

**Draft Aquaculture Plan
for the Recherche Archipelago, Western Australia**

**Draft User Profile
of the Recherche Archipelago
and the Adjacent Coast**

**Prepared for
Fisheries Western Australia
and
the Recherche Archipelago Consultative Group**

by

Overall Consulting Biologist

in association with *Fish Unlimited*

April 1999

DRAFT USER PROFILE FOR THE RECHERCHE ARCHIPELAGO

AN INVITATION TO COMMENT

Fisheries WA invites people to make a submission on the issues discussed in this report - *Draft User Profile for the Recherche Archipelago*. This is one of four documents which have been prepared by *Everall Consulting Biologist* in association with *Fish Unlimited*, as part of the process of planning the future direction of aquaculture in the Recherche Archipelago. The other documents are:

- Draft Aquaculture Plan for the Recherche Archipelago;
- Report of Community Consultations; and
- Benthic Habitat Survey of the Remark, Mart, Mondrain, Tory and York Island Groups in the Recherche Archipelago.

The Draft Aquaculture Plan has also been released for public comment and should be read in conjunction with this Draft User Profile.

Copies of the Report on Community Consultations and the Benthic Habitat Survey are available from Fisheries WA should further detail be required.

Why Write a Submission?

A submission is a way to provide information, express your opinion and put forward your suggested course of action, including alternative approaches.

Fisheries WA will consider the submissions received and amend the Draft User Profile and Aquaculture Plan accordingly.

Public submissions will be treated as public documents unless specifically marked confidential, and may be quoted in full or in part in any further reports on the Recherche Archipelago.

Developing a Submission

In your submission you may agree, disagree or comment on general issues or specific strategies listed.

It may help to reduce the workload on individuals and increase the pool of ideas and information if you join a group with similar interests and make a joint submission.

When making comment on a specific issue in the report:

- refer each of your comments to the appropriate section or chapter heading in the report;
- clearly state your point of view;
- indicate your reasoning or source of information; and
- suggest alternate strategies, safeguards or information.

Public Submissions Form

A public submission form is available for use if this approach is preferred. When using the form, your submission need not be limited to the space available on the form.

Please remember to include your name, address, the date and whether you want your submission to be confidential.

Closing Date

The closing date for submissions is July 2, 1999.

Contacts

Submissions should be addressed to:

Marine Planner
Fish & Fish Habitat Protection Program
Fisheries WA
Locked Bag No. 39, Cloister Square Post Office
PERTH WA 6850

If you wish to discuss the content of the document or require further information, please contact Mr Greg Paust on (08) 9482 7333.

**Marine Planner
Fish & Fish Habitat Protection Program
Fisheries WA
Locked Bag No. 39, Cloister Square Post Office
PERTH WA 6850**

Address: _____

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page.

Fisheries Western Australia Disclaimer

This draft document was prepared by Everall Consulting Biologist in association with Fish Unlimited for Fisheries Western Australia.

The information in the document is the views and recommendations of the authors and do not necessarily reflect the views of Fisheries Western Australia.

The draft documents are being released for public comment to enable the community of Esperance and other interested groups and agencies to provide comment and input.

Following the completion of the public comment period, the development of a final aquaculture plan for the Recherche Archipelago will be progressed.

Peter Rogers
Executive Director
Fisheries Western Australia

Draft User Profile of the Recherche Archipelago and the Adjacent Coast

1. Introduction

Fisheries Western Australia has commissioned a Draft Aquaculture Plan for the Recherche Archipelago which is to include detailed consultation with the Esperance Community and industry groups.

Early in the course of the study the Recherche Archipelago Consultative Group advised Fisheries Western Australia of the need to develop a user profile of the Recherche Archipelago as a first step toward management planning of the area. Because of the similar objective of the study it was decided that the consultants should work with the RACG to develop this initial draft profile.

This document was submitted as an initial draft and was intended to provide feedback and be discussed with the RACG and other contributors in Esperance, to enable addition, refinement and correction of the data and charts presented. The profiles presented are largely based on meetings and interviews with informed local people and some reference to published material. The sources of the data are listed in each profile, however the data and their interpretation is the responsibility of the consultants. Use of the data for planning thus has limitations, however it highlights the dearth of information available for planning in the Recherche Archipelago.

2. User Profile -Tourism

Scope of Activity

Studies have shown that tourism in Esperance and the Recherche Archipelago relies on the recreational opportunities afforded by the dramatic coastal scenery and the area's "clean green" image which has been carefully nurtured. Visitors enjoy a wilderness style experience and marvel at the crystal clear waters.

Tourism at Esperance and the Recherche Archipelago has a number of components including:

- accommodation;
- diving (Section 3);
- boating and fishing (Section 4);
- beach activities including camping, fishing and swimming (Section 5);
- charter boats and cruises (Section 6);
- scenic driving to beauty spots and historic sites;
- environment appreciation;
- expeditions;
- coach tours;
- scenic flights (Section 6);
- wildflowers, walks, museums and other land based attractions.

The *Strategic Plan for the Tourism Industry in the South East Region of Western Australia* (SERTS) notes that the South East has potential for significant tourism growth. It has a diversity of good tourism product with emphasis on natural beauty and recreational activity. The coastal and islands environment is the outstanding tourism attraction of the South East Region. The key elements of this environment are:

- the spectacular coastline with its rugged headlands and quality beaches;
- the islands close to the coast;
- activities associated with these physical features, ie;
 - sailing;
 - island visits;
 - boating and boat trips;
 - fishing;
 - diving;
 - whale, seal and marine birdlife viewing;
 - swimming;
 - coastal walks;
 - coastal drives;
 - camping (coastal, island).

The report indicates that services providing for the utilisation of these assets are limited. In particular there is need for a development or facility which can provide a focal point for the coastal islands' assets. The report proposes a major Marine Interpretation Centre focusing on the Archipelago, marine issues, fishing, whales, seals and history (including Aboriginal, *Sanko Harvest*, sealing and pirate Black Jack Anderson). This would be prominently located and preferably be an element of the proposed foreshore development in Esperance.

Woody Island

Woody Island is the only island in the Recherche Archipelago with accommodation and general public access. It is a "B" Class Nature Reserve. MacKenzie's Island Cruises (*MV. Seabreeze*) conduct a full-time tourist charter operation which comprises a number of different sightseeing cruises around the islands in Esperance Bay. The Woody Island nature experience culminates with a stopover on Woody Island where the company has established a permanent base. Facilities on the island include ablutions, overnight up market tent camping for up to three nights and a new interpretative/tearoom centre. All of the other islands in the Recherche Archipelago are "A" Class nature reserves and are generally inaccessible, except for Sandy Hook and Middle Islands which have beaches. On quieter days access to some islands is possible.

Accommodation

There are 8 caravan parks in Esperance and along the coast, 23 guest house/farmstay/cottage/B&B establishments and 11 hotel/motels providing accommodation. Average occupancy rates for caravan parks range from just over 70% in January to a low of 33% in July. For hotels and motels, the average occupancy rates range from 60-70% in January to just over 30% in June. (SERTS)

The Australian Bureau of Statistics figures for tourist accommodation for the March 1997 quarter were as follows:

Hotels and Motels Number	Rooms	Beds	Caravan Parks Number	On Site Vans	Other Powered Sites	Unpowered Sites	Cabins Flats Etc
10	283	747	7	68	478	63	35

Guest arrivals for hotels, motels and caravan parks for 1996 were as follows:

Month	Hotels and Motels	Caravan Parks	Total
January	5415	5623	11038
February	3109	2941	6050
March	3646	2714	6360
April	4158	4164	8322
May	3216	1999	5215
June	2140	1535	3675
July	2519	1909	4428
August	3071	2404	5475

Month	Hotels and Motels	Caravan Parks	Total
September	3988	4773	8761
October	5757	5252	11009
November	5469	3177	8646
December	3811	4954	8765
Total	46128	42977	89105

Source: ABS in SERTS

Events

There are a number of aquatic based events on the tourism calendar including a three day wave sailing regatta, the Esperance Archipelago Offshore Angling Classic in February and a surfcasting classic in March. The World and National Flying 15 Yacht Championships were held at Esperance Bay Yacht Club in early 1999.

Tourism Season

The main tourism season occurs between November and April with the largest numbers occurring in the school holidays after Christmas and at Easter and the April School holidays. The Tourism Strategy report notes that like most holiday venues in WA, Esperance has a problem with seasonality and that the Region has something of an image problem in terms of its weather and wind.

Tourism Participation and Demographics

The consultations indicated that during the Christmas - January peak period, the population of Esperance swells from 12,500 to twenty or thirty thousand people and popular beaches and fishing spots experience double or triple their usual usage.

The Strategic Plan for the Tourism Industry in the South Eastern Region of Western Australia (SERTS) released in July 1997 contains visitor data from its own survey and from the WA Tourism Commission's Regional Travel Survey (WATS). The WATS figures estimate that the total number of visitors to Esperance was 139,000 in 94/95 with an approximate total of 445,000 visitor nights. WATS figures on visitor activity also indicate that 30 % of visitors to the South East Region visit the beach, 17% go fishing and 16% visit the islands or go pleasure boating.

However as the region includes Ravensthorpe and other centres away from the coast, the figures are not directly comparable to the SERTS survey summarised below. These figures are based on a questionnaire survey carried out in 1996-97 for SERTS, in which 4,000 questionnaires were distributed through commercial operators in the area. The survey was undertaken over the period of October 1996 - February 1997 and provides the following information on visitor activity in Esperance in that period. This information needs to be used with care because of the small sample size (226 responses).

Activity	%age (SERTS)	Estimated Total #	Comment
visit beaches	81%	112,590	no details of breakup of activities
go on island cruise	41%	56,990	
go fishing	30%	41,700	no breakup into beach, jetty, small boat, deep sea, charter etc
go snorkeling	9%	12,510	
go scuba diving	1%	1,390	
visit the Duke of Orleans Bay	41%	56,990	

The surveys identified that the coast/water was a prime reason for tourists visiting the area, but provide no breakdown of specific activities. It would be useful to have some details of current patterns of boating and fishing activities, types of boats in the area and types brought to Esperance by visitors. The Esperance District Recreation Association has applied for a grant to conduct a review and plan of the leisure industry in the Region.

Other Visitor Data

- MacKenzie's Island Cruises advised that 17,000 people visit Woody Island annually;
- The Department of Conservation and Land Management advised that in 1993, 59, 000 people visited Cape Le Grand National Park and 38,772 visited in 1997/8;
- 6,000 people visited Cape Arid National Park in 1993. No later figures are available.

Principal Tourism Areas and Resources

Localities of importance to Tourism include:

- Lookouts;
- Roads and scenic areas;
- National Parks and Nature Reserves;
- Caravan parks and camping areas. Lucky Bay is a most popular site;
- Woody Island;
- Beaches;
- Duke of Orleans Bay;
- Jetties, groynes, boat ramps and fishing areas;
- Historic sites;

The SERTS study and local tourist brochures list many other resources and attractions which are not directly related to the Recherche Archipelago and the coastline.

Sources

SERTS, WATC, BH, FM, BR, EL, BS, MK

Interpretation and responsibility for data: Consultants

3. User Profile - Recreational Diving

Scope of Activity

The crystal clear waters and diversity of habitats and marine life in the Recherche Archipelago provide a diving resource of major significance. The many reefs, islands and sheltered bays with different aspects permit diving under most conditions and offer a variety of diving experiences from adventure diving on the wreck of the *Sanko Harvest* to shore based and boat based nature appreciation and underwater photography. The components of the activity include:

- skin diving or snorkeling;
- scuba diving;
- nature appreciation and photography;
- wreck diving;
- spearfishing;
- abalone diving;
- shell diving;
- tourism;
- diving charter boats;
- learning to dive and diving instruction;
- compressed air supply.

A significant proportion of boats classed as recreational fishers also undertake diving and spearfishing. Most of the information in this profile was provided by diving charter operators.

Diving Clubs

There is one diving club in Esperance and several others visit from other areas:

- Esperance Dive Club;
- Desert Divers (Kalgoorlie);
- Perth Diving Academy;
- Scuba 2.

Diving Charter Operations

Esperance Diving and Fishing is the only full time diving charter service in Esperance. It provides diving instruction and scuba tank filling and has the only scuba tank testing facility in Esperance. The business is a seven days a week year round operation. It has a 16 metre dive vessel, *The Southern Image*, which is capable of 15-16 kts and carrying twenty divers plus instructors. Dives are scheduled throughout the year and are both day and extended operations. Most clients come to look and see, not to spearfish and tourists are a main focus of the business. Many clients are from overseas and want a sophisticated experience. The main centre of operations is in Esperance Bay, but interest extends to Salisbury Island at the eastern end of the Recherche Archipelago.

Diving Season

Diving is undertaken throughout the year but the main season is in summer, from November to April/May. Winter diving is undertaken when conditions permit.

Participation and Diving Effort

During the consultations it was suggested that there are 10-15 local professional divers in Esperance and 150 sport divers. Some of these divers have hookahs. A significant proportion of boats classed as recreational fishers also undertake diving and spearfishing. It is difficult to identify individual divers or to assess their preferred dive sites and numbers involved, however the South East Regional Tourism Strategy report (SERTS) suggests that each year 9% of visitors, or 12,510 people, may go snorkeling and 1% or 1,390 are scuba divers.

Charter Operations

The *Southern Image* (16 m) owned by Esperance Diving and Fishing is the town's only dedicated dive charter vessel and carries an average of 12-15 passengers for charters. Mr Peter Hudson of Esperance Diving and Fishing advised that his dive log record for the period January 1996 to December 9 1998 showed he used the Remark Island Group 70% of the time.

On the information provided it is probable that up to 8,000 dives are undertaken in the Recherche Archipelago each year. Most of those dives would be in summer, within Esperance Bay and near Duke of Orleans Bay. Charter operations would account for 28% of diving effort in the Recherche Archipelago. The remainder would be accounted for by:

- Shore based diving;
- Private dive boats (a significant proportion of boats classed as recreational fishers also dive);
- Training, instruction and inshore diving activities.

Principal Diving Localities

Chart 1 shows the main charter diving locations in Esperance Bay and other locations advised in the consultations.

For charter operations, the choice of dive site is related to the economics of distance versus diver numbers. The site needs to be not too deep and to cater for a variety of divers and it is important that clients are not always taken to same dive site. Dives are scheduled several days ahead and cannot easily be postponed, because of the need for a regular and reliable service. On a bad day, they cope with chop and swell and go out. They thus require sheltered sites. Most charter diving is undertaken 45 minutes out from Esperance. Mr Hudson stated that if he could dive in closer he would.

An important dive site is at Harvest Reef, 18 nm from Esperance. This is the site of the wreck of the *Sanko Harvest*, which is the second largest diveable wreck in the world. A frequent method of operation is to dive on *Sanko Harvest*, then come in and have lunch and dive in the shallow areas around Remark and Frederick Islands which are protected from the sea breeze.

Mr Hudson uses the Remark Island Group 70% of the time, because of its protected nature and proximity to Harvest Reef. Other factors are the variety of aspects for all sea and wind conditions, biological interest and diversity of experiences. Other relevant diving features of the Remark Island Group include the occurrence of the protected Leafy Sea Dragon at three sites, the wreck of the *Lapwing* north of Long Island and spectacular wall and canyon diving with species such as black coral.

Marie Northcoat of Wildwest Sports at Kalgoorlie advised that when they take students they dive Esperance Bay (near the tanker jetty) and Cape Le Grand. They occasionally dive the Remark Group on the way back from the *Sanko Harvest*. If they have beginners with them they don't dive the *Sanko Harvest* as it is over 20 m. When they do boat dives (they use *The Southern Image*) they generally dive:

- Woody Island;
- Cull Island;
- Long Island;
- Magistrates Rock.

Other important diving sites include:

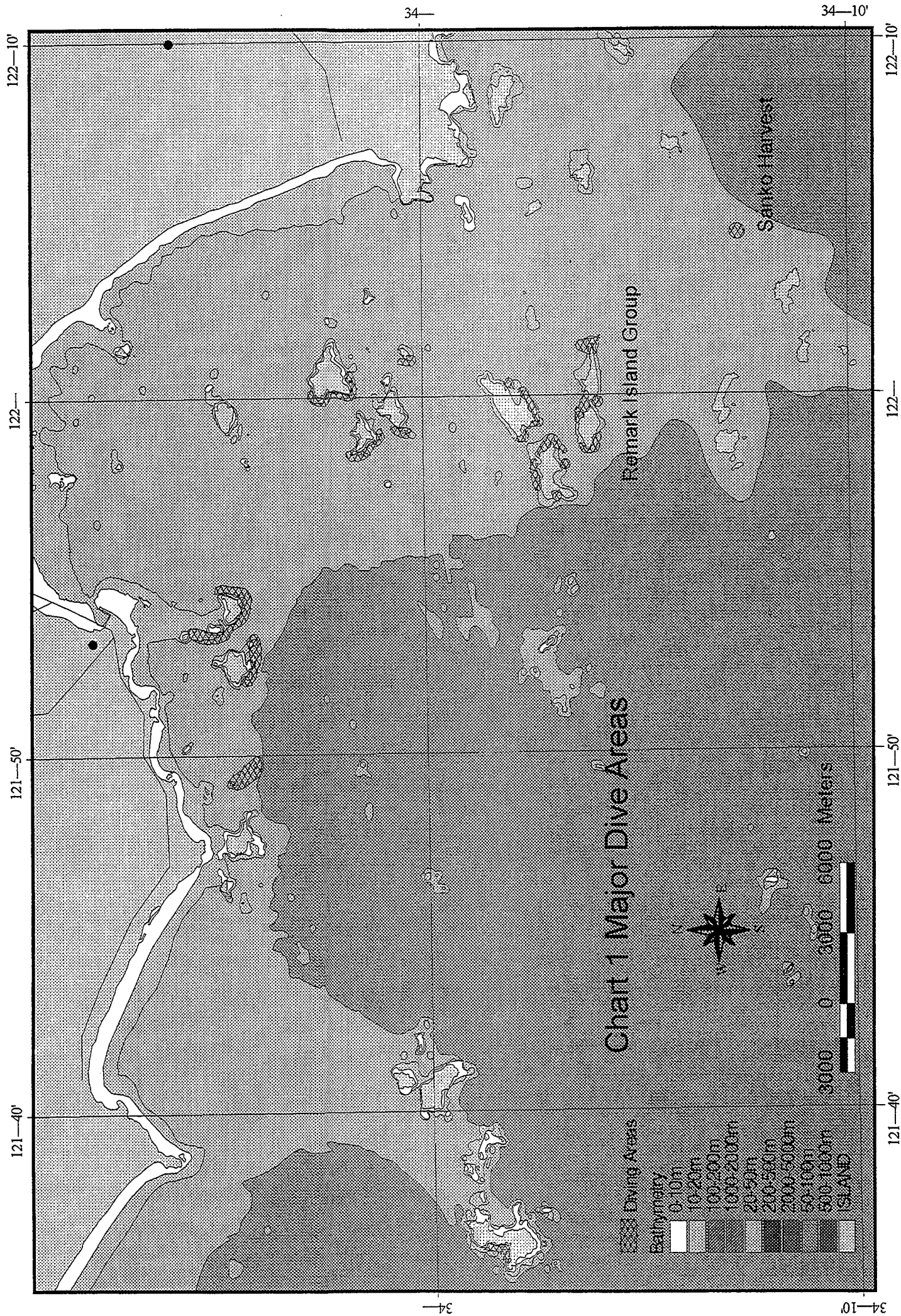
- The artificial reef near the Esperance Tanker Jetty;
- Lion Island, which features caves and coral;
- Remark and Frederick Islands which have safe dive walls to 18 m depth;
- Remark Island which has abundant coral.

CALM has advised that it does not favour diving at Kimberly and McKenzie Islands which are seal haul out sites. Diving not encouraged and it is an offence under the *Wildlife Protection Act* to interact with the seals.

Sources

PH, LH, MN, BT, RC, BH, BR,

Interpretation and responsibility for data: Consultants.



4. User Profile - Recreational Boating and Fishing

Scope of Activity

Recreational boating is a popular activity and the main means of private access and travel within the Recherche Archipelago. It is likely to interact with aquaculture and marine farming if the industry is developed in the Esperance area. For the purposes of analysis, the activity can be divided into four components:

- **Offshore and Deep Sea Fishing.** Usually in well equipped vessels of over 5 m, going up to 40 nm from shore. Red snapper (or Nannygai), Pink snapper, Harlequin fish, Samson Fish, sharks, Silver Trevally, Breaksea Cod and Queenfish are the main fish of recreational interest to the deep sea fishers who fish the reefs, lumps and bommies up to 30- 40 miles out. Some vessels are also used for diving, spearfishing and cruising;
- **Inshore Boating and Fishing.** Generally smaller vessels operating near the bays and islands, up to 10 nm from shore. The smaller boats tend to operate within 30-60 minutes steaming time from Esperance and other ramps and fish for King George Whiting, Sand Whiting, Pink Snapper, Snook, Sweep and Herring. They also engage in diving, family and other recreational pursuits;
- **Offshore Cruising under Sail or Power.** Generally larger local and visiting yachts including East West yachting traffic;
- **Dinghy Fishing.** Trailable or car top dinghies capable of being launched on informal ramps or across the beach and generally limited to sheltered bays. This group is dealt with in more detail in the user profile on Surfcasters (Section 5).

Some boats fish in groups and many keep in radio contact with each other and Esperance Sea Rescue. The annual Esperance Archipelago Offshore Fishing Classic is held within a 30 mile limit from Bandy Creek Harbour in February.

There are four yachting, fishing and boating clubs in the Region including:

- Esperance Bay Yacht Club;
- Esperance Deep Sea Angling Club;
- Middle Island Fishing Club (not a formal club and only visits now and then);
- Esperance Surf Casters Club (see Section 5).

Sea Rescue

Esperance Sea Rescue has a membership of 15 and provides extensive coverage of the Recherche Archipelago. In the last three years it has been called out for rescues as far away as 80 miles to the south west and 120 miles east (usually at 2 am). The Training Officer, Mr Graham Cooper, is the only radio examiner in Esperance. Several tragedies have occurred in recent years, exemplifying the dangerous nature of these waters.

Boating and Fishing Season

Weather conditions are the main limiting factor on boating and access to the Recherche Archipelago. The area is noted for a large prevailing south westerly swell.

From November through January, morning calms and light easterlies are often followed by an afternoon south easterly sea breeze of up to 35 kts with wave heights up to 2.5 m. During February and March conditions are less severe and there are longer periods of calm weather and seas. The prevailing winds are from the south west to south, but easterlies and north easterlies are significant in summer. North westerlies can also occur. Esperance Sea Rescue reported that the anchorage at Middle Island is subject to north westerlies.

The main recreational boating season occurs between November and April with the largest numbers occurring in the school holidays after Christmas and at Easter and the April school holidays. Weather conditions are sometimes suitable for another peak in numbers during the October holidays. Significant boating activity occurs on long weekends, while work practices in the Goldfields often allow people to take three or four days off. June is considered unsuitable for boating but there are odd calm days through winter which enable boating and fishing activity.

Windsurfing

Windsurfing is a popular activity at Esperance particularly in January and February, because of the strong breezes and variation in beach aspect to the wind. Popular locations are within Esperance Bay, Nine Mile Beach, Twilight Beach and Yokinup Bay at Cape Arid.

Boating and Fishing Effort

The overall impression gained from the consultations and research is that recreational boating numbers are low in comparison to other popular boating centres. The following table based on data provided by the Department of Transport, shows the number and size of registered recreational boats in the region as at January 1999.

Number and Size of Registered Recreational Boats

Centre	0-4.9 m	5 m-9.99 m	10 m-14.9 m	Over 15 m	Total
Esperance	302	156	12	nil	470
Norseman	15	3	nil	nil	18
Kalgoorlie	133	78	2	1	214
Total	450	237	14	1	702

It can be seen from the table that overwhelming majority of recreational boating craft are less than 10 m.

Esperance Bay Yacht Club has 35 yachts on its register, including visiting yachts, which are capable of voyages to the outer islands.

No records were found of boat ramp usage, however Mr Graham Cooper of Esperance Sea Rescue reported that up to 50 boats of 4.2 m and above leave Esperance on peak days between December and March. Generally the boats go out early in the morning and return with the

south easterly sea breeze. He logs about 11 calls per day on 27 Meg and VHF radio. During winter only 2 or three boats go out when conditions permit. Fisheries Western Australia officers reported that in summer, up to 60 boats regularly launch from the recreational boating ramp at Bandy Creek Harbour. Commonly the parking area has 20 to 30 boat trailers for boats of 8 m.

Mr Michael Kahlor of the Shire of Esperance indicated that he is in the process of carrying out a profile on boat ramp usage.

Duke of Orleans Bay

It was reported that the Duke of Orleans Bay caravan park accommodates 700 people during the school holidays and is booked out from the first day. There are normally 65 boats during this period, with 30 boats going out each day from December to the end of March. Many Kalgoorlie people leave their boats at the caravan park on a permanent basis (44 boats).

Principal Boating and Fishing Localities

All of the island groups are of importance to this sector, however the islands within 10 nm of Esperance and Duke of Orleans Bay appear to be the most frequently visited. It was reported that Figure of Eight Island has very good fishing and that the Mart and Twin Peaks Island Groups are popular fishing and diving areas. The Duke of Orleans Bay is popular because the snapper are close in.

The offshore group tend to remain in open waters and fish the reefs and lumps, as well as the reefs and bommies on the seaward side of the outer islands. The reefs and bommies around Remark Island are said to provide good fishing. Some boats occasionally shelter in the lee of the outer islands for lunch and diving.

Anchorage and Navigation Routes

The only landing areas with beaches in the Recherche Archipelago are at Middle Island and Sandy Hook Island. Middle Island is the safest shelter with a north facing beach and anchorages. It is used by local vessels and east west yachting traffic.

Sandy Hook Island is popular because of its attractive beach and anchorage which is sheltered from south west and north west winds. The anchorage and beach is reported to receive a reasonable amount of visitation despite a CALM sign warning of death adders. The anchorage at Woody Island is reportedly used by smaller boats as a base for visits to Sandy Hook Island and the Remark Group when conditions are suitable.

Remark Island is the highest Island, marked as a "conspicuous dome" on the chart to show it can/should be used as a navigation point as it can be seen from most points. It stands out in fog which often occurs in March and April. Vessels without radar or other aids use Remark Island as a lead into and out of Esperance, to the Sanko Harvest and outer islands.

The attached charts show:

- Main reefs and lumps fished by the offshore group (Charts 2, 3 and 4);
- Main anchorages and navigation routes (Charts 5, 6 and 7);
- Boat ramps, access points and camping areas (Charts 8, 9, 10 and 11).

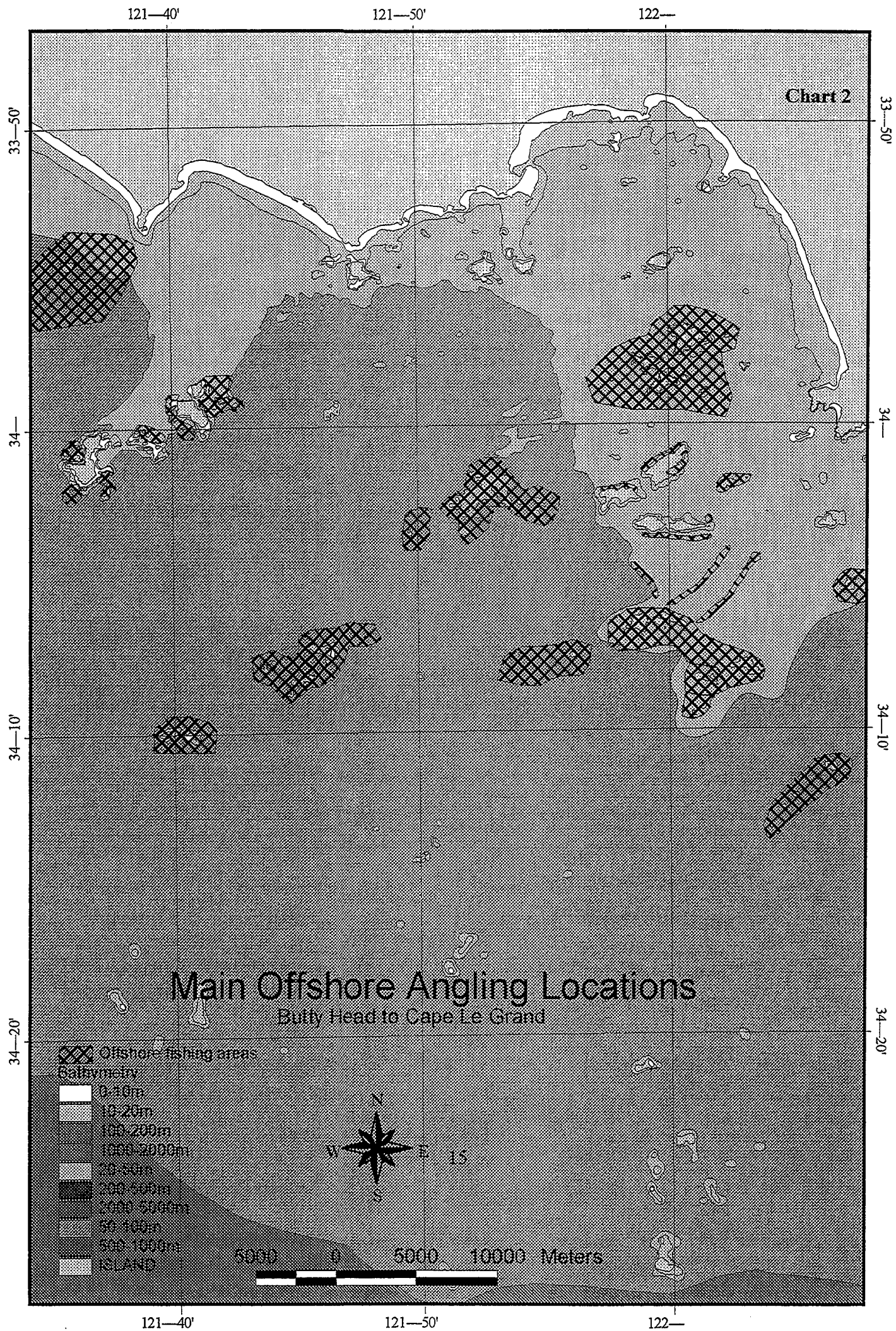
Sources (Appendix 1)

VE, BT, GC, EL, FM, BH, BS, KG, DOT

Members of EBYC RS, NJB, CM, BS, RW, DW, DS

Members of EDSAC VE, JL, DE, VN, NW

Interpretation and responsibility for data: Consultants.



122—10'

122—20'

122—30'

122—40'

Chart 3

33—50'

34—

34—10'

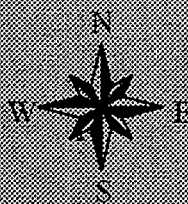
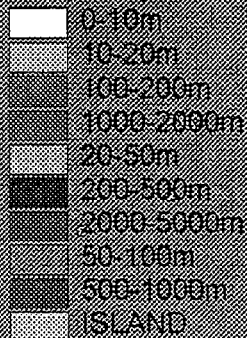
34—20'

Main Offshore Angling Locations

Cape Le Grand to Duke of Orleans Bay

 Offshore fishing areas

Bathymetry



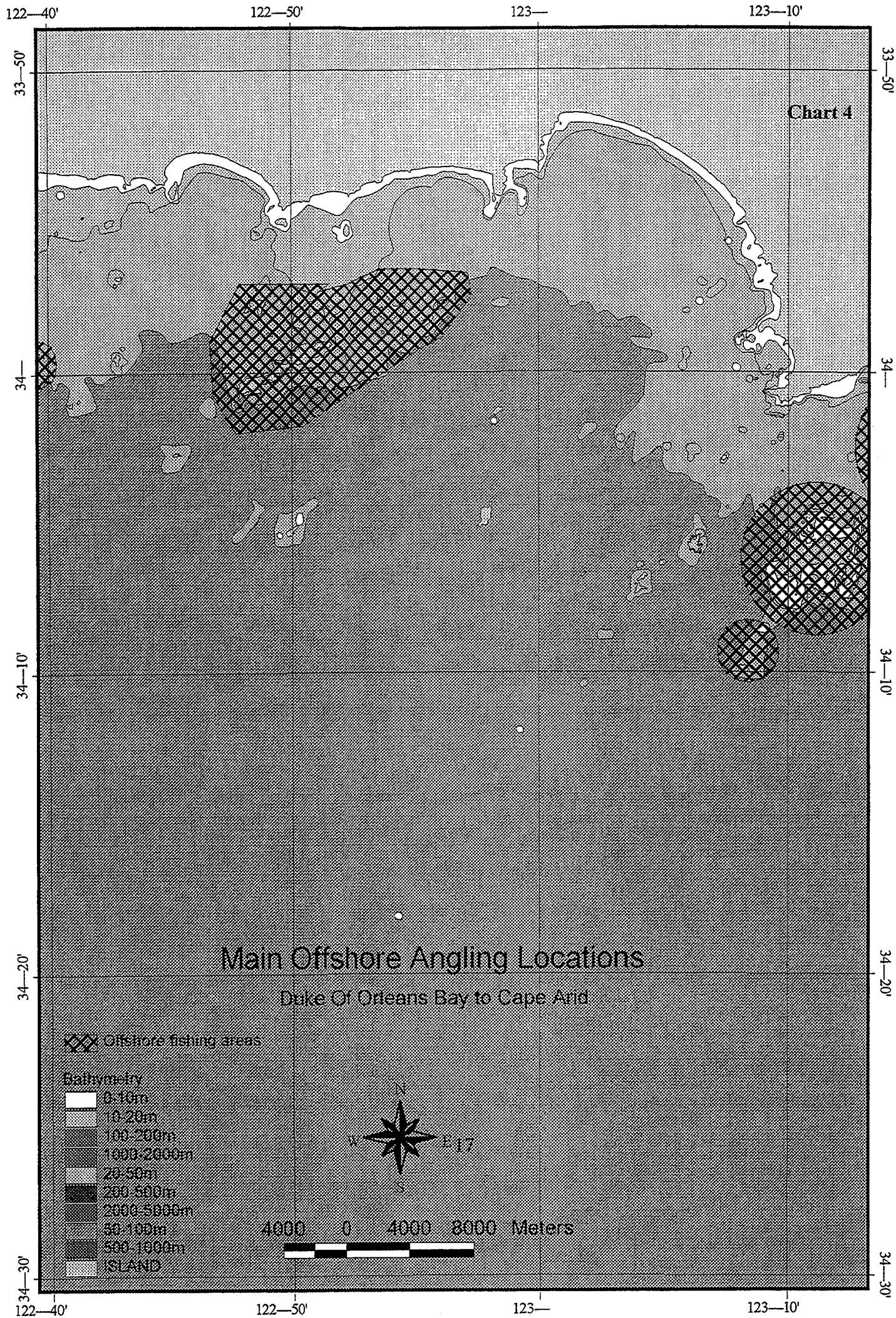
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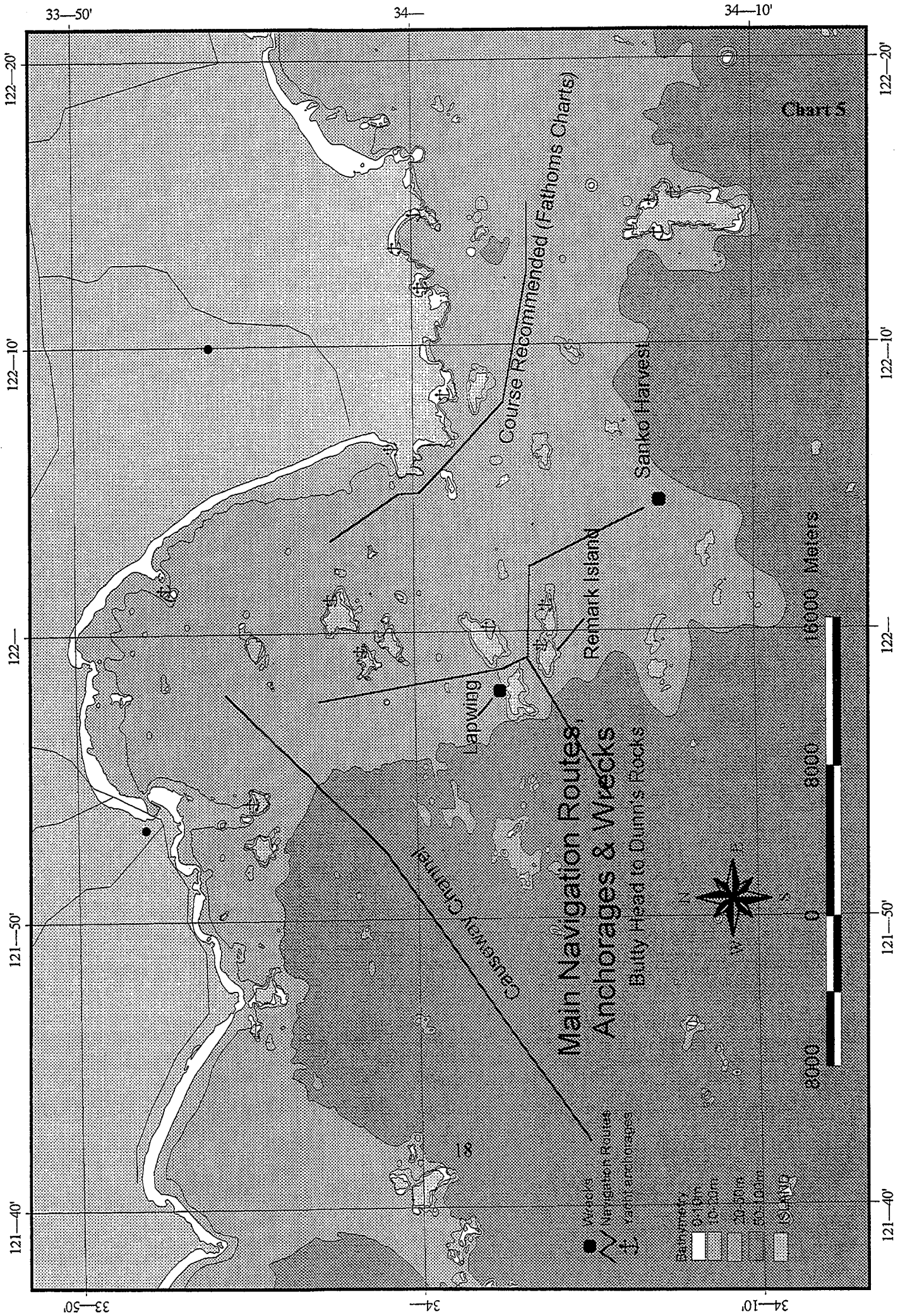
122—10'

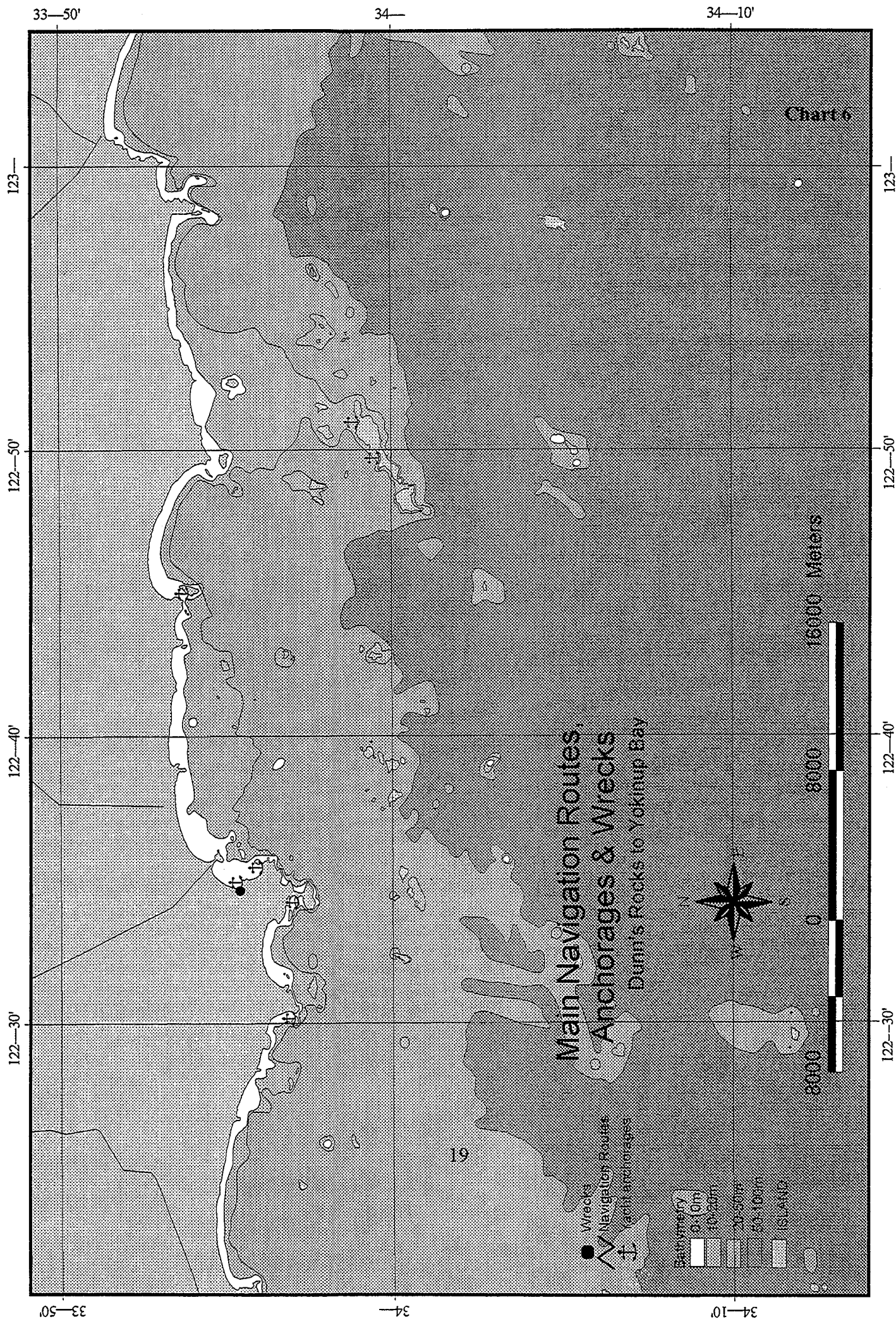
122—20'

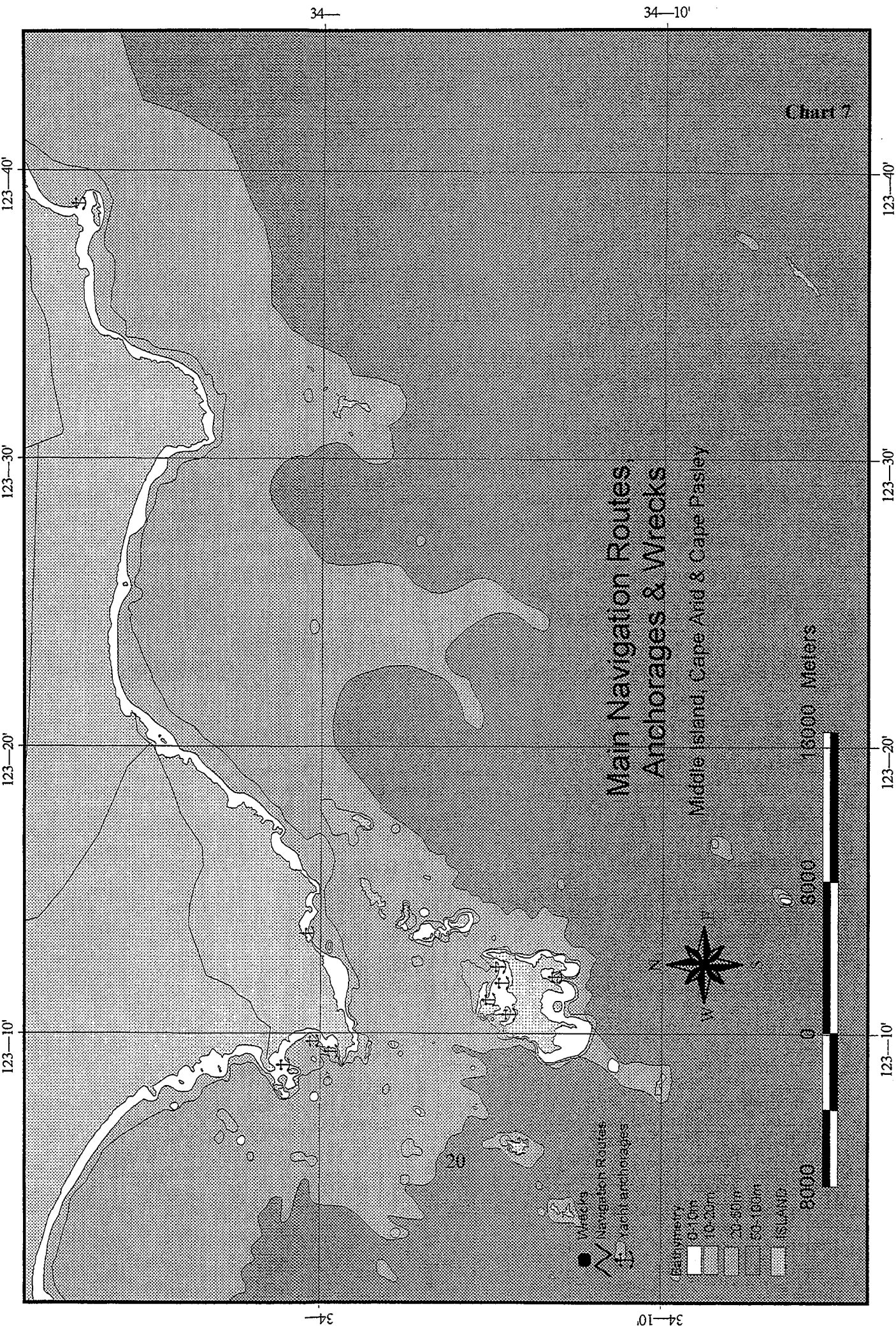
122—30'

122—40'









5. User Profile - Surfcasters and Beachside Recreation

Scope of Activity

The coastline of the study area extends over 200 kilometres from Butty Head, west of Esperance, to Israelite Bay in the east and features numerous pristine beaches, headlands, islands and sheltered bays. Almost half the coastline abuts the Cape Le Grand and Cape Arid National Parks offering visitors high value outdoor recreation experiences.

The components of the activity include:

- Beach activities including swimming, diving, fishing;
- Formal caravan parks in Esperance, Lucky Bay, Alexander Bay and Duke of Orleans Bay;
- Formal and informal camping areas at several points;
- dinghy fishing in sheltered bays;
- Formal and informal boat ramps and launching areas;
- Beach access roads and tracks, some suitable only for four wheel drive vehicles and vehicular access along many beaches.

Day fishing is popular but many family groups and fishing parties camp for various periods. It has been said that every family fishes at some time during a holiday at Esperance. Fishing activity is commonly undertaken by targeting the holes and gutters along the beaches and the rocks at their ends for species such as herring, skippy, whiting, salmon and salmon trout. Other species including mulloway (at night) and abalone can be taken from the different marine environments of the coast.

Fishing and four wheel drive and other clubs based in or visiting the region include:

- Esperance Surf Casters Fishing club which has a hut at Kennedy's;
- Middle Island Fishing Club (based in Kalgoorlie).

Recreational Fishing Season

The main recreational fishing season occurs between November and April with the largest numbers occurring in the school holidays after Christmas and at Easter and the April School holidays. It is similar to the recreational boating season although more extended because it is less constrained by the weather. Some activity occurs throughout the year.

Participation and Fishing Effort

During the Christmas - January peak, the population of Esperance swells from twelve thousand five hundred to twenty or thirty thousand people and popular fishing spots experience double or triple their usual usage. Officers of Fisheries Western Australia reported that on a busy day in the peak period Bandy Creek Harbour carpark was full, cars were scattered along the full length of Cape Le Grand Beach and Lucky Bay was full.

Cheyne's Point experiences over 100 people per day in summer. They estimated that between Butty Head and Thomas Fishery at Cape Arid in summer, the average number of fishers for whole day is likely to be 500 and on busy days there can be a thousand or more. Nearly 59,000 people visited Cape Le Grand National Park in 1993 with Lucky Bay considered to be the most popular site.

Principal Surf Casting and Beach Recreation Localities

The attached draft charts (Charts 8, 9, 10 and 11) show:

- Main beaches classified as high, medium and low fishing effort/ popularity;
- Boat ramps, access points and camping areas;
- Dinghy fishing areas.

Table 1 accompanies the charts having notes on most features. The draft charts are provided for correction and addition.

Important sites include:

- The fuel jetty at Esperance;
- Bandy Creek Harbour and groynes;
- Cape Le Grand Beach;
- Tagan Point;
- Alexander Bay;
- Kennedy's (hut built by Surfcasters);
- Wharton Beach;
- The Duke of Orleans Bay is popular because the snapper may be caught close in;
- Lucky Bay is said to be the most popular camping site;
- Israelite Bay is notable for King George Whiting and Cape Arid for Mulloway.

Sources

EL, KG, GG,

Interpretation and responsibility for data: Consultants.

33—50'

34—

Chart 8

122—

122—

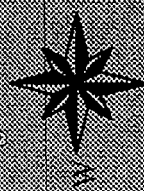
121—50'

121—50'

Beach Access & Fishing

Butty Head to Cape Le Grand

Surfcasters
 high use
 medium use
 low use

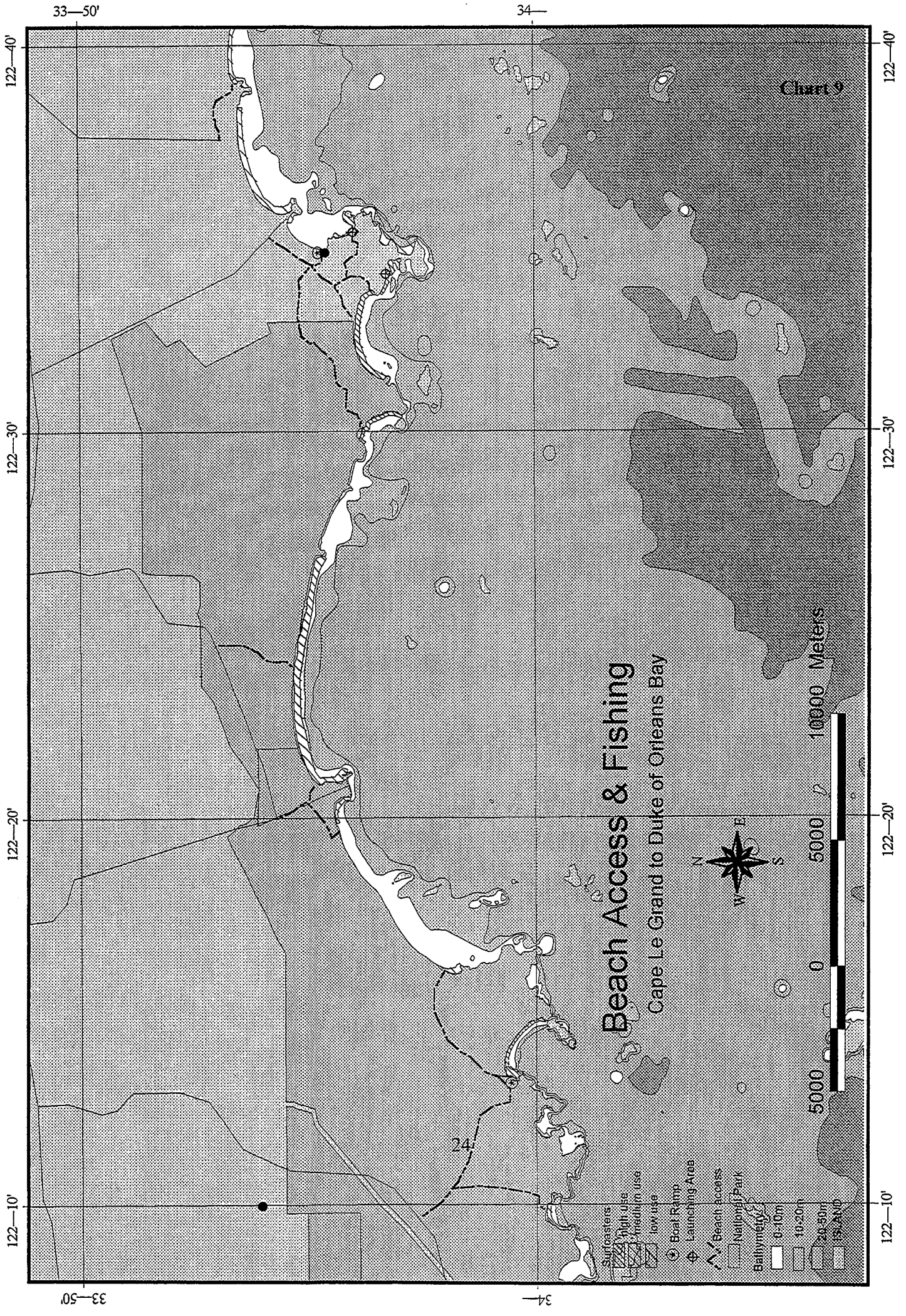


Boat Ramp
 Launching Area
 Beach access
 Roads
 Natural Park
 Bathymetry
 0-10m
 10-20m
 50-100m
 ISLAND

23

33—50'

34—



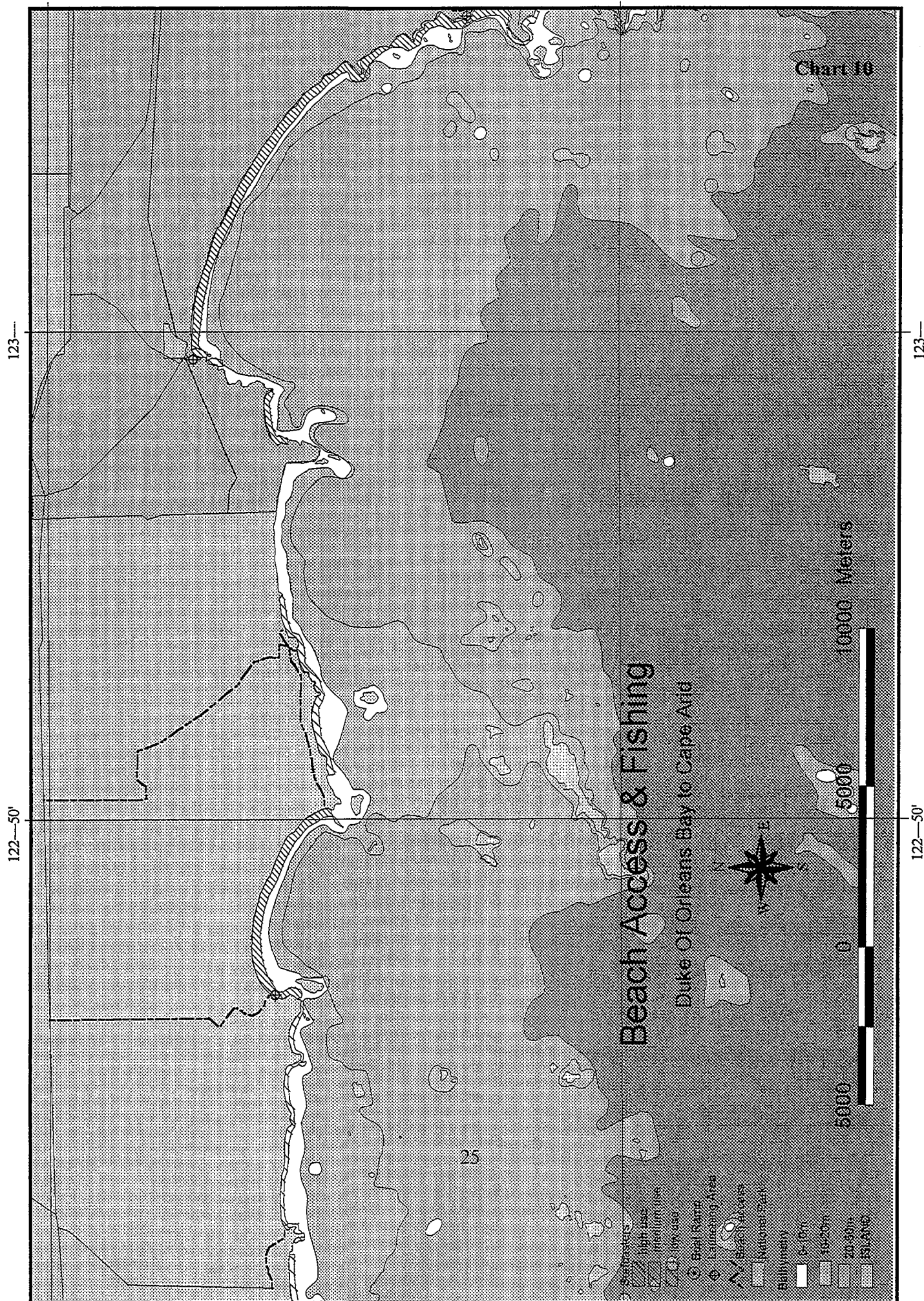


Chart 11

123—20'

123—20'

123—10'

123—10'

Beach Access & Fishing

Cape Arid



10000 Meters

5000

5000

26

- Surfactants
- high use
- medium use
- low use
- Beach Rating
- Beaching Area
- Beach access
- Natural Flat
- Bathymetry
- 0/10m
- 10/20m
- 20/50m
- ISLAND



Table 1 Beach Usage

Name	Fishing Effort	Comment
Butty Hbr-Nine Mile Beach	Medium	Beach fishing gutters & holes
Twilight Bay & Blue Haven	High	
Harbour & Tanker Jetty	High	KG Whiting & whiting tailor at tanker jetty
Bandy Ck to Wylie Head	High	Bandy Hbr Groynes Rec side whiting Comm skippy & herring
Cape Le Grand Beach	High	Wylie Bay dinghy west end holes -night fishing
Beach west Cape le Grand	Medium	No land access salmon off beach skippy off rocks
Hellfire Bay	Medium	Access Gas BBQ Salmon off beach
Thistle Cove	Low	Not many fishers salmon off beach skippy from rocks
Lucky Bay	High	Boat Ramp popular CALM camping site
Rossiter Bay	Low	Mainly Tourist fishers
Dunn's Rocks	Medium	Night fishing sharks abalone road access camp site
Dunn's Beach	Medium	Popular all along to east headlands prevent further access
Victoria Harbour	High	Good fishing very popular salmon
Cheyne Beach	High	Very popular 100 cars per day swimming & fishing
Little Wharton Beach	High	Very popular
Nares Id to Little Wharton	Low	Minimum fishing
Nares Island & Beach	High	Diving off rocks waterski along beach
Big Wharton Beach	Low	Caravan Park Formal Ramp minimal fshng east end
Daniel's Beach	Low	Minimal fishing
Daniel's Rocks	Low	Track around rocks some fishing
Munglignup Ck	Low	Some fishing
Name?	Low	Minimal fishing no 4wd access to east
Name?	Low	Access via firebreak
Alexander Bay	High	All Alexander Bch fished popular camping boat launching
Kennedy's Beach	Medium	Surfcasters Club Hut Good fshng Taylor Bay Track Alexander
Tagon Bay	High	Very popular -shacks
Thomas River	High	CALM carpark residence Shire Camping area
Yokinup Bay	Medium	Rocks popular
Long Beach	High	Popular good fishing all along to Cape Arid
Arid Bay	Medium	Good fishing Barry Anchge ab divers camp tractor launching

6. User Profile - Charters and Cruises

Scope of Activity

The marine charter industry in the Esperance Region is characterised by two levels of operation. There are several part time operators who only conduct charters during the summer months and four full time charter companies operating throughout the year under favourable conditions. Air charters and scenic flights are included in this profile.

Charters are conducted to support the following recreational pursuits:

- **Fishing Parties.** The majority of the fishing charters carried out in the Recherche Archipelago are day trips with an average steaming distance from Esperance of 25 to 30 nm. Most fishing activity occurs over lumps or bommies and generally away from the islands to avoid echoing wave action. Operators seek the shelter of the islands for lunch breaks, or fishing, if their customers are not dedicated fishers and prefer the comfort of a sheltered bay with less spectacular fishing. In recent months there has been an increase in interest expressed by companies outside the region wanting to establish charter operations during the summer months in Esperance;
- **Diving.** There is only one dedicated dive charter vessel *The Southern Image*, Esperance Diving and Fishing, operating in the Recherche Archipelago. Other charter operators indicated that while they were happy with their current customer profile they would cater for divers if the demand existed. The majority of the dive charters are day trips with on board overnight charters on request;
- **Air Charter-Sightseeing.** Of the two charter companies operating out of Esperance only Esperance Air Charter offers a regular sightseeing service over islands within the Recherche Archipelago. Goldfields Air Services provide charter flights on request;
- **Sightseeing and Eco-tourism.** MacKenzie's Island Cruises (*Seabreeze*) conduct a full-time tourist charter operation which comprises a number of different sightseeing cruises in the Archipelago. The Woody Island nature experience culminates with a stopover on Woody Island where the company has established a permanent base. Facilities on the island include ablutions, up market tent camping and a nearly completed interpretative/tearoom centre.

Tammy II, operated by Mr A Cummings, is a fishing charter vessel which also conducts eco-tourism charters on demand.

The Southern Image, Esperance Diving and Fishing, provides scenic cruises on demand and has a whale watching licence.

Charter Effort

Fishing Charters

The majority of fishing charters are day trips operating within 20-30 nautical miles steaming distance from Esperance. There are four boats that concentrate on fishing charters:

- *The Southern Image* - Esperance Diving and Fishing;
- *Tammy II* - Mr A Cummings;
- *Real Action* - R and M Kraft;
- *Men at Work* - Mr S Drew.

The majority of fishing occurs over bommies and lumps in open sea with occasional fishing closer to island shores. If the fishing is on the boil then lunch is consumed in between bites. If the fishing is quiet or the clients prefer a more sheltered spot then the charter operator will seek a protected site near an island.

The Southern Image (16 m), owned and operated by Esperance Diving and Fishing, conducts fishing charters carrying 9-12 people on board. It operates 4 times per week during the tourist season and 2-3 times per week in the off season. It also runs popular overnight fishing charters for usually 3-4 days duration.

Tammy II (12.5 m) operates 3-4 times a week during the months of September through to March carrying an average of 8 passengers. They conduct the occasional overnight trip. During the non tourist season the vessel is engaged in commercial fishing out of the region.

Men at Work (10 m.) conduct 8 charters per month (yearly average) generally carrying 6 passengers. The majority of their clientele is from the Goldfields. As is the case with *Tammy II* they prefer to fish over bommies away from islands and may seek shelter for lunch at an island group.

Real Action conducts fishing charters carrying 7 to 12 people on board. It operates at least four times per week in the tourist season and weekends in the off season, weather permitting.

On the information provided, the total estimated number of people taking fishing charters is 3108 per year. The estimated number of voyages per year is 366.

Diving Charters

The Southern Image (16 m) is owned by Esperance Diving and Fishing and is the town's only dedicated dive charter vessel. It also conducts fishing charters on demand and carries an average of 12-15 passengers.

Air Charter

Air Charter is a popular means of tourist access to the Recherche Archipelago. Mr Rob Rollond of Esperance Air Charter advised that during the Christmas/New Year and most of January he would average 3 flights a week over the Islands. During the whale watching season (July/August) he may go out once a week if the whales are close in around Rossiter Bay or Cape Le Grand.

He mentioned that when he visits friends in Kangaroo Island he often takes paying passengers with him and they are very interested in flying over the tuna cages at Port Lincoln. He considers that any cage operation may provide him with an opportunity to take people flying over them. He said that if he thought people didn't like seeing the cages he would fly elsewhere.

Robin Dicks from Goldfields Air Services indicated that she rarely takes clients over the islands within the Archipelago. Their scenic flights follow the coastline.

Sightseeing and Ecotourism

MacKenzie's Island Tours offers a number of sightseeing tours within the Recherche Archipelago. Their principal vessel the *Seabreeze* carries an average 17,000 people to Woody Island per year.

Sources

FM, DH R&MK, SD, RR, RD, DOT.

Interpretation and responsibility for data: Consultants.

7. User Profile -Commercial Fishing

Scope of Activity

The current value of the southern ocean fishery, is estimated to be just over \$6.03 million (FWA 1999) involving 44 vessels. Annually the largest commercial components are shark, pilchards, southern rock lobster and abalone. Other species caught are Queen Snapper, Red Snapper, Blue Groper and Scallops. Commercial fishing activity in the Recherche Archipelago comprises the following managed fisheries in addition to fish species caught under a fishing boat licence:

- South Coast Purse Seine Fishery;
- Southern Demersal Gillnet and Demersal Longline Fishery;
- South Coast Estuarine Fishery;
- Esperance Rock Lobster Managed Fishery;
- South Coast Inshore Trawl;
- Zone 1 and 3 Abalone.

Participation and Commercial Fishing Effort

- **South Coast Purse Seine Fishery.** This fishery involves the purse seining of small pelagic fish (pilchards) within four prescribed zones along the southern coast and has taken place in the Esperance region since 1989. With advances in fishing technique, greater understanding of the resource and new onshore infrastructure, the fishery in Esperance has grown from developmental status to become part of the overall south coast purse seine managed fishery;
- The Recherche Archipelago is located within Zone 4 where 6 licensees hold 133 units with a total allowable catch of 1900 tonnes (t);
- **Southern Demersal Gillnet and Demersal Longline Fishery.** This operates from Cape Bouvard to the South Australian border and its annual value is estimated at \$0.636 million. In 1997/98 there were 7 boats operating in the fishery. The catch predominately comprises several species of shark and queen snapper. The catch in 1997/98 was estimated to be 136 t. (FWA 1999);
- **Esperance Rock Lobster Managed Fishery.** The catch for this fishery in 1997/98 was estimated to be 33 t at an approximate value of \$1.02 million. There were 9 vessels operating in this fishery at the time. (FWA 1999);
- **South Coast Inshore Trawl.** This fishery operates east of Cape Leeuwin and in 1997/98 comprised two vessels. Figures for catch and value are not available;
- **Abalone.** In 1997/98 Zone 1 comprised six divers licensed to take greenlip, brownlip and Roe's abalone from the WA-SA border to Shoal Cape with an estimated catch of just under 100 t, valued at approximately \$3 million. Zone 3 (Roe's Abalone only) effort in the corresponding year was estimated to be just over 11 t with a value of \$0.428 million for WA. The abalone fishing effort in 1997/98 comprised 14 boats (FWA 1999);

- Fishing Boat Licence Catch. In 1997/98 a total of 24 vessels caught approximately 34 t of various species with an approximate value of \$0.117 million.(FWA 1999).

Principal Fishing Localities

- **South Coast Purse Seine Fishery.** The pilchard fishermen generally fish inshore areas within 30 nm of the Bandy Creek Harbour. As pilchards have a shelf life of only 3-4 hours the boats return daily and unless a mother ship is introduced they are limited to how far they can steam. With the deaths of pilchards heading toward the Recherche Archipelago, they have been fishing further out in the past few months. They indicated that nearly 90% of their catch during this time has been coming from the Remark Group of islands. Normally they would fish the Remark Group 30% of the time;
- **Southern Demersal Gillnet and Demersal Longline Fishery.** For management purposes this fishery is divided into two zones. The study area is contained within Zone 2, between 116° 30' east longitude and the Western Australian and South Australian border and south to the outer zone;
- **South Coast Estuarine Fishery.** Outside the study area. They occasionally fish for Garfish east of Duke of Orleans Bay;
- **Esperance Rock Lobster Managed Fishery.** Fishing for rock lobster takes place between 120° east longitude (near Hopetoun) and 125° east longitude (near Point Culver) and south to the 200 nm Australian Fishing Zone outer limit. The eleven boats operating out of Bandy Creek Boat Harbour are often out for up to five or six days at a time;
- **South Coast Inshore Trawl.** During 1986 several vessels operating out of Esperance discovered promising beds of saucer scallops in the Recherche Archipelago, creating the need for the establishment of the South Coast Inshore Trawl Fishery. In 1998 there was only one vessel targeting scallops within 121° 30' east longitude and 123° 20' east longitude and south 34° 20';
- **Zone 1 and 3 Abalone.** The boundaries of the Zone 1 abalone fishery extend from the WA-SA border to Shoal Cape. According to a spokesman from the Esperance Professional Divers Association the islands within the Recherche are a reliable and valuable source of catch. Areas worked include:
 - Sandy Hook Island - they work 75% of it;
 - Remark Island- 50%;
 - Frederick Island- 100%;
 - Long Island -50%;
 - Mart Group - nearly all have abalone;
 - Middle Island - not as much as Mart but still gets regularly worked.

Sources

BK.LW.CU.MG.MG.RW.WAFIC.FWA.GC

8. List of Acronyms

CALM	Department of Conservation and Land Management
DEP	Department of Environmental Protection
DOT	Department of Transport
EPA	Environmental Protection Authority
EPP	Environmental Protection Policy
FCR	Food Conversion Ratio
FWA	Fisheries Western Australia
LEAF	Local Environmental Action Forum
MPRA	Marine Parks and Reserves Authority
RACG	Recherche Archipelago Consultative Group
RFAC	Recreational Fishing Advisory Committee
SBT	Southern Bluefin Tuna
SERTS	South East Regional Tourism Strategy
WATC	Western Australian Tourism Commission

9. Glossary of Terms

Aquaculture Aquaculture is defined as the farming of aquatic organisms including finfish, molluscs and crustaceans and aquatic plants. Farming implies some form of human intervention in the rearing process to enhance production, such as regular stocking, feeding, protection from predators etc. Farming also implies individual or corporate ownership of the stock being cultivated (Food and Agricultural Organisation of the United Nations 1988).

Benthic Associated with the bottom of water body such as pond, lake or ocean.

Broodstock Captured fish (or other aquatic organisms) which are conditioned in a hatchery and kept for breeding purposes.

Cage Culture The rearing of aquatic organisms in cages placed either on or just below the surface of the water.

Food Conversion Ratio (FCR)

The utilisation of feed (generally dry) by cultured species and expressed as a ratio of feed input versus weight gain.

Husbandry The application of skills, knowledge and technique to the systematic rearing of aquatic organisms.

Non-endemic A species that is not "native" to the region in which it is located.

Puerulus Leaf like early larval stage of a rock lobster.

Purse-seining Method of fishing (from a boat) for quickly surrounding fast moving fish in a purse like action.

Ranching The release of fingerlings (or other juvenile aquatic organisms) into the wild.

Reseeding The "planting" of aquatic organisms (usually molluscs such as abalone) into the wild

Translocation Movement of native or introduced species from their natural or previous habitat.

Wet feeds Diet given to cultured fish or other aquatic organisms where it is predominately made up of unprocessed protein such as fish and molluscs.

Wild Capture Fisheries

The capture of fish and other aquatic organisms from the wild using various techniques.

10. Sources and Acknowledgments

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Name	Source Reference	Organisation
Keith Archer	KA	LEAF
Graeme Baesjou	GB	Goldfields Esperance Development Commission
Nicholas (John) Bonnitche	NJB	Member of Esperance Yacht Club
Ralph E Bower OAM	RB	Community College
Graham Cooper	GC	Training Officer Esperance Sea Rescue
Ray Croker	RK	Shire Councillor and Caravan Park owner
Dept of Transport	DOT	
Robin Dicks	RD	Goldfields Air Charter
Steve Drewe	SD	Charter Operator
Des Evans	DE	Member Esperance Deep Sea Angling Club
Vince Evans	VE	President Esperance Deep Sea Angling Club
Fisheries WA	FWA	
Graeme Gath	GG	President Recreation Fishing Adv Comm (South)
Ken Gittins	KG	Fisheries WA Esperance
Michelle Gray	MG	Pilchard processor
Marcus Gray	MG	Pilchard fisherman
Bernie Haberlie	BH	CALM Esperance
Peter Hudson	PH	Esperance Diving and Fishing
Leslie Hudson	LH	Esperance Diving and Fishing
Barry Jeitz	BJ	Member of Esperance Yacht Club
Mike Kahlor	MK	Esperance Shire Engineer
Bill Kent	BK	President Esperance Professional Fishermen

		Assoc
Monica Kraft	MK	Charter Operator
Roy Kraft	RK	Charter Operator
Eric Loughton	EL	Fisheries WA Esperance
Jon Lipscombe	JL	Member Esperance Deep Sea Angling Club
Fud MacKenzie	FM	Owner Mackenzie Tours
Hugh MacKenzie	HM	Hugh MacKenzie
D'Arcy Madgen	DM	Skipper, <i>Real Action</i>
Colin Maloney	CM	Member of Esperance Yacht Club
Ian Mickel	IM	Esperance Shire President
Victor Nicoleho	VN	Esperance Deep Sea Angling Club
Marie Northcoat	MN	Wild West Sports Kalgoorlie
Matthew Payne	MP	Goldfields Esperance Development Commission
Buck Rodgers	BR	Shire Councillor/ Duke of Orleans Caravan Park
Rob Rollond	RR	Esperance Air Charter
Brad Scoble	BS	Crews for Mackenzie's Island Tours
Chris Siemer	CS	Conservation Movement
Elaine Siemer	CS	Conservation Movement
David Smallwood	DS	Farmer - Duchess Downs
Barry Sponberg	BS	Esperance Shire Planner
Mike Spragg	MS	Baywatch
Roger Stewart	RS	Manager of Esperance Yacht Club
Brett Thorpe	BT	President Esperance Chamber of Commerce
Klaus Tiederman	KT	CALM Esperance
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