
- Providing advice to support the development of national and international strategies.
- Providing advice on risks and impacts of marine and coastal developments including those associated with the resources sector.
- Information to support Wildlife Trade Operation accreditation by State fisheries to obtain export approvals under the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*.

The individual branches of the Research Division and their work are described below.

Invertebrate Fisheries

The Invertebrate Fisheries Branch undertakes research to assess and monitor the crustacean and mollusc stocks that support the State's major fisheries, which include rock lobsters, prawns, pearl oysters, scallops, abalone and crabs.

A focus of research in recent years has been the development of estimates of pre-recruitment abundance to make catch predictions and then using these predictions in the management of the fisheries through management 'decision rules'.

The Invertebrate Fisheries Branch also assists the Biodiversity and Biosecurity Branch to undertake research on broader ecosystem-related issues associated with these fisheries, such as bycatch and community structure, including a number of collaborative projects with universities, the Western Australian Museum and the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

The Invertebrate Fisheries Branch is also responsible for staffing and programming the Department's major research vessel, the *RV Naturaliste*. This vessel undertakes a range of research activities throughout the year, encompassing trawling, fish trapping, rock lobster fishing, longlining, biodiversity studies and environmental monitoring.

Finfish Fisheries

The Finfish Fisheries Branch undertakes research to assess and monitor the State's diverse finfish resources. The branch monitors indicator species for finfish resources in all the biogeographical regions that Western Australia has been practically divided into by the Department of Fisheries.

Some of the species monitored include Western Australian dhufish, temperate snapper and baldchin groper, which are indicator species for the health of the west coast demersal scalefish resource. Other indicator species monitored and assessed include tropical shallow-water and deep-water snappers, sharks, nearshore species such as Australian herring and estuarine species such as cobbler.

These species are harvested by commercial fishers (supplying local and overseas markets), the recreational fishing sector (involving around 600,000 fishers) and the managed recreational charter fishing sector. Much of this research work also relates to the species and stocks that are the focus of the Department of Fisheries' Integrated Fisheries Management strategy.

The Finfish Fisheries Branch also supports a significant number of collaborative research projects at local universities and other research groups (Australian Institute of Marine Science, CSIRO) many of which involve postgraduate research students.

Biodiversity and Biosecurity

The Biodiversity and Biosecurity Branch has state-wide responsibilities for the provision of scientific advice relating to the conservation of fish and invertebrates and protection of the environment. This includes responsibility for issues such as:

- Health of benthic habitats including faunal (coral) and floral (seagrass) components.
- Biosecurity issues.
- Provision of fish pathology services.
- Freshwater research (e.g. native fish conservation).
- Production of trout and native fish species at the Pemberton hatchery and the Shenton Park research facility.
- Management of the Department's marine aquarium facilities.

The work of the Biodiversity and Biosecurity Branch is carried out in collaboration with the Department's Aquatic Management Division, the Department of Environment and Conservation, various universities, the Australian Institute of Marine Science, natural resource management groups, and port and harbour authorities.

Stock Assessment and Data Analysis

The Stock Assessment and Data Analysis Branch provides support for the Research Division and the Aquatic Management Division in the fields of

statistical design and analysis, population dynamics and stock assessment, data management, monitoring of fishery catch and effort, library services, and recreational fishing and community surveys.

In addition, the data collected during routine monitoring of commercial and recreational fisheries undergoes preliminary analysis and assessment by the Stock Assessment and Data Analysis Branch.

The branch maintains the Department of Fisheries' extensive commercial fisheries and charter boat databases and undertakes leading-edge research into the development of fisheries stock assessment models and sustainability reporting techniques. In addition, it carries out major recreational fishing and community and stakeholder attitude surveys – the results of which are added to the comprehensive fisheries databases maintained by the Research Division.

This group works in close collaboration with the other Research Division branches and is primarily responsible for assessing the status of most fish stocks in Western Australia. It is through these assessments that the success of the Department's fisheries management arrangements is effectively monitored.

Service 3 – Research and Monitoring – Major Achievements for 2010/11

In addition to the ongoing monitoring and assessment functions (which are all documented in the 2010/11 Research, Monitoring, Assessment

and Development Plan), in 2010/11, the Research Division achieved the following successes:

Invertebrates

- The improved stock assessment model for western rock lobster was reviewed by a team of international experts and used to examine management scenarios for this fishery.
- A Fisheries Research and Development Corporation (FRDC) research project on oceanographic modeling of the larval phase of the western rock lobster fishery was completed in collaboration with the CSIRO to identify important larval source areas that result in successful puerulus settlement.
- An independent survey on the status of western rock lobster stocks in the 'Big Bank' region (to the north of the Abrolhos Islands zone of the limited entry western rock lobster fishery) to evaluate the effects of the closed area showed a significant improvement in abundance.
- An FRDC joint project with the CSIRO was initiated to assess the management implications of climate change effects on the fisheries in Western Australia.
- An assessment of the spawning stock and recruitment of blue swimmer crabs in Cockburn Sound showed that stocks are recovering well and a management decision-

rule framework was used to extend the level of fishing.

- A Seafood Cooperative Research Centre (CRC) bio-economic modeling project was initiated to further examine the maximum economic yield for the western rock lobster fishery.
- A Seafood CRC-funded greenlip abalone enhancement study was initiated to determine the growth and survival of abalone released in the wild fishery.
- A workshop on the ‘marine heatwave’ that took place over the summer of 2010/11 was undertaken to assess the effect of the record water temperatures off the mid- and lower west coast of WA on the marine life.
- External reviews of research on stock status of blue swimmer crab stocks in Cockburn Sound, Peel-Harvey and Shark Bay, as well as scallop stocks in Shark Bay, were carried out.

Biodiversity and Biosecurity

- A baseline survey of coral habitats at the Abrolhos Islands was finished.
- Monitoring for introduced marine pests in Western Australia’s three highest risk ports and Christmas Island was finished.
- A review of the marron recreational fishery was undertaken to ensure its sustainability in the future.

- A Natural Resource Management-funded fish ladder was constructed at Pemberton Freshwater Research Centre for native fish breeding.
- Two species of native fish (pygmy perch and western minnows) were successfully bred in captivity.
- Commercial production of brine shrimp at Hutt Lagoon, Port Gregory was achieved as a result of a collaboration with Cognis Australia and FRDC. This success led to the project winning the 2010 Premier’s Award for ‘Developing the WA Economy’.
- A bioregional bycatch (including threatened, endangered and protected species) risk assessment was written and published for the Gascoyne Coast, West Coast and South Coast Bioregions.

Stock Assessment and Data Analysis

- A fully-integrated approach to state-wide surveys of recreational boat-based fishing, using the Recreational Fishing from Boat License, was developed and implemented.
- Assessment of recreational catches of the West Coast demersal scalefish catch showed that management regulations had achieved the desired 50 per cent reduction.
- An FRDC project, in collaboration with Murdoch University, was finished on ecosystem health

indicators relevant to the monitoring and management of Western Australian fisheries.

- Qualitative assessment approaches to Ecosystem-Based Fisheries Management were completed for recreational fishing on the west coast and deep-water lobster ecosystems off Jurien Bay.

Finfish

- Potential methods for surveying juvenile dhufish were reviewed, involving intrastate and interstate scientific experts, leading to the development of a workplan to trial survey methods.
- The first assessment was commenced of the status and connectivity of the important nearshore species, Australian herring and tailor, with support from Natural Resource Management funding.
- The status and risk of all finfish resources in the State was reported and made available online to help prioritisation of monitoring and assessment resources.
- An assessment was completed of the status of indicator species for the Gascoyne demersal scalefish resource (temperate (pink) snapper, goldband snapper and spangled emperor).
- Led a delegation to China that resulted in the signing of a Memorandum of Understanding between the Department of Fisheries and the China Society of Fisheries to promote the

exchange of scientific expertise and develop joint-projects to support fisheries research, monitoring, assessment and management

Service 3 – Research and Monitoring – Major Initiatives for 2010/11

Invertebrates

- An FRDC-funded project will be completed on increasing our understanding of the causes of the low puerulus settlement in the western rock lobster fishery, using a larval oceanographic model and a statistical assessment of biological and environmental data.
- Development will be finalised for a new spatial stock assessment model for the western rock lobster fishery and a sensitivity assessment of the parameters used in the model undertaken.
- A catch prediction model for the Perth recreational abalone fishery will be used to assist in the management of the new Total Allowable Recreational Catch.

Biodiversity and Biosecurity

- Delimiting surveys will be carried out for introduced marine pest species identified by monitoring projects carried out in ports.
- Ongoing monitoring will be conducted for introduced marine pest species at high risk locations.

- An FRDC project on the investigation of Chlamydiales-like organisms in pearl oysters will be finalised.
- An FRDC-funded project to investigate viral inclusions in Australian prawns will be started.
- Fresh water bodies and species for rehabilitation, restocking and feral eradication will be prioritised, based upon data from our 2010 survey.
- Restocking of native fish will commence in priority water bodies.
- The community education display at the Pemberton Freshwater Research Centre will be completed and the hatchery re-opened to tours by the general public.

Stock Assessment and Data Analysis

- Assist development and integration of the Department's new entitlement management system to ensure integrity of historical and future time series of catch and effort data for the state's commercial fisheries.
- Data collection for the survey of state-wide boat-based fishing will conclude, and detailed analyses will begin.
- Build capacity in stock assessment to improve ability to meet the needs of fisheries management.

Finfish

- An NRM-funded project to determine connectivity and status of key indicator species in the nearshore waters of the West Coast Bioregion will be finalised.
- Cooperative FRDC-funded projects will be completed that examine the relative efficiency of gear and resource availability in the tropical demersal fisheries and the stock structure of blue and king threadfin species across northern Australia.
- Reports will be finalised and released on the stock status of the Gascoyne demersal scalefish resource.
- An NRM-funded project on the monitoring of juvenile dhufish, including identifying options for future monitoring programs will be finalised.
- Northern and southern finfish monitoring and assessment plans will be finalised and implemented to support departmental planning processes.
- The commencement of an FRDC-funded project led by researchers at the CSIRO and aimed at collecting and identifying larval dhufish in the West Coast Bioregion will be supported.
- An FRDC-funded project to examine the movements and linkages of key shark species among the bioregions will begin.

CASE STUDY 4



During the marine heatwave whale sharks were seen off Mandurah and as far south as Albany. Photo: Matt Pember

Research and Monitoring in Focus – Scientists join forces to investigate marine heatwave and climate variability

An unprecedented ‘marine heatwave’ experienced along the Western Australian coastline during the 2010/11 summer appears to have some major implications for fish and invertebrate species, including western rock lobster, living along the State’s continental shelf.

In May 2011, marine experts from around the State, hosted by the Department of Fisheries and the CSIRO, joined together in a workshop to review the physical and biological aspects of the heatwave. The Department of Fisheries had already started investigating the phenomenon.

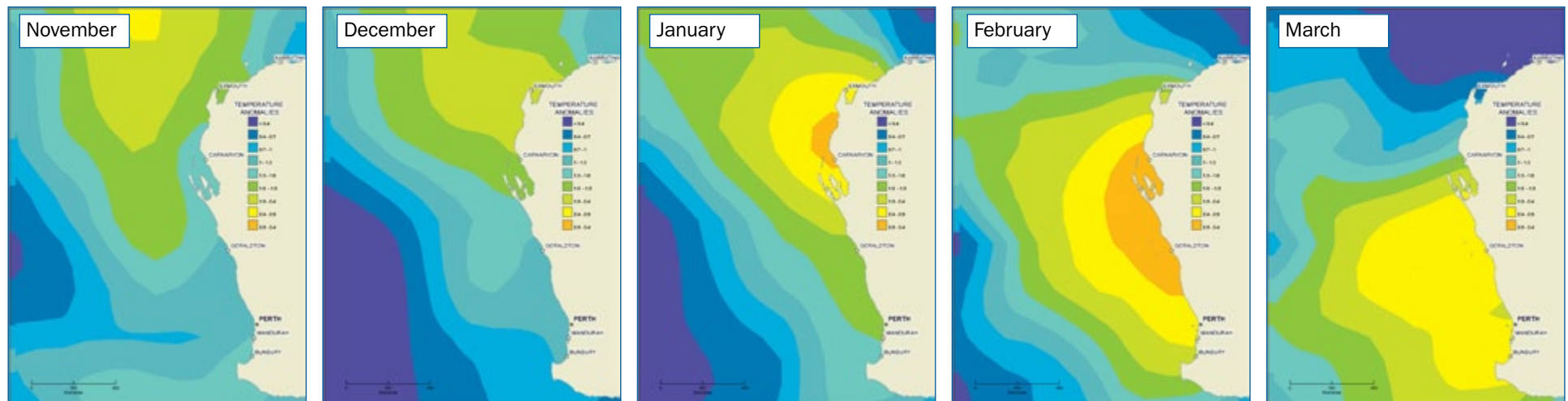
The aim of the forum was to share information collected by marine scientists and other stakeholders,

including commercial and recreational fishers, to ensure the causes and effects of the heatwave were fully understood and properly interpreted.

Since the final quarter of 2010, above-average water temperatures were recorded off the WA coastline. Over a period of several months, an extensive patch of very warm water moved southwards, driven by a stronger-than-usual Leeuwin Current. This current plays a major role in controlling the marine life and climate of Western Australia.

In February 2011, sea surface temperatures were more than three degrees Celsius above average for this time of year over a large area extending from Ningaloo to the Abrolhos and more than 200 km

Figure 39. The size and movement of the marine heatwave from November 2010 through to March 2011.



Signs of the times: Some of the more dramatic results of the marine heatwave that occurred during the summer of 2010/11.



Coral bleaching at Barrow Shoals near Dampier. Photo: Department of Environment and Conservation



Dead Pink Snapper in Shark Bay. Photo: Department of Fisheries



Reef Bannerfish seen at the Busselton Underwater Observatory. Photo: Anna Micha



Black Marlin as far south as Busselton. Photo: Jeni Gates, Bluewater Tackle, Exmouth



Whale sharks seen off Mandurah and as far south as Albany. Photo: Jason Stone



Dead sunfish on beaches near Albany. Photo: Kim Smith, Department of Fisheries

offshore, while an area extending from Exmouth to the Capes and 500 km offshore was more than two degrees Celsius warmer.

In some cases, sea temperatures were the warmest ever recorded for these regions, appearing to be influenced by a stronger-than-usual Leeuwin

Current over summer, associated with the very strong *La Niña* weather event. During the heatwave, there were a number of fish kills along the mid-west coast and in the Abrolhos, Kalbarri and Leeman areas, which appear to have been caused by low oxygen levels brought on by high water temperatures and hot, still weather. Western rock lobster and abalone deaths were also reported in areas of warmer water associated with calm conditions.

Climatic variability has a strong influence on many biological processes off the west coast of WA. Recruitment of juvenile rock lobster into adult stocks is affected by climatic factors including water temperatures and the strength of the Leeuwin Current (which strengthens during *La Niña* events, but weakens during *El Niño* events).

Whilst high recruitment of western rock lobster is influenced by a strong Leeuwin Current and the associated higher water temperatures, there is evidence that increases in water temperature can result in a decrease in the size of rock lobsters at maturity.

During March 2011, the Department of Fisheries announced its researchers were combining with the CSIRO in a three-year project to closely examine the effects of climate change on Western Australia's marine environment. The \$450,000 project, funded by the Australian Government's Fisheries and Research Development Corporation, the Department of Fisheries (WA) and the CSIRO, utilises oceanographic modeling and an

understanding of environmental effects on fisheries using case studies.

In WA this project will be used to assess the vulnerability to climate change of fish stocks such as western rock lobster, blue swimmer crab, tailor and dhufish.

Climate change affects life cycles of fish stocks by altering seasonal cycles and long-term trends of the physical environment. Any long-term changes in the abundance of fish stocks as the result of climate change may require an adjustment in fishing effort or catch quota, in order that the fish stocks remain sustainable.

Figure 39 on page 97 features a graduated temperature scale indicating the average sea surface temperatures recorded over that month. The darkest blue/purple shade indicates water of normal temperature (ie. what you would usually expect to see). The yellow and orange areas indicate water of much higher than usual temperature (2.5 to 3.5 degrees above normal).

Figure 39 also shows the movement of the body of water from well off the north-west coast (about 400 km offshore) in November 2010 through to a significant intensification in January 2011, where it is seen to be directly hugging the Gascoyne coastline. By February it has enlarged and extends from Ningaloo to south of Mandurah. By March the coverage was still extensive but the very high temperatures had fallen.

Service 4 – Marine Safety Service



During 2010/11, the Department of Fisheries took part in a joint marine safety exercise with the Department of Transport, Police Air Wing, Peel Water Police and Sea Rescue to practice winding people on and off vessels. Above: a man being winched off a vessel. Right: the exercise viewed from a Department of Fisheries vessel.

The marine safety compliance service is delivered by Fisheries and Marine Officers within the Department's Regional Services Branch on behalf of the Department of Transport.

These services are primarily provided within the Metropolitan Region (Lancelin to Mandurah) and include both at-sea and boat ramp checks to ensure Masters and persons in charge of vessels are complying with relevant marine safety legislation. Most of these services are targeted at recreational boat users but some commercial inspections also occur when the situation permits.

As many of these services are delivered in conjunction with a fisheries compliance service, they are delivered effectively and efficiently in line with government policy.

The Department of Fisheries is working closely with the Department of Transport on policy matters, such as the introduction of marine safety single national jurisdiction under the Commonwealth by 2013, that may affect clients and our own maritime operations.



Corporate Services

Corporate Services Division

The Department's Corporate Service Division, in partnership with the Department of Treasury and Finance – Office of Shared Services (DTFSS), provides corporate services necessary to support the Department in the delivery of its Fisheries Management, Compliance and Education, Research and Monitoring and Marine Safety services.

Shared Corporate Services

The DTFSS delivers corporate services such as financial and human resources across the public sector from a single location, using a common system. The Department of Fisheries' personnel functions were transferred in October 2009. This complements the existing finance and payroll modules previously adopted.

Customer Service Management

The Department of Fisheries' Customer Service Feedback Management System was established to ensure that complaints are heard and dealt with fairly and quickly. The system also records complimentary feedback and suggestions for the improvement of service.

The management and staff of the Department respect the right of members of the community to complain about the standard of service provided by the Department. The Department's commitment to fair, equitable and timely resolution of complaints, and recognition of both positive and negative feedback at all levels of the organisation, are described in its Feedback Management Policy (see below) and related documents.

Our Policy

The Department will deal with complaints effectively and promptly without prejudice or bias. At all times we will be honest and fair in our dealings with customers.

The Department's Customer Service Charter provides procedures for the effective management

and resolution of feedback and complaints by members of the public. It outlines the Department's Feedback Management Policy and meets the criteria for effective complaints handling laid down by the Australian Standard (AS ISO 10002-2004).

The Feedback Management System enables the Department to manage and respond to complaints, compliments and suggestions in a timely and equitable manner.

Maintenance of the Customer Service Charter and the Feedback Management System is now the responsibility of the Customer Relations Manager.

In addition to the Feedback Management System, the Department also relies on regular client surveys for feedback on customer service performance. This data is gathered in a number of ways, including questionnaires distributed by Fisheries Volunteers to recreational fishers, the commercial fishing fleet log book system and an annual community attitudes survey.

The Feedback Management System

This specialised software package was developed to enable staff to record and assign a response time to feedback from customers, whether it is a complaint, a compliment or a suggestion provided to the Department by clients in person or by telephone, letter, facsimile and email. The Customer Relations Manager manages the system and Feedback Liaison Officers are assigned to each area and regional office to oversee the day-to-day running of the system.

To encourage support and understanding of the new system, the Department produced a suite of brochures that outline the feedback process to clients and the public. A *Policy for Customer Feedback, Guidelines for Staff; the Customer Service Charter – Our Commitment to You; and Feedback for the Future* brochures are available from Departmental offices and on the Department's website.

The Department received 23 feedback items through the Feedback Management System during 2010/11 – 19 complaint items and four complimentary items.

The majority of the complaints related to difficulty in accessing the Department's recreational fishing online licensing system. The matter was investigated, the problems were identified and the online licensing system has now been modified.

To meet the requirements of the Customer Service Charter, the Feedback Management System is continually being reviewed by the Customer Relations Manager to improve the system and ensure the best possible customer service.

Outlook for 2011/12

The amended Feedback Management System will be continually monitored during 2011/12 to assess its effectiveness.

Human Resource Management

Throughout 2010/11, the Human Resources Branch has focused operational resources on facilitating the delivery of human resources/payroll services in collaboration with the Department of Treasury and Finance Shared Services.

Annual Staffing Level

The annual staffing level for the year was 419 employees as at 30 June 2011.

Table 23. Department of Fisheries staffing levels for 2010/11

	September 10	December 10	March 11	June 11
Actual FTE	385	382	398	419

The staffing levels outlined above are a snapshot of the number of full time equivalent (FTE) staff paid on the last pay day in each quarter of 2010/11.

The number of FTEs has fluctuated throughout the year as a result of variations to the number of externally-funded positions, receipt of additional funding for new projects and as a result of positions being vacant and/or incumbents on unpaid leave during various reporting periods.

Finance and Administration

The Finance and Administration Branch worked hard during 2010/11 to ensure ongoing strategic financial management was provided to meet the requirements of the Department of Fisheries, the

Department of Treasury and the Office of the Auditor General. This involved a major review and cleansing of financial data within the shared services environment.

The Department's finance and administration function was strengthened during the year with the appointment of a new Chief Financial Officer. In previous years, this statutory position has been held by the Director of Corporate Services.

Consistent with State Government policy, the Department finished the year ahead of its financial targets for the implementation of corporate purchasing cards. This initiative continues to add efficiencies and savings in the procurement and payments processes for both the Department and for suppliers.

Information Management

The Information Management Branch is responsible for the management and delivery of information services to meet internal Department requirements. The branch is made up of three separate areas:

- Corporate Information – responsible for the management of corporate documents and other information, including compliance with the Department's statutory obligations under the *State Records Act 2000* and *Freedom of Information Act 1992*.
- Information Systems Operations – responsible for the management of IT infrastructure

(including computers, servers and network equipment), communications and data services (fixed and mobile data and mobile telephones), the corporate operating environment (including desktop and server software) and Information Technology helpdesk services.

- Application Development – responsible for the management and support of corporate applications including eBrief, SeaStar and the Rock Lobster Quota Management System. This section also manages new application development.

Major Achievements for 2010/11

- A review of progress against the initiatives contained in the Strategic Human Resource Management Plan (*Plan for Our People*) that aligns people strategies and initiatives with the strategic goals of the Department.
- The implementation of the Public Sector Reform Program that has introduced new Commissioner's Instructions covering disciplinary procedures, employment and filling a public sector vacancy.
- The review and improvement of the Department's performance management tool, the Individual Performance and Development (IPAD) form and supporting information for managers and employees. The roll-out of these improvements included awareness sessions and management coaching both in the metropolitan area and regional centres.

- Commenced the development of a multi-period and multi-scenario financial analysis tool to enable the regular review of the Department's strategic financial position.
- The development of a Rock Lobster Quota Management System, including an interactive voice response system.
- The roll-out began of a new corporate operating environment for both servers and personal computers.
- A virtual computer environment was further consolidated, reducing the Department's impact on the environment.
- Significant contributions were made to the 'whole-of-government' Server and Data Storage Devices Common Use Agreement.
- The Department's record keeping plan was updated in line with State Records Office requirements.

Major initiatives for 2011/12

- Enhancing organisational development initiatives and programs.
- Assisting Corporate Executive with a review of the organisational structure and classification framework for the Department.
- Implementation of a Suicide Prevention Strategy that aims to engage employees in mental health discussions and develop programs to improve coping resilience and

- reduce the risks of suicide for staff and their loved ones.
- Implementation of an induction and training program for supervisors and managers.
- Development and implementation of a human resources metrics and reporting model that will improve workforce analysis and risk management.
- Continuation of the Department's Wellness Program to strengthen employee engagement in health and wellbeing initiatives.
- The follow-up Work Safe accreditation assessment is scheduled to be undertaken.
- The development of a new strategic plan to guide the Department's investment in information services over the coming years.
- The development of a business classification scheme and retention and disposal schedule to support the effective management of corporate information.
- Further work will be carried out on the deployment of an electronic document records management system.
- Significant changes to a range of core corporate tools, including service desk, records management system and other support and management tools.
- Implementation of the Interactive Voice Response system for the Rock Lobster Quota Management System.
- Significant changes to the Department's infrastructure to support the deployment of the Entitlement Management System.