

D'Entrecasteaux Channel and the lower Huon Estuary

Inventory of Scientific Information

Report for the D'Entrecasteaux Channel Project



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The D'Entrecasteaux Channel Project is a collaboration between local and state government agencies, non-government organisations, research institutes and industry to sustainably manage the waterway. This report was funded by Kingborough Council, the Derwent Estuary Program, NRM South, Huon Valley Council and Tassal.



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TABLE OF CONTENTS

ABBREVIATIONS	2
ACKNOWLEDGEMENTS	4
1 INTRODUCTION	5
2 METHODS	6
2.1 Study area	6
2.2 Preparation of metadata	7
3 DATA GAPS	12
4 RESULTS.....	13
4.1 Data sets by subject.....	13
4.1.1 Broad background information.....	13
4.1.2 Climate	13
4.1.3 Geomorphology and geology	13
4.1.4 Bathymetry, estuarine circulation and coastal oceanography	13
4.1.5 Catchments and river inputs.....	14
4.1.6 Population centres	15
4.1.7 Foreshore land use.....	15
4.1.8 Marine industries.....	15
4.1.9 Navigation and transportation	16
4.1.10 Tourism	16
4.1.11 Fishing	16
4.1.12 Other recreation	17
4.1.13 Research and education	17
4.1.14 Heritage	17
4.1.15 Conservation areas	17
4.1.16 Habitats.....	18
4.1.17 Native fauna and flora	18
4.1.18 Introduced species	20
4.1.19 Climate change	21
4.1.20 Anthropogenic inputs.....	22
4.1.21 Integrated studies	23
4.1.22 Water quality – pathogens and faecal indicator bacteria	23
4.1.23 Water quality - other	24
4.1.24 Sediment quality	25

4.1.25	Seafood safety	26
4.2	Detailed descriptions of scientific data sets	27
4.3	Descriptions of general information sources	96
4.4	Scientific studies underway	129
5	BIBLIOGRAPHY.....	131

ABBREVIATIONS

Abbreviation	Meaning
ABS	Australian Bureau of Statistics
ACE CRC	Antarctic Climate and Ecosystem Cooperative Research Centre
AHT	Aboriginal Heritage Tasmania
Aquafin CRC	Aquafin Cooperative Research Centre
ASCHEM	Agricultural, Silvicultural and Veterinary Chemicals
ASQAP	Australian Shellfish Quality Assurance Program
AUSRIVAS	Australian River Assessment System
AWBM	Australian Water Balance Model
BEMP	Broadscale Environmental Monitoring Program
BOD	Biochemical Oxygen Demand
BOM	Bureau of Meteorology
CAR	Comprehensive, Adequate and Representative
CC	Coastcare Committee
CERCA	Coastal and Estuarine Resource Condition Assessment
CERF	Commonwealth Environment Research Facilities
CFEV	Conservation of Freshwater Ecosystem Values
CLS	Crown Land Services
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DEM	Digital Elevation Model
DHHS	Department of Health and Human Services
DIER	Department of Infrastructure, Energy and Resources
DPEMP	Development Proposal and Environmental Management Plan
DPIPWE	Department of Primary Industries, Parks, Water and Environment
DPIW	Department of Primary Industries and Water
DPIWE	Department of Primary Industries, Water and Environment
DTAE	Department of Tourism, Arts and the Environment
EMPCA	Environmental Management and Pollution Control Act 1994
EPA	Environment Protection Authority
ERLUR	Environmentally Relevant Land Use Register
EWB	Environmental Water Requirements
FOC	Fisheries and Oceans Canada
FRDC	Fisheries Research and Development Corporation

Abbreviation	Meaning
GA	Geoscience Australia
GIS	Geographic Information Systems
GPS	Global Positioning System
HAB	Harmful Algal Bloom
HAC	Huon Aquaculture Company
HES	Huon Estuary Study
HPLC	High Performance Liquid Chromatography
HTC	Hydro Tasmania Consulting
HVC	Huon Valley Council
IBA	Important Bird Area
ICV	Integrated Conservation Value (CFEV)
IMAS	Institute for Marine and Antarctic Studies
KC	Kingborough Council
LiDAR	‘Light Detecting and Ranging’ technique
LMRMA	Living Marine Resources Management Act 1995
LOI	Loss on Ignition
LTER	Long-Term Ecological Research
MAST	Marine and Safety Tasmania
MDC	Marine Discovery Centre
MFDP	Marine Farming Development Plan
MFPA	Marine Farming Planning Act 1995
MPA	Marine Protected Area
MRT	Mineral Resources Tasmania
NCMCRS	National Centre for Marine Conservation and Resource Sustainability
NELMS	New Environmental Licensing and Monitoring System
NHT	Natural Heritage Trust
NPI	National Pollutant Inventory
NRA	Nature Recreation Area
NRM	Natural Resource Management
PAR	Photosynthetically Active Radiation
PST	Paralytic Shellfish Toxins
RCV	Representative Conservation Value (CFEV)
RFA	Regional Forest Agreement
RPDC	Resource Planning and Development Commission
SC	School of Chemistry
SEWPaC	Australian Government Department of Sustainability, Environment, Water, Population and Communities
SG (U Wollongong)	School of Geosciences, University of Wollongong
SGES	School of Geography and Environmental Studies
SoE	State of Environment
SPI	Sediment Profile Images
STCA	Southern Tasmanian Councils Authority
TAFI	Tasmanian Aquaculture and Fisheries Institute

Abbreviation	Meaning
TASI	Tasmanian Aboriginal Site Index
TasMAN	Tasmanian Marine Analysis Network
TASRAM	Tasmanian Risk Assessment Methodology for Historical Landfills
TASVEG	Tasmanian vegetation map (Tasmanian Vegetation Monitoring and Mapping Program, DPIPWEE)
TBT	Tributyltin
TDS	Total Dissolved Solids
TN	Total Nitrogen
TOC	Total Organic Carbon
TP	Total Phosphorus
TPC	Tasmanian Planning Commission
TPH	Total Petroleum Hydrocarbons
TSGA	Tasmanian Salmon Growers Association
TSQAP	Tasmanian Shellfish Quality Assurance Program
TSS	Total Suspended Solids
TVMMP	Tasmanian Vegetation Monitoring and Mapping Program
Utas	University of Tasmania
WHA	World Heritage Area
WIST	Water Information System of Tasmania
WMP	Weed Management Plan
WPE	Water Provisions for the Environment
WWTP	Waste Water Treatment Plant

ACKNOWLEDGEMENTS

Members of the D’Entrecasteaux Channel Project Working Group are thanked for their comments on an earlier draft version of the Data Inventory Report which helped to refine details for the final report. Information for data entries were compiled with the additional assistance of numerous individuals within state and local governments, research agencies, natural resource management groups, private companies, and other non-government organisations.

1 INTRODUCTION

The D'Entrecasteaux Channel Project has been initiated by the Kingborough Council in response to interest being generated within Council and the broader community to collaboratively manage the D'Entrecasteaux Channel in a sustainable manner. The D'Entrecasteaux Channel area encompasses the waterway between mainland Tasmania and Bruny Island, including the Huon Estuary and North West Bay.

Critical to informing decision-making in the D'Entrecasteaux Channel is having a good understanding of the status of the waterway. In 1999, a State of the D'Entrecasteaux Channel report was prepared as part of the D'Entrecasteaux Channel and Catchment Integrated Land and Marine Planning Project. Given the extent of change that has occurred within the region over the past decade, it has been proposed that the 1999 report be reviewed and updated to incorporate data and information from recent studies and programs.

Ecomarine Consulting was engaged by Kingborough Council to conduct a review of the State of the D'Entrecasteaux Channel and lower Huon Estuary in order to achieve the following outcomes:

- An understanding of the current (2012) environmental status of the D'Entrecasteaux Channel and lower Huon Estuary
- Information to underpin decisions for the sustainable management of the D'Entrecasteaux Channel and lower Huon Estuary

In order to achieve these outcomes, the project requires the preparation of two documents:

1. A report providing an inventory of available data sets for the D'Entrecasteaux Channel and lower Huon Estuary compiled since 1999.
2. A State of the D'Entrecasteaux Channel and lower Huon Estuary report based on data compiled in the region since 1999.

The current report represents (1) above, providing a draft data inventory for the D'Entrecasteaux Channel and lower Huon Estuary. The current draft document has been prepared for review by the Working Group members for the project. Members are invited to provide comment on this draft and assist in the identification of any omissions, errors, or other information that requires revision. The final data inventory is due for completion on 27th July 2012. Organisations represented on the Working Group include:

- Kingborough Council
- Huon Valley Council
- Derwent Estuary Program
- Marine Farming Branch, Department of Primary Industries, Parks, Water and Environment
- Institute for Marine and Antarctic Studies, University of Tasmania
- Tassal Group Ltd
- NRM South
- CSIRO Marine and Atmospheric Research
- Southern Water
- Huon Aquaculture Company

2 METHODS

2.1 *Study area*

The study area for the project is illustrated in Figure 1. The geographical scope of the study area is described as: D'Entrecasteaux Channel waterway including water between Bruny Island and mainland Tasmania between Piersons Point – Dennes Point (in the north) and Scott Point and Partridge Island (in the south), including North West Bay (to the mouth of the North West Bay River), the Huon River (downstream, marine side of the seaward limit) and the coastal zone (state waters and all land to a distance of 1 km inland from high-water mark).

A map of the study area was generated using Mapinfo Professional[®] by creating a 1 km buffer around the relevant area of coastline. Manual revision of this buffer layer was needed to exclude waters outside the D'Entrecasteaux Channel and lower Huon Estuary where they occurred < 1 km from these waters (e.g. at The Neck, Bruny Island).

Note that the broader catchments of the D'Entrecasteaux Channel and lower Huon Estuary comprise large areas of southern Tasmania and it is outside the scope of the current study to compile metadata for studies across these vast catchments. However, the importance of links between inland catchment and coastal monitoring programs is recognised, and any studies identified that included at least one study site within the study area were included in the data inventory. The result of this is that the major catchment monitoring programs are incorporated, since they generally have at least one or two coastal monitoring sites. In addition, where a spatially broad, long term and on-going monitoring program was identified for the catchment that lacked coastal sites, it was still documented in the data inventory. It was however included as a 'general information source' (refer to Section 2.2 below) rather than being described in detail as a relevant scientific data set.

Many management plans have been prepared for creeks and rivulets which fall outside the study area but provide freshwater inputs to the study area and hence may influence its environmental quality. Where readily available, these reports may be referred to for general background information during preparation of the subsequent State of the D'Entrecasteaux Channel and lower Huon Estuary 2012 report, but have not been incorporated in the current data inventory. Similarly, management plans for catchments and sub-catchments prepared in 1999 or earlier have not been included in the data inventory but may be referred to as background documents.



Figure 1 Study area for the State of the D'Entrecasteaux Channel and lower Huon Estuary 2012 project, bounded in red (background imagery, Microsoft Bing © 2011 Microsoft Corporation).

2.2 Preparation of metadata

The current data inventory is essentially a compilation of metadata for studies and other information sources reported since 1999 for the study area. Note that while it is entitled an inventory of 'scientific' information, discussion at project initiation indicated that the scope of this document should aim to reflect the range of issues addressed in state of the environment reports for other major Tasmanian estuaries. The types of data incorporated were therefore largely guided by the scope of the most recent 'State of the Derwent Estuary' report (2009), and included a mixture of scientific and non-scientific data sources. In the case of scientific field studies, data were included that were either collected or reported post-1999. For example, field data from the Huon Estuary Study (CSIRO Huon Estuary Study Team 2000) were collected during 1996-1998, however the results were not released until 2000 and hence were included in the current data inventory.

Metadata were prepared in both word and spreadsheet formats as described below:

Current document:

This document provides a description of metadata in two formats:

- A. For scientific data sets compiled using targeted field survey programs, a detailed description was compiled based on the following fields:

FIELD	DESCRIPTION
ID	A unique number for each data set.
NAME	A name providing a general description of the data set or report.
PARAMETERS	Analytes/parameters surveyed or measurements undertaken, divided into the categories 'water quality', 'sediment quality', 'seafood safety', 'biota', 'habitats' and 'modelling'.
DESCRIPTION	A description of the data set providing background information and indicating the objectives of the study.
SPATIAL EXTENT	A description of the spatial extent of the data, including specific details of the sites or regions surveyed within the data inventory study area.
TEMPORAL EXTENT	A description of the temporal extent of the data, indicating start and finish dates and frequency of surveying where feasible.
DATA LIMITATIONS	Comments on limitations of data, such as inconsistencies in methods, limited timescales, data gaps, and other factors that may limit the application of data to an assessment of environmental status.
CUSTODIAN	The primary data custodian/s.
CONTACT PERSON	A contact person within the custodian organisation is also identified, although note that in some cases it is difficult to nominate a specific contact due to staff and structure changes within organisations.
CITATION/S	Where a specific report or publication describes the data set in part or full, the relevant citation/s was provided.

The primary purpose of allocating a unique number to each data set was to enable cross referencing within the current document and also between the current document and the spreadsheet files discussed further below.

Consistent with the categories for the 'Parameters' field, the above approach was used for studies which were focussed on the collection of 'scientific data', defined here as including the following types of environmental data:

- Water quality
- Sediment quality
- Seafood safety
- Biota - distributions or other population data
- Habitat mapping
- Modelling data incorporating inputs of any combination of water, sediment, biological and climatic data

The metadata for the above types of scientific data have been reported in detail on the basis that they may represent direct inputs to analyses of environmental status of the study area. For these types of data, it may be important to understand the precise sites, timing and methods used to collect data in order to

determine the compatibility of different data sets. Note that surveys of phytoplankton (i.e. microalgae in the water column) have been incorporated in 'water quality', since while they are 'biota', they are more commonly associated with assessments of water quality than natural biological values within the study area.

Note that the 'Data limitations' field was left blank where there were no obvious data limitations considered to be of direct relevance to reporting broadly on the environmental status of the D'Entrecasteaux Channel and lower Huon Estuary. In some cases this field was left blank due to the study being of relatively low relevance, whilst at the same time, some more relevant data sets were of a high quality but had carefully documented data limitations and hence facilitated reporting on these. Hence the inclusion or absence of comments on 'Data limitations' should not be taken as a direct reflection of data quality.

B. For more general information sources, an alternative more simple format was used to compile metadata:

FIELD	DESCRIPTION
ID	A unique number for each data set, incorporating the prefix 'G' to distinguish from the ID numbers used for scientific data sets.
NAME	A name providing a general description of the data set or report.
CITATION/S	Where a specific report or publication described the data set in part or full, the relevant citation/s was provided
DESCRIPTION	A description of the data set providing background information and indicating the purpose of the data set and relevance to the current study.
CUSTODIAN	The primary data custodian/s.

This more simplified format was used for the following types of data sources:

- Those describing general background attributes or other attributes which are not categorised as 'scientific' for the purpose of this study, e.g. human population data, heritage sites, tourism data, shipping data, and recreational boating survey data.
- Databases and reports which compile data from a wide range of sources but have not conducted independent targeted surveys of scientific parameters (i.e. these can be described as 'secondary' data sources), e.g. the Natural Values Atlas (DPIPWE 2012), State of the Environment Tasmania 2009 (TPC 2009), certain land use and catchment strategies, and risk assessments for the effects of climate change or industrial activities.

Several studies included as 'general information sources' were borderline in terms of denoting a scientific or general reference. Examples include weed management strategies; some are based solely on compilation of pre-existing data, whilst others are based partly on pre-existing data and partly on additional collection of data. In order to compile similar data sources within the document, all of the weed management strategies have been described here as general information sources. An additional example is provided by studies such as the seabird colony mapping publication by Brothers et al. (2001) for Tasmania's offshore islands. This publication is the result of a compilation of work over 20 years preceding 2001 rather than targeted surveys with designated study dates for each island described, and it has therefore been included as a general information source.

Metadata for data sets are presented in Sections 4.1 to 4.3. Section 4.1 lists data sets by subject and includes separate lists for scientific data sets and general information sources. This section only includes the ID, name and custodian for each study/data set, with the majority of custodian names abbreviated for

presentation purposes (refer as needed to the 'List of Abbreviations' at the start of the report). More detailed information for each scientific data set is then presented in Section 4.2, with a summary list of all scientific data sets also included at the beginning of that section (Table 1), while Section 4.3 provides a similar summary list (Table 2) and further information on the general information sources. Note that some studies may be listed under multiple subject headings, where they cover several different areas of interest. However, general information sources that address a very wide range of subjects have only been included under the 'Broad background information' heading.

The unique number allocated to each data set, with the prefix 'G' in the case of general information sources, has been cross referenced in Section 4.1, the individual data set descriptions in Sections 4.2 and 4.3, and in the compiled lists (Table 1 and Table 2) at the beginning of these sections.

It should be noted that information sources relating to particular subject headings may extend beyond those listed. Metadata relating to each subject heading are provided for central databases and primary sources of data identified, but not for other summary documents that have previously compiled information across a range of subjects. For example, a land use plan may summarise the aboriginal values of a region and hence provide relevant information on the subject, but it has not been listed under the 'Heritage' heading because it is not a central or primary source of that data.

Note also that a study containing any element of scientific data, as defined above, will be included as a scientific data set even though it may also include information categorised as 'general'. For example, scientific study ID: 70 (Migus 2008) is classified as a scientific data set on the basis of intertidal sampling undertaken, but also contains general information on recreational use, foreshore land use etc. However, in all subject headings, it is classified as scientific data set.

Citations for both scientific data sets and general information sources have been compiled in the bibliography in Section 5.

Discussion with Working Group members identified that several additional scientific studies were underway within the study area. Whilst full descriptions are not currently feasible for these studies, it was suggested that they be noted in the current report to highlight studies underway that might already be addressing data gaps for the region. Hence, known studies have been documented in Section 4.4 including the name of the study, a brief description based on available information, custodian and contact.

Spreadsheet files:

In addition to the current document, four separate spreadsheet files have been provided for the scientific data sets, based on the following types of data:

- Water quality
- Sediment quality
- Seafood safety/Biota/Habitats
- Modelling (water, sediment, biogeochemical, climate)

The data entered in these files has been sourced from the scientific data sets for which detailed metadata descriptions are provided in Section 4.2 of the current document.

The aim of the spreadsheet documents is to compile data for individual parameters or analytes across studies. This alternative format has been provided to facilitate searches needed to identify all data sets available for specific analytes and parameters, for example, nutrients in water, heavy metals in sediments, and benthic infauna. This may not have application to some stakeholders, but is useful in identifying all data

sets available for analysis of specific environmental indicators. The current word document provides metadata for each data set, with some including a wide range of analytes; while the document groups data sets under subject headings, it does not compile data on individual analytes. Note that each spreadsheet file contains information on a range of analytes/parameters and these have been separated across a number of worksheets within each file. The spreadsheet files include the following fields:

FIELD	DESCRIPTION
Analyte/Parameter	The chemical analyte or other parameter of interest.
ID	A unique number for each data set, corresponding to the number used for the same data set in the current document.
NAME	A name providing a general description of the data set or report, corresponding to the name used for the same data set in the current document.
SPATIAL	A description of the spatial extent of the data, including specific details of the sites or regions surveyed within the study area.
TEMPORAL	A description of the spatial extent of the data sets, indicating start and finish dates and frequency of surveying where feasible.
OTHER FACTORS/NOTES	Notes on specific methodologies, suites of analytes measured, overlaps in data with other studies, and specific site details.
DATA QUALITY/ LIMITATIONS	Notes on Quality Assurance measures applied, and comments on limitations of data, such as inconsistencies in methods, limited timescales, data gaps, and other factors that may limit the application of data to an assessment of environmental status.

Fields such as description, custodian and contact person were not repeated in the spreadsheet files, however these can be obtained from the current document by cross referencing to the relevant study number.

3 DATA GAPS

While every effort has been made to compile metadata for relevant data sets within the time allocated for this stage of the project (May 9th -27th July 2012), there are a number of potential gaps in data sources.

Examples include:

- Honours theses: these theses are not all recorded in library catalogues, nor archived at central university libraries. As a result, some relevant honours theses may be excluded.
- Information on some aspects of heritage have not been available.
- Metadata for field assessments of proposed level 1 activities (as defined in the *Environmental Management and Pollution Control Act 1994*; regulated by Council) such as jetty developments are difficult to acquire and have very localised application, hence they have not been included.
- Information is currently lacking on certain level 2 activities [as defined in the *Environmental Management and Pollution Control Act 1994*; regulated by the Environment Protection Authority (EPA) at the Department of Primary Industries, Parks, Water and Environment (DPIPWE)]. Different types of activities are regulated by different sections within the EPA and some information has not been available within the timeframe of data inventory report compilation.

Note that some other types of information are not included in the data inventory because they have not previously been documented. Interviews with Council staff and other stakeholders are needed in some cases to identify sites of interest. Examples include marine recreational activities, hotspots for potential septic tank issues, and information regarding stormwater and former tips.

It is possible that other relevant data sources may not have been identified during compilation of this data inventory report. Any gaps identified can be reported to the D'Entrecasteaux Channel Project Co-ordinator at Kingborough Council (6211 8200 or kc@kingborough.tas.gov.au) to be added to the data inventory records.

4 RESULTS

4.1 Data sets by subject

4.1.1 Broad background information

General information sources (see Section 4.3):

ID	Name	Custodian
G50	NRM South Catchment summaries	NRM South
G66	State of the Environment Tasmania 2009	TPC

4.1.2 Climate

General information sources (see Section 4.3):

ID	Name	Custodian
G25	Daily weather observations	BOM

4.1.3 Geomorphology and geology

Scientific data sets (see Section 4.2):

ID	Name	Custodian
24	Indicative mapping of Tasmanian coastal vulnerability to climate change and sea-level rise	DPIPWE
25	A “detailed first pass” coastal hazard assessment for Kingborough municipality	Kingborough Council
30	Coastal Values of Southern Tasmania	DPIPWE
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South

General information sources (see Section 4.3):

ID	Name	Custodian
G6	A summary of the geology and mineral deposits of Tasmania	MRT
G10	Australian Soil Resource Information System	CSIRO Australia
G27	Digital Geology of Tasmania	MRT
G73	Tasmanian Natural Values Atlas	DPIPWE

4.1.4 Bathymetry, estuarine circulation and coastal oceanography

Scientific data sets (see Section 4.2):

ID	Name	Custodian
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/ Kingborough Council

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
2	Huon Estuary Study — environmental research for integrated catchment management and aquaculture	CSIRO
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
18	Southeast Tasmania temperate reef survey	GA/IMAS (UTas)
32	SEAMAP habitat mapping	IMAS (UTas)
57	Waste Water Treatment Plant (WWTP) ambient monitoring and near-field modelling	Southern Water
64	Environmental surveys at Port Huon Marina	Port Huon Marina
68	Huon mooring - near-real-time water quality data	CSIRO
69	INFORMD near-real-time hydrodynamic modelling and the TasMAN sensor network	CSIRO

Also see scientific data sets in Section 4.2 regarding water currents at specific locations:

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
6	Development of novel methods for the assessment of sediment condition (following studies)	IMAS (UTas)/CSIRO
8	Tasmanian Marine Farming Benthic Monitoring Program	DPIPWE
12	Assessment of long term change in sediment condition after organic enrichment: defining recovery	IMAS (UTas)
63	Marine environmental survey at Oyster Cove Marina	Oyster Cove Marina
65	Tassal Margate fish processing plant re-development Development Proposal and Environmental Management Plan (DPEMP)	Tassal
66	Tassal Dover processing plant production intensification DPEMP	Tassal

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G2	A guide to the waterways of southern Tasmania	DPIPWE
G26	D'Entrecasteaux Channel hydrographic chart	Royal Australian Navy

4.1.5 Catchments and river inputs

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
21	Surface water models for Tasmanian catchments	HTC/DPIPWE
23	River modelling and water availability for the Derwent-South East region of Tasmania, Tasmanian Sustainable Yields Project	CSIRO
26	Climate Futures for Tasmania	ACE CRC
31	Water Information System of Tasmania (WIST) and annual waterways reports	DPIPWE

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G49	Nicholls Rivulet Rivercare Plan	Huon Valley Council
G85	Water quality of rivers in the Huon Catchment	DPIPWE

4.1.6 Population centres

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G52	Population change in Kingborough, 2001-2011	Kingborough Council
G54	Regional population growth: estimated resident population for Statistical Local Areas in Tasmania	ABS

4.1.7 Foreshore land use

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G2	A guide to the waterways of southern Tasmania	DPIPWE
G8	An assessment of surface water quality monitoring in the NRM South region	HTC/NRM South
G35	Huon Valley Land Use and Development Strategy	Huon Valley Council
G39	Kingborough Planning Scheme 2000	Kingborough Council
G40	Land Capability Survey of the D'Entrecasteaux	DPIPWE
G44	Marine facilities spatial data, Huon Valley Council	Huon Valley Council
G45	Marine facilities spatial data, Kingborough Council	Kingborough Council
G46	Marine facilities, Marine and Safety Tasmania	MAST
G47	Marine Structures Assessment Project	DPIPWE
G62	Southern Tasmanian Regional Land Use Strategy, 2010-2035	STCA
G76	Tasmanian Slipways Management Framework	DPIPWE

4.1.8 Marine industries

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
52	The Tasmanian Shellfish Quality Assurance Program (TSQAP)	DHHS
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G24	D'Entrecasteaux Channel Marine Farming Development Plan	DPIPWE
G33	Huon River and Port Esperance Marine Farming Development Plan	DPIPWE
G41	Level 2 activities assessment documents, Environment Protection Authority	DPIPWE
G42	Level 2 activities database, Environment Protection Authority	DPIPWE

4.1.9 Navigation and transportation

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G2	A guide to the waterways of southern Tasmania	DPIPWE
G60	Shipping Data, Tasports	Tasports
G67	State road spatial data set	DIER

4.1.10 Tourism

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G34	Huon Trail Tasmania, tourist attractions database	Tourism operators
G77	Tasmanian Visitor Survey data	Tourism Tasmania

4.1.11 Fishing

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
48	Local recruitment sources of southern calamari	IMAS (UTas)
49	Scallop fishery stock assessments in the D'Entrecasteaux Channel	IMAS (UTas)
85	Impact of the introduced New Zealand Screwshell <i>Maoricolpus roseus</i> on soft-sediment assemblages	IMAS (UTas)

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G30	Fishing guide for the D'Entrecasteaux Channel and Bruny Island	DPIPWE
G56	Scalefish fishery management plan review	DPIPWE
G68	Survey of recreational fishing in Tasmanian: 2007-2008	IMAS (UTas)

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G74	Tasmanian recreational rock lobster and abalone fisheries: 2008-09 fishing season	IMAS (UTas)

4.1.12 Other recreation

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G37	Kingborough Council spatial data sets for recreational facilities	Kingborough Council
G53	Recreational boating survey results: 2010	MAST

4.1.13 Research and education

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
58	Woodbridge Marine Discovery Centre educational monitoring	Woodbridge MDC
67	Huon Valley water quality report 1996-2002 – Waterwatch	Huon Valley Council

4.1.14 Heritage

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G9	Australian Historic Shipwrecks Database	SEWPaC
G35	Huon Valley Land Use and Development Strategy	Huon Valley Council
G39	Kingborough Planning Scheme 2000	Kingborough Council
G70	Tasmanian Aboriginal Site Index	AHT
G72	Tasmanian Heritage Register	Heritage Tasmania
G81	The South-east Regional Marine Plan indigenous assessment	SEWPaC

4.1.15 Conservation areas

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
33	Long term monitoring of Tasmanian Marine Reserves	IMAS (UTas)
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G13	Bruny Bioregion Marine Protected Area Inquiry	TPC
G21	Coningham Nature Recreation Area: Management Statement 2009	DPIPWE
G51	Peter Murrell State Reserve and Conservation Area: Fire Management Plan 2006	DPIPWE
G61	South Bruny National Park and Nature Reserves Management Plan	DPIPWE
G75	Tasmanian Reserve Estate spatial layer	DPIPWE

4.1.16 Habitats

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/ Kingborough Council
8	Tasmanian Marine Farming Benthic Monitoring Program	DPIPWE
18	Southeast Tasmania temperate reef survey	GA/IMAS (UTas)
20	Environmental water requirements for the North West Bay River	DPIPWE
22	Conservation of Freshwater Ecosystem Values (CFEV) Program	DPIPWE
30	Coastal Values of Southern Tasmania	DPIPWE
32	SEAMAP habitat mapping	IMAS (UTas)
35	Tasmanian rocky reef health studies	IMAS (UTas)
36	Conservation, monitoring and recovery of threatened giant kelp (<i>Macrocystis pyrifera</i>) beds in Tasmania	DPIPWE
37	Southern Tasmanian coastal saltmarsh futures: a preliminary strategic assessment	NRM South

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G1	A Directory of Important Wetlands in Australia: Tasmania	DPIPWE
G16	CFEV Assessment of the North West Bay River Catchment	DPIPWE

4.1.17 Native fauna and flora

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/ Kingborough Council
3	Broadscale environmental monitoring program	TSGA
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
6	Development of novel methods for the assessment of sediment condition (fallowing studies)	IMAS (UTas)/CSIRO
7	Evaluation of video and other techniques for environmental monitoring	IMAS (UTas)

ID	Name	Custodian
	of salmon farms in Tasmania	
8	Tasmanian Marine Farming Benthic Monitoring Program	DPIPWE
9	Effects of shellfish farming on the benthic environment	IMAS (UTas)
10	Ecological status of the Derwent and Huon Estuaries	IMAS (UTas)
11	Macroalgal assemblages as indicators of the broad-scale impacts of fish farms on temperate reef habitats	SGES (UTas)
12	Assessment of long term change in sediment condition after organic enrichment: defining recovery	IMAS (UTas)
13	Detection of organic enrichment near finfish net-pens by sediment profile imaging	FOC/IMAS (UTas)
15	Phytoplankton blooms in the Huon Estuary, Tasmania: top-down or bottom-up control?	CSIRO
16	Bacterial and algal interactions in a Tasmanian Estuary	ACE CRC
17	Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary	SC (UTas)
18	Southeast Tasmania temperate reef survey	GA/IMAS (UTas)
20	Environmental water requirements for the North West Bay River	DPIPWE
22	Conservation of Freshwater Ecosystem Values (CFEV) Program	DPIPWE
27	The conservation significance of Tasmanian estuaries	IMAS (UTas)
28	Catastrophic decline in mollusc diversity in eastern Tasmania	IMAS (UTas)
29	Coastal and estuarine resource condition assessment (CERCA) in the Southern NRM region	IMAS (UTas)
30	Coastal Values of Southern Tasmania	DPIPWE
31	Water Information System of Tasmania (WIST) and annual waterways reports	DPIPWE
32	SEAMAP habitat mapping	IMAS (UTas)
33	Long term monitoring of Tasmanian Marine Reserves	IMAS (UTas)
34	Establishment of the long-spined sea urchin (<i>Centrostephanus rodgersii</i>) in Tasmania	IMAS (UTas)
35	Tasmanian rocky reef health studies	IMAS (UTas)
36	Conservation, monitoring and recovery of threatened giant kelp (<i>Macrocystis pyrifera</i>) beds in Tasmania	DPIPWE
37	Southern Tasmanian coastal saltmarsh futures: a preliminary strategic assessment	NRM South
40	River health of the North West Bay River Catchment	DPIPWE
43	Report on shorebird surveys conducted for the Mark Webber Challenge	Birds Tasmania/ DPIPWE
44	Population decreases in little penguins <i>Eudyptula minor</i> in southeastern Tasmania	UTas/ Birds Tasmania
45	Survey of little penguins in Kingborough	Kingborough Council
46	Conservation assessment of beach nesting and migratory shorebirds in Tasmania	DPIPWE
47	Conservation assessment of the endangered forty-spotted pardalote	DPIPWE/NRM South
48	Local recruitment sources of southern calamari	IMAS (UTas)
49	Scallop fishery stock assessments in the D'Entrecasteaux Channel	IMAS (UTas)
57	Waste Water Treatment Plant (WWTP) ambient monitoring and near-field modelling	Southern Water
58	Woodbridge Marine Discovery Centre educational monitoring	Woodbridge MDC
62	Electrona wharf marine environment study	Tasports

ID	Name	Custodian
63	Marine environmental survey at Oyster Cove Marina	Oyster Cove Marina
64	Environmental surveys at Port Huon Marina	Port Huon Marina
65	Tassal Margate fish processing plant re-development DPEMP	Tassal
66	Tassal Dover processing plant production intensification DPEMP	Tassal
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South
73	Chaostola Skipper (endangered coastal butterfly species) in the Kingborough Municipality	DPIPWE
76	Birds Tasmania nesting resident shorebird and migratory shorebird data	Birds Tasmania
80	The use of diatoms as biological indicators of water quality in south-east Tasmania	IMAS (UTas)
81	Ecology of moon jellyfish <i>Aurelia</i> sp. in southern Tasmania in relation to Atlantic salmon farming	IMAS (UTas)
85	Impact of the introduced New Zealand Screwshell <i>Maoricolpus roseus</i> on soft-sediment assemblages	IMAS (UTas)

General information sources (see Section 4.3):

ID	Name	Custodian
G3	A Regional Ecosystem Model for prioritising the planning and management of biodiversity	Kingborough Council/NRM South
G5	A revision of the Australian handfishes	CSIRO
G11	Biolinks: biodiversity values at the landscape scale in the Huon Valley and D'Entrecasteaux Channel	Kingborough Council/Huon Valley Council
G12	Bird data, Birdlife IBA Important Bird Areas	Birds Australia
G43	Managing Threatened species and communities on Bruny Island	DPIPWE
G64	Species Profile and Threats Database	SEWPaC
G73	Tasmanian Natural Values Atlas	DPIPWE
G78	TASVEG updates, Kingborough municipality	Kingborough Council
G79	TASVEG updates, Huon Valley municipality	Huon Valley Council
G80	TASVEG Version 2.0	DPIPWE

4.1.18 Introduced species

Scientific data sets (see Section 4.2):

ID	Name	Custodian
2	Huon Estuary Study — environmental research for integrated catchment management and aquaculture	CSIRO
3	Broadscale environmental monitoring program	TSGA
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
8	Tasmanian Marine Farming Benthic Monitoring Program	DPIPWE
10	Ecological status of the Derwent and Huon Estuaries	IMAS (UTas)
30	Coastal Values of Southern Tasmania	DPIPWE
38	Exotic marine pests survey of Tasmanian small ports	DPIPWE
39	Distribution of feral Pacific oysters and environmental conditions	IMAS (UTas)

ID	Name	Custodian
49	Scallop fishery stock assessments in the D'Entrecasteaux Channel	IMAS (UTas)
52	The Tasmanian Shellfish Quality Assurance Program (TSQAP)	DHHS
53	Environmental monitoring for fish health - Tassal	Tassal
54	Environmental monitoring for fish health – Huon Aquaculture Company	Huon Aquaculture Company
64	Environmental surveys at Port Huon Marina	Port Huon Marina
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South
73	Chaostola Skipper (endangered coastal butterfly species) in the Kingborough Municipality	DPIPWE
78	Population and larval ecology study of the introduced New Zealand screwshell <i>Maoricolpus roseus</i>	IMAS (UTas)
84	Algal-bacterial interactions: a study of <i>Gymnodinium catenatum</i> and its associated bacteria	UTas, CSIRO
85	Impact of the introduced New Zealand Screwshell <i>Maoricolpus roseus</i> on soft-sediment assemblages	IMAS (UTas)

General information sources (see Section 4.3):

ID	Name	Custodian
G14	Bruny Island Roadside Weed Management Plan	Kingborough Council
G15	Bruny Island Weed Management Strategy	Kingborough Council
G17	Change in introduced species distributions and habitat condition in the D'Entrecasteaux Channel	IMAS (UTas)
G18	Channel Weed Management Strategy 2008-2013	Kingborough Council
G31	Global toxicology, ecophysiology and population relationships of <i>Gymnodinium catenatum</i>	IMAS (UTas)
G36	Huon Valley Weed Management Strategy 2007-2012	Huon Valley Council
G63	Southern Tasmanian Weed Strategy	NRM South

4.1.19 Climate change

Scientific data sets (see Section 4.2):

ID	Name	Custodian
15	Phytoplankton blooms in the Huon Estuary, Tasmania: top-down or bottom-up control?	CSIRO
23	River modelling and water availability for the Derwent-South East region of Tasmania, Tasmanian Sustainable Yields Project	CSIRO
24	Indicative mapping of Tasmanian coastal vulnerability to climate change and sea-level rise	DPIPWE
25	A “detailed first pass” coastal hazard assessment for Kingborough municipality	Kingborough Council
26	Climate Futures for Tasmania	ACE CRC
30	Coastal Values of Southern Tasmania	DPIPWE
34	Establishment of the long-spined sea urchin (<i>Centrostephanus rodgersii</i>) in Tasmania	IMAS (UTas)
37	Southern Tasmanian coastal saltmarsh futures: a preliminary strategic assessment	NRM South

70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South
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General information sources (see Section 4.3):

ID	Name	Custodian
G19	Climate change cascades: shifts in oceanography, species' ranges and subtidal community dynamics	IMAS (UTas)
G20	Climate-driven range expansion of <i>Noctiluca scintillans</i> into the Southern Ocean	CSIRO
G55	Risk assessment of impacts of climate change for key marine species in South Eastern Australia	IMAS (UTas)
G57	Scoping study into adaptation of the Tasmanian salmonid aquaculture industry to climate change	IMAS (UTas)/CSIRO
G58	Sea-level extremes in Tasmania	DPIPWE
G71	Tasmanian Coastal Inundation Mapping Project	TPC
G83	Vulnerability of Tasmania's natural environment to climate change: an overview	DPIPWE

4.1.20 Anthropogenic inputs

Scientific data sets (see Section 4.2):

ID	Name	Custodian
2	Huon Estuary Study — environmental research for integrated catchment management and aquaculture	CSIRO
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
55	Nyrstar Hobart zinc smelter seafood monitoring program	Nyrstar Hobart
56	Waste Water Treatment Plant (WWTP) effluent monitoring	Southern Water
57	Waste Water Treatment Plant (WWTP) ambient monitoring and near-field modelling	Southern Water
59	Kingborough Waste Centre, Baretta – groundwater monitoring	Kingborough Council
60	Huon Valley Municipality former tip sites – groundwater and surface water monitoring	Huon Valley Council
65	Tassal Margate fish processing plant re-development DPEMP	Tassal
66	Tassal Dover processing plant production intensification DPEMP	Tassal
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South
72	Fish processing sites – monitoring of discharges to the marine environment	Tassal/Tasmanian Seafoods

General information sources (see Section 4.3):

ID	Name	Custodian
G4	A review of the ecological impacts of antibiotics and antifoulants used in Tasmanian salmonid farming	IMAS (UTas)
G22	Contaminated sites databases, Environment Protection Authority	DPIPWE
G23	Contaminated sites spatial dataset, Kingborough Council	Kingborough Council

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G29	Environmental risk assessment of shellfish farming in Tasmania	IMAS (UTas)
G32	Huon Estuary fish farm load scenarios	HAC/CSIRO
G38	Kingborough Council spatial data sets for stormwater infrastructure	Kingborough Council
G48	National Pollutant Inventory	SEWPaC
G59	Sewage spills database, Southern Water	Southern Water
G65	Spills and incidents database, Environment Protection Authority	DPIPWE
G69	Tasmania infrastructure report card 2010: water	Engineers Australia

4.1.21 Integrated studies

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/ Kingborough Council
2	Huon Estuary Study — environmental research for integrated catchment management and aquaculture	CSIRO
3	Broadscale environmental monitoring program	TSGA
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
10	Ecological status of the Derwent and Huon Estuaries	IMAS (UTas)
42	Geochemical comparisons between the Huon and Derwent River estuaries	SG (U Wollongong)

General information sources (see Section 4.3):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
G82	The Tail of Two Rivers in Tasmania: The Derwent and Huon Estuaries	CSIRO

4.1.22 Water quality – pathogens and faecal indicator bacteria

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
50	Annual recreational water quality reports – Kingborough Council	Kingborough Council
51	Annual recreational water quality reports – Huon Valley Council	Huon Valley Council
52	The Tasmanian Shellfish Quality Assurance Program (TSQAP)	DHHS
56	Waste Water Treatment Plant (WWTP) effluent monitoring	Southern Water
57	Waste Water Treatment Plant (WWTP) ambient monitoring and near-field modelling	Southern Water
66	Tassal Dover processing plant production intensification DPEMP	Tassal
72	Fish processing sites – monitoring of discharges to the marine environment	Tassal/Tasmanian Seafoods
74	Ambient pathogen monitoring, North West Bay River	Kingborough Council
75	Water quality monitoring in the North West Bay River Catchment	Kingborough Council

4.1.23 Water quality - other

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/ Kingborough Council
2	Huon Estuary Study — environmental research for integrated catchment management and aquaculture	CSIRO
3	Broadscale environmental monitoring program	TSGA
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
6	Development of novel methods for the assessment of sediment condition (fallowing studies)	IMAS (UTas)/CSIRO
9	Effects of shellfish farming on the benthic environment	IMAS (UTas)
10	Ecological status of the Derwent and Huon Estuaries	IMAS (UTas)
14	Seasonal Cycling of Arsenic Species in a Stratified, Microtidal Estuary (Huon River, Tasmania)	SC (UTas)/CSIRO
15	Phytoplankton blooms in the Huon Estuary, Tasmania: top-down or bottom-up control?	CSIRO
16	Bacterial and algal interactions in a Tasmanian Estuary	ACE CRC
17	Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary	SC (UTas)
27	The conservation significance of Tasmanian estuaries	IMAS (UTas)
29	Coastal and estuarine resource condition assessment (CERCA) in the Southern NRM region	IMAS (UTas)
31	Water Information System of Tasmania (WIST) and annual waterways reports	DPIPWE
40	River health of the North West Bay River Catchment	DPIPWE
41	MRT statewide groundwater monitoring network	MRT
42	Geochemical comparisons between the Huon and Derwent River estuaries	SG (U Wollongong)
52	The Tasmanian Shellfish Quality Assurance Program (TSQAP)	DHHS
53	Environmental monitoring for fish health - Tassal	Tassal
54	Environmental monitoring for fish health – Huon Aquaculture Company	Huon Aquaculture Company
55	Nyrstar Hobart zinc smelter seafood monitoring program	Nyrstar Hobart
56	Waste Water Treatment Plant (WWTP) effluent monitoring	Southern Water
57	Waste Water Treatment Plant (WWTP) ambient monitoring and near-field modelling	Southern Water
58	Woodbridge Marine Discovery Centre educational monitoring	Woodbridge MDC
59	Kingborough Waste Centre, Baretta – groundwater monitoring	Kingborough Council
60	Huon Valley Municipality former tip sites – groundwater and surface water monitoring	Huon Valley Council
61	Forestry Tasmania Huon District Water Sampling Program	Forestry Tasmania
64	Environmental surveys at Port Huon Marina	Port Huon Marina
66	Tassal Dover processing plant production intensification DPEMP	Tassal
67	Huon Valley water quality report 1996-2002 – Waterwatch	Huon Valley Council
71	Water quality monitoring program, Roaring Bay Beach Lagoon	Port Esperance CC

ID	Name	Custodian
72	Fish processing sites – monitoring of discharges to the marine environment	Tassal, Tasmanian Seafoods
75	Water quality monitoring in the North West Bay River Catchment	Kingborough Council
77	Water quality nutrient monitoring program, Kingborough Municipality	Kingborough Council
78	Population and larval ecology study of the introduced New Zealand screwshell <i>Maoricolpus roseus</i>	IMAS (UTas)
79	Nitrogen uptake by phytoplankton in the Huon Estuary	NCMCRS (UTas)
80	The use of diatoms as biological indicators of water quality in south-east Tasmania	IMAS (UTas)
81	Ecology of moon jellyfish <i>Aurelia</i> sp. in southern Tasmania in relation to Atlantic salmon farming	IMAS (UTas)
83	Benthic respiration and nutrient cycling in the Huon Estuary	UTas, CSIRO
84	Algal-bacterial interactions: a study of <i>Gymnodinium catenatum</i> and its associated bacteria	UTas, CSIRO
85	Impact of the introduced New Zealand Screwshell <i>Maoricolpus roseus</i> on soft-sediment assemblages	IMAS (UTas)

General information sources (see Section 4.3):

ID	Name	Custodian
G7	A survey strategy and environmental monitoring network for an estuary supporting finfish culture	CSIRO
G8	An assessment of surface water quality monitoring In the NRM South region	HTC/NRM South
G28	Environmental management goals for Tasmanian waters	DPIPWE
G82	The Tail of Two Rivers in Tasmania: The Derwent and Huon Estuaries	CSIRO
G84	Water quality in the Warra Long-Term Ecological Research study area 1998–2006	Forestry Tasmania

4.1.24 Sediment quality

Scientific data sets (see Section 4.2):

ID	Name	Custodian
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/ Kingborough Council
2	Huon Estuary Study — environmental research for integrated catchment management and aquaculture	CSIRO
3	Broadscale environmental monitoring program	TSGA
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
6	Development of novel methods for the assessment of sediment condition (fallowing studies)	IMAS (UTas)/CSIRO
7	Evaluation of video and other techniques for environmental monitoring of salmon farms in Tasmania	IMAS (UTas)
8	Tasmanian Marine Farming Benthic Monitoring Program	DPIPWE
9	Effects of shellfish farming on the benthic environment	IMAS (UTas)
10	Ecological status of the Derwent and Huon Estuaries	IMAS (UTas)

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
12	Assessment of long term change in sediment condition after organic enrichment: defining recovery	IMAS (UTas)
13	Detection of organic enrichment near finfish net-pens by sediment profile imaging	FOC/IMAS (UTas)
14	Seasonal Cycling of Arsenic Species in a Stratified, Microtidal Estuary (Huon River, Tasmania)	SC (UTas), CSIRO
17	Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary	SC (UTas)
19	Sedimentation in North West Bay	UTas
27	The conservation significance of Tasmanian estuaries	IMAS (UTas)
28	Catastrophic decline in mollusc diversity in eastern Tasmania	IMAS (UTas)
42	Geochemical comparisons between the Huon and Derwent River estuaries	SG (U Wollongong)
58	Woodbridge Marine Discovery Centre educational monitoring	Woodbridge MDC
62	Electrona wharf marine environment study	Tasports
63	Marine environmental survey at Oyster Cove Marina	Oyster Cove Marina
64	Environmental surveys at Port Huon Marina	Port Huon Marina
65	Tassal Margate fish processing plant re-development DPEMP	Tassal
80	The use of diatoms as biological indicators of water quality in south-east Tasmania	IMAS (UTas)
83	Benthic respiration and nutrient cycling in the Huon Estuary	UTas, CSIRO

4.1.25 Seafood safety

Scientific data sets (see Section 4.2):

<i>ID</i>	<i>Name</i>	<i>Custodian</i>
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/ Kingborough Council
52	The Tasmanian Shellfish Quality Assurance Program (TSQAP)	DHHS
55	Nyrstar Hobart zinc smelter seafood monitoring program	Nyrstar Hobart
82	Baseline metal levels in selected faunal species from the Derwent Estuary and surrounding areas	IMAS (UTas)

4.2 Detailed descriptions of scientific data sets

A summary list of all of the scientific data sets described in this section is presented in Table 1.

Table 1 List of scientific data sets compiled for the D’Entrecasteaux Channel and lower Huon Estuary since 1999.

ID	Name of scientific data set/study	Custodian/s
1	Assessment and monitoring of nutrients and habitats in North West Bay	IMAS (UTas)/KC
2	Huon Estuary Study — environmental research for integrated catchment management and aquaculture	CSIRO
3	Broadscale Environmental Monitoring Program (BEMP)	TSGA
4	System-wide environmental issues for sustainable salmonid aquaculture	CSIRO/IMAS (UTas)
5	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture	CSIRO/IMAS (UTas)
6	Development of novel methods for the assessment of sediment condition (fallowing studies)	IMAS (UTas)/CSIRO
7	Evaluation of video and other techniques for environmental monitoring of salmon farms in Tasmania	IMAS (UTas)
8	Tasmanian Marine Farming Benthic Monitoring Program	DPIPWE
9	Effects of shellfish farming on the benthic environment	IMAS (UTas)
10	Ecological status of the Derwent and Huon Estuaries	IMAS (UTas)
11	Macroalgal assemblages as indicators of the broad-scale impacts of fish farms on temperate reef habitats	SGES (UTas)
12	Assessment of long term change in sediment condition after organic enrichment: defining recovery	IMAS (UTas)
13	Detection of organic enrichment near finfish net-pens by sediment profile imaging	FOC/IMAS (UTas)
14	Seasonal cycling of arsenic species in a stratified, microtidal estuary (Huon River, Tasmania)	SC (UTas)/CSIRO
15	Phytoplankton blooms in the Huon Estuary, Tasmania: top-down or bottom-up control?	CSIRO
16	Bacterial and algal interactions in a Tasmanian Estuary	ACE CRC
17	Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary	SC (UTas)
18	Southeast Tasmania temperate reef survey	GA/IMAS (UTas)
19	Sedimentation in North West Bay	UTas
20	Environmental water requirements for the North West Bay River	DPIPWE
21	Surface water models for Tasmanian catchments	HTC/DPIPWE
22	Conservation of Freshwater Ecosystem Values (CFEV) Program	DPIPWE
23	River modelling and water availability for the Derwent-South East region of Tasmania	CSIRO
24	Indicative mapping of Tasmanian coastal vulnerability to climate change and sea-level rise	DPIPWE
25	A “detailed first pass” coastal hazard assessment for Kingborough	Kingborough Council

ID	Name of scientific data set/study	Custodian/s
	municipality	
26	Climate Futures for Tasmania	ACE CRC
27	The conservation significance of Tasmanian estuaries	IMAS (UTas)
28	Catastrophic decline in mollusc diversity in eastern Tasmania	IMAS (UTas)
29	Coastal and estuarine resource condition assessment (CERCA) in the Southern NRM region	IMAS (UTas)
30	Coastal Values of Southern Tasmania	DPIPWE
31	Water Information System of Tasmania (WIST) and annual waterways reports	DPIPWE
32	SEAMAP habitat mapping	IMAS (UTas)
33	Long term monitoring of Tasmanian Marine Reserves	IMAS (UTas)
34	Establishment of the long-spined sea urchin (<i>Centrostephanus rodgersii</i>) in Tasmania	IMAS (UTas)
35	Tasmanian rocky reef health studies	IMAS (UTas)
36	Conservation, monitoring and recovery of threatened giant kelp (<i>Macrocystis pyrifera</i>) beds in Tasmania	DPIPWE
37	Southern Tasmanian coastal saltmarsh futures: a preliminary strategic assessment	NRM South
38	Exotic marine pests survey of Tasmanian small ports	DPIPWE
39	Distribution of feral Pacific oysters and environmental conditions	IMAS (UTas)
40	River health of the North West Bay River Catchment	DPIPWE
41	MRT statewide groundwater monitoring network	MRT
42	Geochemical comparisons between the Huon and Derwent River estuaries	SG (U Wollongong)
43	Report on shorebird surveys conducted for the Mark Webber Challenge	Birds Tasmania/DPIPWE
44	Population decreases in little penguins <i>Eudyptula minor</i> in southeastern Tasmania	UTas/Birds Tasmania
45	Survey of little penguins in Kingborough	Kingborough Council
46	Conservation assessment of beach nesting and migratory shorebirds in Tasmania	DPIPWE
47	Conservation assessment of the endangered forty-spotted pardalote	DPIPWE/NRM South
48	Local recruitment sources of southern calamari	IMAS (UTas)
49	Scallop fishery stock assessments in the D'Entrecasteaux Channel	IMAS (UTas)
50	Annual recreational water quality reports – Kingborough Council	Kingborough Council
51	Annual recreational water quality reports – Huon Valley Council	Huon Valley Council
52	The Tasmanian Shellfish Quality Assurance Program (TSQAP)	DHHS
53	Environmental monitoring for fish health - Tassal	Tassal
54	Environmental monitoring for fish health – Huon Aquaculture Company	Huon Aquaculture Company
55	Nyrstar Hobart zinc smelter seafood monitoring program	Nyrstar Hobart
56	Waste Water Treatment Plant (WWTP) effluent monitoring	Southern Water
57	Waste Water Treatment Plant (WWTP) ambient monitoring and near-field modelling	Southern Water

ID	Name of scientific data set/study	Custodian/s
58	Woodbridge Marine Discovery Centre educational monitoring	Woodbridge MDC
59	Kingborough Waste Centre, Baretta – groundwater monitoring	Kingborough Council
60	Huon Valley Municipality former tip sites – groundwater and surface water monitoring	Huon Valley Council
61	Forestry Tasmania Huon District Water Sampling Program	Forestry Tasmania
62	Electrona wharf marine environment study	Tasports
63	Marine environmental survey at Oyster Cove Marina	Oyster Cove Marina
64	Environmental surveys at Port Huon Marina	Port Huon Marina
65	Tassal Margate fish processing plant re-development DPEMP	Tassal
66	Tassal Dover processing plant production intensification DPEMP	Tassal
67	Huon Valley water quality report 1996-2002 – Waterwatch	Huon Valley Council
68	Huon mooring - near-real-time water quality data	CSIRO
69	INFORMD near-real-time hydrodynamic modelling and the TasMAN sensor network	CSIRO
70	Assessment and mapping of foreshore values, condition and pressures for the southern NRM region	NRM South
71	Water quality monitoring program, Roaring Bay Beach Lagoon	Port Esperance CC
72	Fish processing sites – monitoring of discharges to the marine environment	Tassal, Tasmanian Seafoods
73	Chaostola Skipper (endangered coastal butterfly species) in the Kingborough Municipality	DPIPWE
74	Ambient pathogen monitoring, North West Bay River	Kingborough Council
75	Water quality monitoring in the North West Bay River Catchment	Kingborough Council
76	Birds Tasmania nesting resident shorebird and migratory shorebird data	Birds Tasmania
77	Water quality nutrient monitoring program, Kingborough Municipality	Kingborough Council
78	Population and larval ecology study of the introduced New Zealand screwshell <i>Maoricolpus roseus</i>	IMAS
79	Nitrogen uptake by phytoplankton in the Huon Estuary	NCMCRS (UTas)
80	The use of diatoms as biological indicators of water quality in south-east Tasmania	IMAS (UTas)
81	Ecology of moon jellyfish <i>Aurelia</i> sp. in southern Tasmania in relation to Atlantic salmon farming	IMAS (UTas)
82	Baseline metal levels in selected faunal species from the Derwent Estuary and surrounding areas	IMAS (UTas)
83	Benthic respiration and nutrient cycling in the Huon Estuary	UTas, CSIRO
84	Algal-bacterial interactions: a study of <i>Gymnodinium catenatum</i> and its associated bacteria	UTas, CSIRO
85	Impact of the introduced New Zealand Screwshell <i>Maoricolpus roseus</i> on soft-sediment assemblages	IMAS (UTas)

ID	1
NAME	Assessment and monitoring of nutrients and habitats in North West Bay - supporting sustainable management
PARAMETERS	Water quality: salinity, turbidity, nutrients, current speed and direction Sediment quality: particle size analysis, heavy metals Seafood safety: bacteria in shellfish Biota: seagrass biomass, macroalgal abundance, fish species, macroalgae species Habitats: mapping of seagrass beds, rocky reefs and unvegetated habitats Modelling: hydrodynamic modelling
DESCRIPTION	A study of North West Bay, incorporating surveys/investigations of the above parameters, as well as collation of other information on: physical and human setting (e.g. climate, catchment, regional oceanography, uses), circulation (e.g. bathymetry, tidal variations, rainfall and freshwater input, wind stress), human health monitoring and management (e.g. sewage, industrial and stormwater discharges, boating wastes, recreational water quality, environmental flows), and management issues (e.g. marine farming, shore-based activities).
SPATIAL EXTENT	North West Bay, and northern part of the D'Entrecasteaux Channel for some parameters – number of sampling sites varying amongst parameters
TEMPORAL EXTENT	Surveys September 2001 to November 2001; collation of other general information over longer period pre 2002
DATA LIMITATIONS	Timing not indicated for the hydrodynamic tracer study, or sediment and shellfish quality surveys. 'Standards' were used for shellfish quality study, but were not evident for water quality study; study provides data for spring/summer over one six month period, i.e. data not available for all seasons or multiple years.
CUSTODIAN	Partnership project – part of the Kingborough Council Natural Resource Management Strategy. TAFI (now IMAS) and Kingborough Council.
CONTACT PERSON	Jon Doole (Kingborough Council), Vanessa Lucieer (IMAS, UTas)
CITATION/S	Jordan, A., Doole, J., Archer, L., Lawler, M., Halley, V. and Sanderson, C. (2002). Assessment and monitoring of nutrients and habitats in North West Bay - supporting sustainable management, Kingborough Council Natural Resource Management Strategy, Hobart, 94p.

ID	2
NAME	Huon Estuary Study — environmental research for integrated catchment management and aquaculture
PARAMETERS	Water quality: salinity, temperature, conductivity, dissolved oxygen, dissolved oxygen saturation, suspended particulate matter, nutrients, optical absorption, dissolved organic matter, stable isotopes (carbon), heavy metals, organic pesticides, current speed and direction, phytoplankton abundance/diversity, phytoplankton cell density, phytoplankton biomass (based on cell counts/volumes), HPLC pigments (chlorophylls and carotenoids - indicators of biomass of different types of phytoplankton), florescence (i.e. chlorophyll fluorescence as measure of phytoplankton biomass) Sediment quality: particle size analysis, heavy metals, stable isotopes (carbon and nitrogen, incorporating C:N ratio and % organic carbon and organic nitrogen content), organic content ('Loss on ignition' - LOI), lipid biomarkers, redox potential, organic pesticides

	Modelling: inverse physical exchange model; biogeochemical process model
DESCRIPTION	<p>A multidisciplinary study of the Huon River Estuary incorporating surveying/investigation of the above parameters, and aimed at:</p> <ul style="list-style-type: none"> • Determining the sources, distribution and cycling of nutrients (including those from finfish farming) in the Huon River estuary, and relating nutrients and physical parameters to algal dynamics • Evaluating the processes (and their rates) that contribute organic matter to sediments from finfish farming and natural sources; and the significance of this organic matter in the cycling of nutrients through the sediments • Determining the sedimentary distribution of organic matter around the fish cages that ensues from salmonid farm operation, and the time needed for degraded sediments to return to ambient conditions when cages are removed (the latter was a pilot experiment only) • Testing the usefulness of different methods for monitoring the environmental quality of sediments and the water column to, (i) provide a scientific basis for the design of a monitoring framework for both industry and environmental managers, and (ii) give technical advice on optimising such a framework to address both localised impacts and general estuarine conditions <p>In addition to parameters surveyed/investigated, it provides a general description of the natural environment, human activities in the catchment, other factors influencing the estuary (e.g. run-off, winds, groundwater, tides, bathymetry)</p>
SPATIAL EXTENT	Huon Estuary (entire estuary) – 63 sampling sites in total for water quality, 40 for sediments
TEMPORAL EXTENT	Survey work undertaken July 1996 to August 1998. Water quality/phytoplankton indicators primarily surveyed quarterly during this period, however weekly/fortnightly sampling performed at 5 selected sites. Exceptions: e.g. heavy metals, organic pesticides – one-off surveys August/September 1998; dissolved organic matter and stable isotopes (carbon) - two surveys, July 1996 and October 1997. Sediment surveys were generally one-off surveys either in May 1997 or August/September 1998
DATA LIMITATIONS	Re modelling, author recommends models used produce relatively crude estimates - recommends future use of alternative modelling packages and inclusion of the D'Entrecasteaux Channel; vertical stratification of sampling unclear for some parameters (e.g. optical absorption); sites sampled unclear for some parameters (e.g. dissolved organic matter and stable isotopes in water); no seasonal or inter-annual data for some parameters (e.g. heavy metals and organic pesticides in water); only a very small number of sites sampled for sediment parameters; some details of phytoplankton indicator surveys unclear – e.g. numbers/depths of net samples, numbers of depth integrated water column samples, frequency of depth-specific and depth-integrated samples.
CUSTODIAN	CSIRO Marine and Atmospheric Research
CONTACT PERSON	Edward Butler

CITATION/S	<p>SUMMARY REPORT: CSIRO Huon Estuary Study Team (2000). Huon Estuary Study — environmental research for integrated catchment management and aquaculture. Final report to Fisheries Research and Development Corporation. Project number 96/284, June 2000. CSIRO Division of Marine Research. Marine Laboratories, Hobart.</p> <p>RELATED SCIENTIFIC PUBLICATIONS: Butler, E.C.V. (2005). The Tail of Two Rivers in Tasmania: The Derwent and Huon Estuaries. In: Hutzinger, O., Barceló, D. and Kostianoy, A. (Eds.) The Handbook of Environmental Chemistry, Vol. 5, Part H., Springer-Verlag Berlin Heidelberg.</p> <p>Butler, E.C.V., Blackburn, S.I., Clementson, L.A., Morgan, P.P., Parslow, J.S. and Volkman, J.K. (2001). A survey strategy and environmental monitoring network for an estuary supporting finfish cage culture. ICES Journal of Marine Science 58: 460-468.</p> <p>Clementson, L.A., Parslow, J.S., Turnbull, A.R. and Bonham, P.I. (2004). Properties of light absorption in a highly coloured estuarine system in south-east Australia which is prone to blooms of the toxic dinoflagellate <i>Gymnodinium catenatum</i>. Estuarine, Coastal and Shelf Science 60: 101-112.</p>
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ID	3
NAME	Broadscale Environmental Monitoring Program (BEMP)
PARAMETERS	<p>Water quality: salinity, temperature, dissolved oxygen, dissolved oxygen saturation, nutrients, phytoplankton abundance/diversity, phytoplankton cell counts, HPLC pigments, chlorophyll a</p> <p>Sediment quality: visual assessment, redox potential, total organic carbon (LOI), stable isotopes (carbon and nitrogen, incorporating C:N ratio), particle size analysis, sulphide concentration</p> <p>Biota: benthic infauna</p>
DESCRIPTION	<p>This program is aimed at assessing water and sediment quality and benthic infauna health at a number of sites neighbouring finfish marine farms in the D'Entrecasteaux Channel and Huon Estuary. This monitoring is a requirement of finfish licences in these two Marine Farming Development Plan (MFDP) Areas, as stated in 'Schedule 3BEMP' of licence requirements.</p> <p>The monitoring program has a water matrix and a sediment matrix, each containing a range of analytes/parameters within the components biota, chemistry (sediment), nutrients, dissolved oxygen and phytoplankton (water).</p> <p>No results are reported at this stage, however a Licence Schedule outlines monitoring requirements.</p>
SPATIAL EXTENT	15 sites total; monitoring sites 1-9 in D'Entrecasteaux Channel, 10-14 in the Huon River (and control site 15 in Recherche Bay)
TEMPORAL EXTENT	March 2009-ongoing; water quality sampled fortnightly/monthly, sediment sampling (sediment quality and benthic infauna) performed annually
DATA LIMITATIONS	Some parameters (benthic infauna, stable isotopes) sampled annually but only analysed in the first year (March 2009) and every four years thereafter
CUSTODIAN	Tasmanian Salmonid Growers Association (TSGA)

CONTACT PERSON	Adam Main (TSGA), Fionna Bourne (DPIPWE), Catriona Macleod (IMAS, UTas)
CITATION/S	DPIPWE (2010). Licence Schedule 3BEMP. Broad scale monitoring requirements. Department of Primary Industries, Parks, Water and Environment, Tasmania.

ID	4
NAME	System-wide environmental issues for sustainable salmonid aquaculture (Phase 1, Aquafin CRC/FRDC study)
PARAMETERS	<p>Water quality: salinity, temperature, dissolved oxygen, nutrients, secchi disc depth, phytoplankton abundance/diversity, phytoplankton cell counts, HPLC pigments, phytoplankton biomass, chlorophyll a, b and c, fluorescence, light (PAR)</p> <p>Sediment quality: stable isotopes (carbon and nitrogen, incorporating C:N ratio), particle size analysis, sediment-water interface – nutrients, alkalinity, oxygen, pH, ΣCO_2</p> <p>Biota: microzooplankton grazing and counts</p> <p>Modelling: coupled hydrodynamic, biogeochemical and sediment models</p>
DESCRIPTION	<p>Objectives:</p> <ul style="list-style-type: none"> • Overall objective was to acquire the necessary system understanding and knowledge, and apply it, in collaboration with industry and regulators, to support development of an adaptive management program which addresses system-wide impacts and production capacity for, and allows sustainable development of, salmon farms in the Huon Estuary and D'Entrecasteaux Channel. • Also, to develop and implement 3-D hydrodynamic and ecological models of the Huon Estuary and D'Entrecasteaux Channel, and use these to assess and predict the environmental impacts of salmon farm nutrient loads in relation to other nutrient sources (especially catchments and marine boundaries), and to assess the level of connectivity and exchange between the Huon Estuary and D'Entrecasteaux Channel, and among subsystems within D'Entrecasteaux Channel. • Determine the role of sediments in the estuary and nearby channel as a source of nutrient release and oxygen consumption as an input for the models and for comparison with processes occurring in sediments under fish cages. • Identify and quantify the key processes that link nutrient cycles with phytoplankton abundance and composition and determine the fate of the nutrients produced in finfish cage farms in waters of the Huon Estuary and D'Entrecasteaux Channel.
SPATIAL EXTENT	Modelling the D'Entrecasteaux Channel and Huon Estuary; water quality at 12 sites in the D'Entrecasteaux Channel and 4 sites in the Huon Estuary Interim Monitoring Program, plus 3-6 sites in the Huon Estuary for associated studies; sediment quality – sampled at 6 sites in the Huon Estuary; phytoplankton grazing experiments at one site near mouth of the Huon Estuary
TEMPORAL EXTENT	Water quality – D'Entrecasteaux monthly basis January 2002 to March 2003, Huon Estuary Interim Monitoring Program monthly basis January 2002 to December 2003 (plus January-February 2004 for chlorophyll a), plus some associated studies monitored Huon Estuary in March, July, Nov 2004 in Huon Estuary. Sediment quality - March, July and November 2004 (particle size only July 2004).

	Phytoplankton grazing experiments - September 2003, November 2003, February 2004
DATA LIMITATIONS	<p>Some lack of clarity about inclusion of monthly sampling at sites in the Huon Estuary (one sub-report mentioned additional Huon Estuary monitoring sites not mentioned in the summary report – this is clarified in Phase 2 studies, study ID: 5 below); brief mention of additional sediment sampling at Port Esperance, but not reported – clarified again in phase 2 study ID: 5 below.</p> <p>An important issue is that methods used to analyse ammonia differed between the D'Entrecasteaux Channel (CSIRO method) and the Huon Estuary (AST labs), resulting in a large discrepancy. The CSIRO method is considered to probably be better for tannin waters, and also given that CSIRO have performed the vast majority of historical water quality work in this region, the CSIRO method is being used for ongoing monitoring (e.g. study ID: 3 - BEMP).</p>
CUSTODIAN	CSIRO Marine and Atmospheric Research; Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Peter Thompson, Karen Wild-Allen (CSIRO Marine and Atmospheric Research)
CITATION/S	<p>SUMMARY REPORT: Volkman, J.K., Parslow, J., Thompson, P., Herzfeld, M., Wild-Allen, K., Blackburn, S., Crawford, C., Bonham, P. Holdsworth, D., Sakov, P., Andrewartha, J.R. and Revill, A. (2006). System-wide environmental issues for sustainable salmonid aquaculture. Aquafin CRC Project 4.2 (FRDC Project No. 2001/097). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>SUB-REPORTS (TECHNICAL): Crawford, C., Thompson, P., Jordan, A., Foster, S., Mitchell, I., Bonham, P. and Willcox, S. (2006). Development of broad scale environmental monitoring and baseline surveys in relation to sustainable salmon aquaculture in the D'Entrecasteaux Channel region. Aquafin CRC Project 4.4. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania. [nb. This was in part a separate study but aspects were linked and hence it is included with this suite of studies]</p> <p>Herzfeld, M., Parslow, J., Sakov, P. and Andrewartha, J.R. (2005). Numerical hydrodynamic modelling of the D'Entrecasteaux Channel and Huon Estuary. Aquafin CRC Project 4.2 (FRDC Project No. 2001/097). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Thomson, D., Volkman, J., Burke, C. and Purser, J. (2005). Sediment biogeochemistry of the Huon Estuary. Aquafin CRC Project 4.2 (FRDC Project No. 2001/097). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p>

	<p>Thompson P.A. and Bonham, P. (2005). Effects of grazing by microzooplankton on phytoplankton in the Huon Estuary. Aquafin CRC Project 4.2 (FRDC Project No. 2001/097). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Thompson, P.A. and Parslow, J.P. (2005). Measuring ecological health: A preliminary assessment of phytoplankton sampling strategies for the Huon Estuary and D'Entrecasteaux Channel including an initial comparison of the Huon interim monitoring (2001–2004) with the Huon Estuary Study (HES: 1996–1998) chlorophyll a data. Aquafin CRC Project 4.2 (FRDC Project No. 2001/097). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Thompson, P.A., Bonham, P., Willcox, S. and Crawford, C. (2005). Baseline Monitoring in D'Entrecasteaux Channel. Aquafin CRC Project 4.2 (FRDC Project No. 2001/097). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Wild-Allen, K., Parslow, J., Herzfeld, M., Sakov, P., Andrewartha, J. and Rosebrock, U. (2005). Biogeochemical Modelling of the D'Entrecasteaux Channel and Huon Estuary. Aquafin CRC Project 4.2 (FRDC Project No. 2001/097). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>RELATED THESIS: Thomson, D.C. (2008). Benthic respiration and nutrient cycling in the Huon Estuary (Southern Tasmania). PhD Thesis. University of Tasmania.</p>
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ID	5
NAME	A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture (Phase 2 of Aquafin CRC/FRDC project, linking to study ID:4)
PARAMETERS	<p>Water quality: salinity, temperature, dissolved oxygen, nutrients, secchi disc depth, phytoplankton abundance/diversity, phytoplankton cell counts, HPLC pigments, optical absorption, fluorescence</p> <p>Sediment quality: stable isotopes (carbon and nitrogen, incorporating C:N ratio), particle size analysis, lipid biomarkers, porosity</p> <p>Biota: benthic infauna, microzooplankton grazing and counts, mesozooplankton ecology and grazing, mesozooplankton lipid content, mesozooplankton stable isotopes content, copepod grazing on the dinoflagellate <i>Gymnodinium catenatum</i>, zooplankton contribution to biogenic carbon in sediments, fauna on settlement substrates</p> <p>Modelling: coupled hydrodynamic, biogeochemical and sediment models – further developed from study ID: 4.</p>

DESCRIPTION	<p>This study was an expansion on the works described for study ID: 4.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • Identification, characterisation and modelling of the key oceanographic and ecological features of the Huon Estuary and D'Entrecasteaux Channel and how these may affect or limit salmon cage farming, together with an assessment of possible industry responses. • Inventory of the sources of nutrients in this region, including those from salmon farms, their spatial and temporal variation, nutrient cycling, and impacts on pelagic and benthic production. • Definition of the factors driving the phytoplankton ecology of this region, especially interactions among phytoplankton and zooplankton (including jellyfish). • Determination of the role of carbon remineralisation in sediments with nutrient release into the water column in relation to the varying spatial and temporal environmental conditions. • Design of a new monitoring system and adaptive management strategy for use by industry and DPIWE together with definition of associated indicators and standards.
SPATIAL EXTENT	Modelling the D'Entrecasteaux Channel and Huon Estuary; other sites varied amongst sub-studies and were dispersed through the Huon Estuary, D'Entrecasteaux Channel, North West Bay, and Port Esperance
TEMPORAL EXTENT	Timing of surveys varied amongst sub-studies and were spread through the period December 2003 (i.e. work preceding report date but not included in the Phase 1 report - study ID: 4) to November 2007, although most work was performed during September 2004-October 2006
DATA LIMITATIONS	<p>The report attempts to make comparisons between this study and studies ID: 2 and ID: 4 and identifies the following limitations relating to available data:</p> <ul style="list-style-type: none"> • the 2002-2003 data were not depth-integrated samples • the sites sampled changed over time • there are very few data for some of the sites that the model predicts as potentially sensitive to fish farm inputs (e.g. Port Esperance) • there are no data since 1998 from Port Cygnet (also predicted as potentially sensitive in the modelling) <p>Other comments: some contradictions between reports in described survey methods (e.g. integrated samples versus surface/bottom samples), some specific methods changed between study ID: 4 and this study (e.g. HPLC), methods and/or dates of sampling not specified for some analytes (e.g. particle size, benthic infauna, zooplankton stable isotopes content).</p>
CUSTODIAN	CSIRO Marine and Atmospheric Research; Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Peter Thompson, Karen Wild-Allen (CSIRO Marine and Atmospheric Research)
CITATION/S	<p>SUMMARY REPORT:</p> <p>Volkman, J.K., Thompson, P., Herzfeld, M., Wild-Allen, K., Blackburn, S., Macleod, C., Swadling, K., Foster, S., Bonham, P., Holdsworth, D., Clementson, L., Skerratt, J., Rosebrock, U., Andrewartha, J. and Revill, A. (2008). A whole-of-ecosystem assessment of environmental issues for salmonid aquaculture. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p>

	<p>SUB-REPORTS (TECHNICAL):</p> <p>Bonham, P., Rousseaux, C. and Thompson, P. (2008). Effects of grazing by microzooplankton on phytoplankton in the Huon Estuary and D'Entrecasteaux Channel. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Clementson, L.A., Blackburn, S.I., Berry, K.M. and Bonham, P.I. (2008). Temporal and spatial variability in phytoplankton community composition in the mouth of the Huon River Estuary. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Clementson, L.A., Blackburn, S.I., Thompson, P.A., Berry, K.M. and Bonham, P.I. (2008). Phytoplankton community composition during spring blooms in North West Bay and Port Esperance, Tasmania. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Herzfeld, M. (2008). Numerical hydrodynamic modelling of the D'Entrecasteaux Channel and Huon Estuary: Phase II. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Holdsworth, D.G., Revill, A.T., Volkman, J.K. and Swadling, K. (2008). Lipid biomarkers in sediment traps and sediments from North West Bay, Tasmania. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Macleod, C. and Foster, S. (2008). Evaluation of selected alternative approaches for monitoring nutrient enrichment associated with caged marine salmonid aquaculture in Tasmania. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.</p> <p>Macleod, C., Revill, A., Volkman, J. and Holdsworth, D. (2008). Characterisation of the benthic environment of the D'Entrecasteaux Channel and Huon Estuary. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.</p>
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	<p>Revill, A.T., Holdsworth, D.G., Volkman, J.K. and Swadling, K. (2008). Fluxes of organic matter and lipids to sediments in the Huon Estuary, Tasmania. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Swadling, K.M., Macleod, C.K., Foster, S. and Slotwinski, A.S. (2008). Zooplankton in the Huon Estuary and D'Entrecasteaux Channel: community structure, trophic relationships and role in biogeochemical cycling. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.</p> <p>Thompson, P., Wild-Allen, K. Macleod, C. Swadling, K. Blackburn, S. Skerratt, J. and Volkman, J. (2008). Monitoring the Huon Estuary and D'Entrecasteaux Channel for the effects of finfish aquaculture. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>Wild-Allen, K. (2008). Huon Estuary and D'Entrecasteaux Channel biogeochemical model scenario simulations for 2002 and 2009: farm impacts on seasonal pelagic biogeochemistry. Aquafin CRC Project 4.2(2) (FRDC Project No. 2004/074). Aquafin Cooperative Research Centre, Fisheries Research and Development Corporation, Commonwealth Scientific and Industrial Research Organisation. Published by CSIRO Marine and Atmospheric Research.</p> <p>RELATED THESIS: Thomson, D.C. (2008). Benthic respiration and nutrient cycling in the Huon Estuary (Southern Tasmania). PhD Thesis. University of Tasmania.</p> <p>SCIENTIFIC PUBLICATIONS: M. Herzfeld, M., Andrewartha, J. and Sakov, P. (2010). Modelling the physical oceanography of the D'Entrecasteaux Channel and the Huon Estuary, south-eastern Tasmania. <i>Marine and Freshwater Research</i> 61: 568-586.</p> <p>Wild-Allen, K., Herzfeld, M., Thompson, P.A., Rosebrock, U., Parslow, J. and Volkman, J.K. (2010). Applied coastal biogeochemical modelling to quantify the environmental impact of fish farm nutrients and inform managers. <i>Journal of Marine Systems</i> 81: 134–147.</p> <p>Wild-Allen, K., Thompson, P.A., Volkman, J.K. and Parslow, J. (2011). Use of a coastal biogeochemical model to select environmental monitoring sites. <i>in press</i>.</p>
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ID	6
NAME	Development of novel methods for the assessment of sediment condition and determination of management protocols for sustainable finfish cage aquaculture operations (fallowing studies; FRDC/ Aquafin CRC Project)
PARAMETERS	<p>Water quality: salinity, temperature, dissolved oxygen, turbidity, current speed and direction</p> <p>Sediment quality: stable isotopes (carbon and nitrogen, C:N ratio), % carbon and nitrogen content, organic content (LOI), particle size analysis, fatty acids and lipids, sulphide, redox potential, heavy metals, sedimentation rate, bacterial counts, and porewater ammonia, oxygen and nitrous oxide (latter used to measure denitrification)</p> <p>Biota: benthic infauna, benthic infauna biomarkers, visual characterisation of benthic organisms</p>
DESCRIPTION	<p>Objectives:</p> <ul style="list-style-type: none"> • To assess the potential for progressive degeneration of sediments in association with cage aquaculture operations. • To adapt and develop novel combinations of monitoring techniques (identified by TAFI and CSIRO) to facilitate evaluation of sediment degradation associated with ongoing marine cage aquaculture operations. • To incorporate these techniques into farm management protocols as tools for the evaluation and management of sediment condition in order to promote sustainable aquaculture production.
SPATIAL EXTENT	Stringers Cover, Port Esperance: various experimental fish cage sites and reference sites (a location on the Tasman Peninsula also studied)
TEMPORAL EXTENT	Studies conducted between February 2001 and April 2003
DATA LIMITATIONS	Within current study area, data limited to one area with Port Esperance
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania, CSIRO Marine and Atmospheric Research
CONTACT PERSON	Catriona Macleod (IMAS, UTas)
CITATION/S	<p>Bissett, A., Cook, P.L.M., MacLeod, C., Bowman, J.P. and Burke, C.M. (2009). Effects of organic perturbation on marine sediment betaproteobacterial ammonia oxidizers and on benthic nitrogen biogeochemistry. <i>Marine Ecology Progress Series</i> 392: 17-32.</p> <p>Macleod, C., Bissett, A., Burke, C., Forbes, S., Holdsworth, D., Nichols, P., Revill, A. and Volkman, J. (2004). Development of novel methods for the assessment of sediment condition and determination of management protocols for sustainable finfish cage aquaculture operations, Aquafin CRC Project 4.1 (FRDC Project No. 2000/164). Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.</p> <p>Macleod, C.K., Moltschaniwskyj, N.A. and Crawford, C.M. (2006). Evaluation of short-term fallowing as a strategy for the management of recurring organic enrichment under salmon cages. <i>Marine Pollution Bulletin</i> 52: 1458-1466.</p> <p>Macleod, C.K., Moltschaniwskyj, N.A., Crawford, C.M. and Forbes, S. (2007). Biological recovery from organic enrichment: some systems cope better than others. <i>Marine Ecology Progress Series</i> 342: 41-53.</p>

ID	7
NAME	Evaluation of video and other techniques for environmental monitoring of salmon farms in Tasmania
PARAMETERS	Sediment quality: stable isotopes (carbon and nitrogen, C:N ratio), % carbon and nitrogen content, organic content (LOI), particle size analysis, redox potential, visual characterisation of sediments Biota: benthic infauna, visual characterisation of benthic organisms
DESCRIPTION	This study assessed several environmental variables/techniques for their suitability as indicators of organic enrichment from salmon farms and for inclusion in an industry-wide monitoring program, i.e. are practicable, inexpensive and scientifically credible. The general conclusion was that no one variable was sufficiently reliable as an indicator of environmental condition, and that several variables should be routinely monitored. Also, the monitoring program should be regularly assessed and improved as more data become available.
SPATIAL EXTENT	Hideaway Bay, lower Huon Estuary: six boundary transects and one internal transect at fish farm and two reference sites (a location on the Tasman Peninsula also studied)
TEMPORAL EXTENT	Sampling started and ended in spring (i.e. 12 months) and occurred at 0, 3, 6, 9 and 11 months; year not stated but inferred 2001-2002
DATA LIMITATIONS	Some inconsistencies in sampling protocols between sampling events
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Christine Crawford/Catriona Macleod
CITATION/S	Crawford, C., Macleod, C. and Mitchell, I. (2002). Evaluation of techniques for environmental monitoring of salmon farms in Tasmania. Technical Report Series No. 8, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania. Crawford, C.M., Mitchell, I.M. and Macleod, C.K.A. (2001). Video assessment of environmental impacts of salmon farms. ICES Journal of Marine Science 58: 445-452. McGhie, T.K., Crawford, C.M., Mitchell, I.M. and O'Brien, D. (2000). The degradation of fish-cage waste in sediments during fallowing. Aquaculture 187: 351-366. [Fallowing Trial]

ID	8
NAME	Tasmanian Marine Farming Benthic Monitoring Program (compliance monitoring at the level of individual leases)
PARAMETERS	Water quality: current speed and direction Sediment quality: stable isotopes (carbon and nitrogen, C:N ratio), organic content (LOI), particle size analysis, redox potential, sulphide, heavy metals, visual characterisation of sediments Biota: benthic infauna, marine pests, visual characterisation of benthic organisms Habitats: sedimentary habitat mapping, bathymetry
DESCRIPTION	The Tasmanian marine farming industry is regulated by the Department of Primary Industries, Water and Environment (DPIWE) primarily under the <i>Marine Farming Planning Act 1995</i> (MFPA) and the <i>Living Marine Resources Management Act 1995</i> (LMRMA). The MFPA establishes mechanisms for the

	<p>preparation and approval of Marine Farming Development Plans (MFDPs), which prescribe management controls to which marine farming activities must adhere. Management controls address the management and mitigation of any negative effects associated with sea-based marine farming activities. The benthic monitoring program was developed in order to assess compliance with specific management controls and licence conditions dealing with unacceptable impacts to the benthic environment. This compliance monitoring relates specifically to finfish farming and includes baseline and video monitoring requirements at the level of lease (broadscale monitoring applied to MFDP areas is described in study ID: 3).</p> <p>Several reports have now been prepared to describe the findings of this monitoring program. Licence Schedules provide up to date information on benthic monitoring requirements and include some parameters that were not formerly monitored and hence are not described in the above reports.</p>
SPATIAL EXTENT	D'Entrecasteaux Channel, Huon Estuary and Port Esperance marine farm plan areas (and additional Tasmanian marine farm plan areas)
TEMPORAL EXTENT	1997- ongoing, survey dates variable amongst marine farm leases; reported results are for 1997-2004
DATA LIMITATIONS	Available reports document results for data subsets varying in temporal extent (e.g. 1997-1999, 1997-2002 etc); no summary data are available for each plan area – results are reported for individual leases or at a statewide level; monitoring requirements have changed over time, hence some parameters are not part of a longer-term data set, or certain data sets for individual analytes are not comparable due to changes in methodology; most benthic parameters are now monitored only in the initial baseline survey, except in the case of a proposed expansion or triggered survey on the basis of visual impacts (detected in an annual video survey), hence no long term data sets are being developed for these parameters on individual leases.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Graham Woods
CITATION/S	<p>Woods, G., Brain, E., Shepherd, C. and Paice, T. (2004). Appendix 2. Environmental Monitoring in the D'Entrecasteaux Channel Marine Farming Development Plan Area 1997 – 2002. Tasmanian Marine Farming Environmental Monitoring Report: Benthic Monitoring (1997 – 2002), Marine Farming Branch, Department of Primary Industries, Water and Environment.</p> <p>Woods, G., Brain, E., Shepherd, C. and Paice, T. (2004). Appendix 3. Environmental Monitoring in the Huon River and Port Esperance Marine Farming Development Plan Area 1997 – 2002. Tasmanian Marine Farming Environmental Monitoring Report: Benthic Monitoring (1997 – 2002), Marine Farming Branch, Department of Primary Industries, Water and Environment.</p> <p>Woods, G., Brain, E., Shepherd, C. and Paice, T. (2004). Tasmanian Marine Farming Environmental Monitoring Report: Benthic Monitoring (1997 – 2002), Marine Farming Branch, Department of Primary Industries, Water and Environment.</p>

	<p>Edgar, G.J., Davey, A. and Shepherd, C. (2009). Broadscale effects of marine salmonid aquaculture and introduced pests on macrobenthos and the sediment environment in Tasmania between 1998 and 2003, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.</p> <p>Edgar, G.J., Davey, A. and Shepherd, C. (2010). Application of biotic and abiotic indicators for detecting benthic impacts of marine salmonid farming among coastal regions of Tasmania. <i>Aquaculture</i> 307: 212-218.</p> <p>Edgar, G.J., Macleod, C. K., Mawbey, R.B. and Shields, D. (2005). Broad-scale effects of marine salmonid aquaculture on macrobenthos and the sediment environment in southeastern Tasmania. <i>Journal of Experimental Marine Biology and Ecology</i> 327(1): 70-90.</p> <p>DPIPWE (2010). Licence schedule 3V. Salmonid finfish annual video survey: requirements for a salmonid finfish lease area. Department of Primary Industries, Parks, Water and Environment, Tasmania.</p> <p>DPIPWE (2010). Licence schedule 3B. Salmonid finfish baseline environmental survey. Department of Primary Industries, Parks, Water and Environment, Tasmania.</p>
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ID	9
NAME	Effects of shellfish farming on the benthic environment
PARAMETERS	<p>Water quality: turbidity</p> <p>Sediment quality: organic content (LOI), particle size analysis, redox potential, sulphide, visual characterisation of sediments, sedimentation rate</p> <p>Biota: benthic infauna, visual characterisation of benthic organisms</p>
DESCRIPTION	<p>This project was developed to provide accurate information on the effects of shellfish farming on the Tasmanian environment. The objectives were twofold:</p> <ul style="list-style-type: none"> • To quantify the effects of shellfish farming on the benthic environment from a study of the environment around several long established farms. • To provide the scientific information from which practical, quantitative and cost effective methods for sustainable management of shellfish farming can be developed.
SPATIAL EXTENT	Shellfish farm lease in Port Esperance (and two additional shellfish farms in other parts of Tasmania)
TEMPORAL EXTENT	January and February 2000
DATA LIMITATIONS	Within current study area, limited to one shellfish farm lease in Port Esperance
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Christine Crawford/Catriona Macleod
CITATION/S	Crawford, C., Macleod, C.K.A. and Mitchell, I.M. (2003). Effects of shellfish farming on the benthic environment. <i>Aquaculture</i> 224: 117-140.

ID	10
NAME	Ecological status of the Derwent and Huon Estuaries
PARAMETERS	<p>Water quality: temperature, salinity</p> <p>Sediment quality: particle size analysis, redox potential, sulphide, organic content (LOI), visual characterisation of sediments, heavy metals</p>

	Biota: benthic infauna, marine pests, visual characterisation of benthic organisms
DESCRIPTION	<p>This study undertook a broad assessment of the ecological changes in the Huon and Derwent estuaries. Extensive spatial sampling was undertaken throughout the estuaries in order to characterise the benthic communities. These communities were then evaluated in relation to the changes in the natural environmental conditions as well as changes in the level of organic enrichment and metal contamination.</p> <p>Objectives:</p> <ul style="list-style-type: none"> • provide critical baseline information and functionally relevant indicators and targets for southern Tasmania's two largest estuaries; • quantify the distribution and spread of key introduced marine pest species; • support and add value to current management initiatives in the Derwent and Huon Estuaries; • develop methods and provide information that can be extended to other estuaries/coastal waters in the southern region. <p>(note: limited analysis of Huon Estuary data collected in this study was also incorporated in Study ID: 5)</p>
SPATIAL EXTENT	Huon Estuary (and Derwent Estuary) split into 4 zones – 25 sites in total
TEMPORAL EXTENT	October 2004
DATA LIMITATIONS	No seasonal data
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Catriona Macleod
CITATION/S	Macleod, C. and Helidoniotis, F. (2005). Ecological status of the Derwent and Huon Estuaries. NHT/NAP Project No. 46928, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.

ID	11
NAME	Macroalgal assemblages as indicators of the broad-scale impacts of fish farms on temperate reef habitats
PARAMETERS	Biota: percentage cover of macroalgae, percentage cover of benthic sessile invertebrates
DESCRIPTION	<p>Objectives:</p> <p>To provide insight into broad scale ecological impacts of fish farming using macroalgal indicators, whilst investigating the application of a digital monitoring technique that may prove useful in a general management context for monitoring macroalgal assemblages. i.e.:</p> <ul style="list-style-type: none"> • to reduce current knowledge gaps concerning the nature and extent of salmonid fish farm impacts on reef systems • to identify responses of macroalgal communities on Tasmanian temperate reefs to altered water quality, and • to investigate the use of photographic sampling of macroalgae for monitoring purposes, as compared with manual sampling methods.
SPATIAL EXTENT	D'Entrecasteaux Channel and Port Esperance (plus Tasman Peninsula and Southport); sites 100 m, 400 m, 2 km and 5 km from fish farms at various levels of wave exposure x two depths (2 m and 5 m), ~30 sites in total
TEMPORAL EXTENT	November to December 2008

DATA LIMITATIONS	No seasonal data
CUSTODIAN	School of Geography and Environmental Studies, University of Tasmania
CONTACT PERSON	Elizabeth Oh
CITATION/S	Oh, E. (2009). Macroalgal assemblages as indicators of the broad-scale impacts of fish farms on temperate reef habitats. Honours thesis, School of Geography and Environmental Studies, University of Tasmania.

ID	12
NAME	Assessment of long term change in sediment condition after organic enrichment: defining recovery
PARAMETERS	Water quality: current speed and direction Sediment quality: particle size analysis, redox potential, sulphide, organic content (LOI), visual characterisation of sediments Biota: benthic infauna, visual characterisation of benthic organisms
DESCRIPTION	This study was a joint initiative of the aquaculture industry and State Government and was developed with the aim of assessing the rate of sediment recovery after removal of salmon cages. One of the principal objectives of this research was to identify the changes/stages in both the benthic faunal community structure and the physical/chemical status of the sediments over time associated with long term fallowing of an intensively farmed marine finfish cage site in the cool temperate waters of Tasmania.
SPATIAL EXTENT	North West Bay - Gunpowder marine farm lease; 3 cage sites and associated reference sites
TEMPORAL EXTENT	August 1999 – September 2001, 13 sampling events over the 2 years; plus sampling September 2002 for 2 of 3 cages
DATA LIMITATIONS	
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Catriona Macleod
CITATION/S	Macleod, C.K., Crawford, C.M. and Moltschaniwskyj, N.A. (2004). Assessment of long term change in sediment condition after organic enrichment: defining recovery. Marine Pollution Bulletin 49: 79-88. Macleod, C.K., Mitchell, I., Crawford, C.M. Connell, R.D. (2002). Evaluation of sediment recovery after removal of finfish cages from Marine Farm Lease No.76 (Gunpowder Jetty), North West Bay., Technical Report Series No. 13. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania. Macleod, C.K., Moltschaniwskyj, N.A. and Crawford, C.M. (2008). Ecological and functional changes associated with long-term recovery from organic enrichment. Marine Ecology Progress Series. 365: 17-24.

ID	13
NAME	Detection of organic enrichment near finfish net-pens by sediment profile imaging at SCUBA-accessible depths
PARAMETERS	Sediment quality: Sediment profile images (SPI), redox potential, sulphide Biota: benthic infauna
DESCRIPTION	Sediment profile images (SPI) of cores were analysed to assess successional stages of organic enrichment on a fish farm in North West Bay (and an additional farm in Canada). The method was validated through concurrent

	sampling of macrofaunal species composition and abundance and measured profiles of redox potentials and total sulphides. Results suggest that the SPI method can successfully detect organic enrichment in soft sediments.
SPATIAL EXTENT	North West Bay marine farm
TEMPORAL EXTENT	13 th December 2001
DATA LIMITATIONS	One-off sampling event
CUSTODIAN	Fisheries and Oceans Canada, and Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Catriona Macleod (IMAS, UTas)
CITATION/S	Wildish, D.J., Hargrave, B.T., Macleod, C. and Crawford, C. (2003). Detection of organic enrichment near finfish net-pens by sediment profile imaging at SCUBA-accessible depths. Journal of Experimental Marine Biology and Ecology 285-286: 403-413.

ID	14
NAME	Seasonal cycling of arsenic species in a stratified, microtidal estuary (Huon River, Tasmania) (links to study ID: 2)
PARAMETERS	Water quality: arsenic species - As(V+III), MMA and DMA; subsamples for As(III) were also taken during a more intensive seven month survey of one site (results from only one of eight surveys described here were also reported in linked Study ID: 2) Sediment quality: arsenic (sampling program described in linked study ID: 2 but results for arsenic not reported there)
DESCRIPTION	A detailed study of arsenic cycling in the Huon Estuary, correlating data with other chemical measurements, including nutrients, salinity, and dissolved oxygen, and also with biological information about the microalgal species present. This study was performed in conjunction with the Huon Estuary study (Study ID: 2), however the current study describes a much larger data set for arsenic.
SPATIAL EXTENT	Huon Estuary, ~ 30 sites (same sites as described for nutrients etc by linked Study ID: 2)
TEMPORAL EXTENT	October 1996 to September 1998
DATA LIMITATIONS	Sediments surveyed at a small number of representative sites (none located near the estuary mouth).
CUSTODIAN	School of Chemistry, University of Tasmania, and CSIRO Marine and Atmospheric Research
CONTACT PERSON	Alison Featherstone, (School of Chemistry, UTas)
CITATION/S	Featherstone, A.M., Butler, E.C.V. and O'Grady, B.V. (2004). Seasonal cycling of arsenic species in a stratified, microtidal estuary (Huon River, Tasmania). Estuaries 27(1): 18-35.

ID	15
NAME	Phytoplankton blooms in the Huon Estuary, Tasmania: top-down or bottom-up control? (links to study IDs: 2, 4 and 5)
PARAMETERS	Water quality: salinity, temperature, nutrients, phytoplankton abundance/diversity, phytoplankton cell counts, HPLC pigments, chlorophyll a, dissolved oxygen, fluorescence Biota: microzooplankton grazing and counts, mesozooplankton ecology and grazing

	(Note: included as separate ID entry because it analyses a larger temporal data set than described in linked studies, however some data sets are part of linked study IDs: 2, 4 and 5)
DESCRIPTION	The Huon Estuary, experiences summer and autumn dinoflagellate blooms of <i>Ceratium</i> species and the chain forming <i>Gymnodinium catenatum</i> . Blooms of <i>G. catenatum</i> have forced the closure of regional shellfish harvesting. This investigation focused on whether the phytoplankton community composition in the Huon Estuary is “top-down”- controlled by microheterotroph grazing or “bottom-up”-controlled by nutrient availability and local, or regional, water column physics. The results from phytoplankton grazing rate experiments are considered in the context of nine years of observations in the estuary and 60 years of regional water column sampling (Maria Island). Results indicate that long-term changes in the abundance of some dinoflagellates coincided with the warming of regional surface waters.
SPATIAL EXTENT	Huon Estuary, variable number of sites – multiple data sets analysed
TEMPORAL EXTENT	1996-2005 (data from linked study IDs: 2, 4 and 5)
DATA LIMITATIONS	Compilation of data sets from various studies means that study sites and methodologies were not standard across all data sets
CUSTODIAN	CSIRO Marine and Atmospheric Research
CONTACT PERSON	Peter Thompson
CITATION/S	Thompson, P.A., Bonham, P.I. and Swadling, K.M. (2008). Phytoplankton blooms in the Huon Estuary, Tasmania: top-down or bottom-up control? Journal of Plankton Research 30(7): 735-753.

ID	16
NAME	Bacterial and algal interactions in a Tasmanian estuary (links to study ID: 2)
PARAMETERS	<p>Biota: Bacteria</p> <p>(Note: samples of bacteria were collected during the survey program of study ID: 2, although this work was not reported in that study)</p> <p>Water quality: temperature, salinity, nutrients, phytoplankton abundance/taxonomy and cell density, chlorophyll a, b and c, secchi disc depth</p>
DESCRIPTION	<p>The microbial communities and the physical and chemical environment of the Huon Estuary were sampled in an 18 month program. Analyses of field and laboratory samples were used to examine the characteristics of estuarine and marine bacteria and algae, relationships between bacteria and algae, and their ecological roles. The study incorporated the following components:</p> <ul style="list-style-type: none"> • Biological, chemical and physical ecology of the Huon Estuary • Taxonomic characterisation of Huon Estuary bacterial strains • Algicidal activity of Huon Estuary bacteria • Identification of algal and bacterial genera in the Huon Estuary using lipid biomarkers • Interactions of bacteria with algal blooms in the Huon Estuary <p>The relationship between toxic algal blooms and algicidal bacteria is of particular interest due to the potential use of algicidal bacteria in bloom control. The objectives of this study were to screen a collection of cultured bacteria from the Huon Estuary and to identify the prevalence of algicidal activity against the toxic algal bloom species present in the estuary, <i>Gymnodinium catenatum</i>. The five positive bacterial isolates identified by this assay and their mode of action and activity against a wider range of organisms</p>

	such as other dinoflagellates and diatoms was then examined. Implications of the presence of algicidal bacteria and evidence of whether complex control of expression and cell density influenced their algicidal expression was also investigated.
SPATIAL EXTENT	Huon Estuary – 5 survey sites (the same sites described as ‘biological stations’ by study ID: 2) for bacterial strains, with 3 of these sites sampled for physical/chemical sampling and examining the lipid and fatty acid profiles of the microbial community
TEMPORAL EXTENT	August 1996 to September 1998 for study of algicidal algae (in conjunction with study ID: 2 sampling program); October 1998 to January 2000 for physical/chemical sampling and examining the lipid and fatty acid profiles of the microbial community
DATA LIMITATIONS	
CUSTODIAN	Antarctic Climate and Ecosystems Cooperative Research Centre
CONTACT PERSON	Jenny Skerratt
CITATION/S	Skerratt, J.H. (2001). Bacterial and algal interactions in a Tasmanian estuary. PhD Thesis. University of Tasmania. Skerratt, J.H., Bowman, J.P., Hallegraeff, G., James, S. and Nichols, P.D. (2002). Algicidal bacteria associated with blooms of a toxic dinoflagellate in a temperate Australian estuary. Marine Ecology Progress Series 244: 1-15.

ID	17
NAME	Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary
PARAMETERS	Water quality: salinity, temperature, nutrients Sediment quality: sediment grain size, sediment respiration (rates of dissolved O ₂ , TCO ₂ and nutrient exchange measured in the light and dark), gross rates of sediment primary production (measured from O ₂ and TCO ₂ fluxes and other production measures), HPLC and other pigment analyses, alkalinity fluxes, nitrous oxide, denitrification, nitrogen fixation, porewater nutrients and porosity, stable isotopes (carbon and nitrogen, and C:N ratio), % organic carbon and % organic nitrogen, lipid biomarkers Biota: microphytobenthos community composition and lipid and pigment biomarkers Modelling: inverse model analysis of carbon and nitrogen fluxes through the microbial compartment on the mudflats
DESCRIPTION	The aim of this study was to compare the rates of respiration and primary production, benthic nutrient cycling, and sources and cycling of organic matter at sample sites on the upper and lower regions of 2 mudflats, one located at the marine end of the estuary, the other in the upper, river-dominated part of the estuary, over 4 seasons. Primary production and respiration during inundation were measured using O ₂ and TCO ₂ fluxes calculated from pH and alkalinity. The role of microphytobenthos in controlling nitrogen cycling processes including denitrification, nitrogen fixation, and dissolved organic and inorganic nitrogen fluxes, was also studied. A range of methods was used to gain a detailed understanding of the sources and cycling of organic matter and the relative importance of different sources. An inverse model analysis of carbon and nitrogen fluxes through the microbial compartment on the mudflats was performed, with particular interest in flows between algae and bacteria which were reconstructed by the model.

SPATIAL EXTENT	Port Cygnet - upper and lower mudflat sites, Huon Estuary (and Castle Forbes Bay mudflat – outside data inventory study area)
TEMPORAL EXTENT	April to December 2001, 3-5 sampling events per analyte
DATA LIMITATIONS	A large portion of the work was centred on laboratory experiments and hence data on certain individual analytes reflects experimental conditions; some methods of data measurement not indicated
CUSTODIAN	School of Chemistry, University of Tasmania; CSIRO Marine and Atmospheric Research
CONTACT PERSON	Perran Cook (now based at School of Chemistry, Monash University)
CITATION/S	<p>Cook, P.L.M., Butler, E.C.V. and Eyre, B.D. (2004). Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary. I. Benthic metabolism. Marine Ecology Progress Series 280: 25-38.</p> <p>Cook, P.L.M., Revill, A., Butler, E.C.V. and Eyre, B.D. (2004). Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary. II. Nitrogen cycling. Marine Ecology Progress Series 280: 39-54.</p> <p>Cook, P.L.M., Revill, A., Clementson, L.A. and Volkman, J.K. (2004). Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary. III. Sources of organic matter. Marine Ecology Progress Series 280: 55-72.</p> <p>Cook, P.L.M., Van Oevelen, D., Soetaert, K. and Middelburg, J.J. (2009). Carbon and nitrogen cycling on intertidal mudflats of a temperate Australian estuary. IV. Inverse model analysis and synthesis. Marine Ecology Progress Series 394: 35-48.</p>

ID	18
NAME	Southeast Tasmania temperate reef survey
PARAMETERS	<p>Biota: visual characterisation (% composition for significant habitat-forming organisms, and presence of benthic macro organisms identified to species, class, growth form or broad ecological categories)</p> <p>Habitats: bathymetry, seafloor habitat mapping</p>
DESCRIPTION	A survey of southeast Tasmanian temperate reefs performed as part of the Commonwealth Environment Research Facilities (CERF) Marine Biodiversity Hub Surrogates Program. The purpose was to collect high resolution, accurately co-located physical and biological data to enable the robust testing of a range of physical parameters as surrogates of patterns of benthic biodiversity at relatively fine spatial scales. The objective is to test these relationships in strategically selected areas that are representative of much more extensive benthic environments, and where the bio-physical data collected complement existing data for these areas.
SPATIAL EXTENT	Tinderbox, and the Mouth of the Huon River and adjacent sections of the D'Entrecasteaux Channel (and other southeast Tasmanian locations)
TEMPORAL EXTENT	June 2008 (multibeam bathymetry mapping) and March 2009 (underwater video transects)
DATA LIMITATIONS	Two representative areas surveyed, covering a small portion of current data inventory study area
CUSTODIAN	Geoscience Australia, and Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Neville Barrett (IMAS, UTas)

CITATION/S	Nichol, S.L., Anderson, T.J., McArthur, M., Barrett, N., Heap, A.D., Siwabessy, P.J.W. and Brooke, B. (2009). Southeast Tasmania Temperate Reef Survey, Post Survey Report. Geoscience Australia, Record 2009/43, 73pp.
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ID	19
NAME	Sedimentation in North West Bay
PARAMETERS	Sediment quality: sedimentation rate, particle size distribution
DESCRIPTION	Sediment cores were taken from the head of North West Bay to determine the historical rate of accumulation of sediments with the aim of better understanding the impact of human-induced changes in the North West Bay catchment.
SPATIAL EXTENT	North West Bay, 5 sites sampled
TEMPORAL EXTENT	July-August 2000
DATA LIMITATIONS	Three of five cores collected were analysed; the low core-top excess 210Pb values in the cores only enables sedimentation rates to be determined as far back as ~1930 AD for two of the cores and ~1890 AD for the other core.
CUSTODIAN	University of Tasmania
CONTACT PERSON	Catherine Samson (currently based at Parks and Wildlife Service, Tasmania)
CITATION/S	Samson, C. (2001). Sedimentation in North West Bay. University of Tasmania.

ID	20
NAME	Environmental water requirements for the North West Bay River
PARAMETERS	Biota: platypus and freshwater macroinvertebrates and fish Habitats: riverine habitat characterisation
DESCRIPTION	An ecological assessment of flow requirements for North West Bay River based on key freshwater fauna species. The values identified by both community and State technical values were identified as part of the assessment process and the ecological values identified from this process were used to focus the assessment of Environmental Water Requirements (EWRs). A risk analysis was performed to provide (1) a series of options for negotiation of Water Provisions for the Environment (WPE's) and (2) the ecological risk of failure in not achieving these flows for each of these values.
SPATIAL EXTENT	North West Bay River
TEMPORAL EXTENT	1999
DATA LIMITATIONS	Neither of the (2) primary study sites were located within the current study area (i.e. located > 1 km from the coast), however electrofishing sites to record freshwater fish species were within the study area. In addition, the summary of Environmental Water Requirements includes a description of risks to the maintenance of ecological values in the lower reach of North West Bay River below the most downstream primary study site (i.e. below the Margate weir)
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania
CONTACT PERSON	Tom Krasnicki
CITATION/S	Krasnicki, T. and Graham, B. (2001). Environmental water requirements for the North West Bay River. Technical Report No. WRA 01/03. Department of Primary Industries, Water and Environment, Hobart.

ID	21
NAME	Surface water models for Tasmanian catchments
PARAMETERS	Modelling: hydrological models for individual catchments
DESCRIPTION	<p>A project commissioned by DPIW to produce hydrological models for 25 Tasmanian catchments under both current and natural flow conditions. The model used was the Australian water balance model (AWBM), a catchment water balance model that calculates runoff from rainfall. Three scenarios were tested, with the scenario modelling results allowing calculation of indices of hydrological disturbance. A flood frequency analysis was also performed.</p> <p>The main objectives for the individual catchments were:</p> <ul style="list-style-type: none"> • To compile relevant data required for the development and calibration of the hydrological model • To source over 100 years of daily time-step precipitation and streamflow data for input to the hydrologic model • To develop and calibrate each hydrologic model, to allow running of the model under varying catchment demand scenarios • To develop a User Interface for running the model under these various catchment demand scenarios • Prepare a report summarizing the methodology adopted, assumptions made, results of calibration and validation and description relating to the use of the developed hydrologic model and associated software.
SPATIAL EXTENT	Catchments around Tasmania, including (within study area): Kermadie River, Nicholls Rivulet, North West Bay, Snug Rivulet, Esperance River (Huon/Russell/Little Denison and Mountain River also included - located in the broader Huon catchment but outside current study area)
TEMPORAL EXTENT	Modelling undertaken 2006-2008, input data up to 100 years for preceding period
DATA LIMITATIONS	Some difficulties noted in calibration of several models, generally associated with data gaps for some input attributes such as river flows or rainfall
CUSTODIAN	Hydro Tasmania Consulting / Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Bryce Graham (DPIPWE)
CITATION/S	<p>Hydro Tasmania Consulting (2008). DPIW - Surface water models: Esperance River Catchment. Prepared by Hydro-Electric Commission, Tasmania.</p> <p>Hydro Tasmania Consulting (2008). DPIW - Surface water models: Kermadie River Catchment. Prepared by Hydro-Electric Commission, Tasmania.</p> <p>Hydro Tasmania Consulting (2008). DPIW - Surface water models: Nicholls Rivulet Catchment. Prepared by Hydro-Electric Commission, Tasmania.</p> <p>Hydro Tasmania Consulting (2008). DPIW - Surface water models: North West Bay Catchment. Prepared by Hydro-Electric Commission, Tasmania.</p> <p>Hydro Tasmania Consulting (2008). DPIW - Surface water models: Snug Rivulet Catchment. Prepared by Hydro-Electric Commission, Tasmania.</p>

ID	22
NAME	Conservation of Freshwater Ecosystem Values (CFEV) Program
PARAMETERS	Habitats: mapping of wetlands, saltmarshes, estuaries, rivers, lakes/waterbodies, and karst/other groundwater dependent ecosystems
DESCRIPTION	The Conservation of Freshwater Ecosystem Values (CFEV) Program developed a Comprehensive, Adequate and Representative (CAR) analysis of freshwater ecological values across Tasmania. Existing environmental and ecological data were collated to produce an inventory of freshwater values within the state. These freshwater values were then ranked based on their conservation values to create a list of relative conservation management priorities. As part of the project, water bodies were mapped, including wetlands, saltmarshes, estuaries, lakes/waterbodies, rivers, and karst/other groundwater dependent ecosystems. Data compiled for each included biophysical attributes, special values (e.g. threatened species and priority freshwater features) and a condition assessment. Integrated Conservation Values (ICVs) were derived on the consideration of Representative Conservation Values (RCVs) and special values.
SPATIAL EXTENT	Tasmania wide, incorporating coastal ecosystems within the D'Entrecasteaux Channel and Huon Estuary
TEMPORAL EXTENT	Prepared on basis of data available in 2005, however input data of varying temporal extent
DATA LIMITATIONS	Additional ground truthing is needed to verify some of the ecosystem mapping
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Cate Graham/Martin Read
CITATION/S	DPIW (2008). Conservation of Freshwater Ecosystem Values (CFEV) Project Technical Report, Conservation of Freshwater Ecosystem Values Project. Department of Primary Industries and Water, Hobart, Tasmania. DPIW (2008). Conservation of Freshwater Ecosystem Values (CFEV) Project Technical Report: Appendices, Conservation of Freshwater Ecosystem Values Project. Department of Primary Industries and Water, Hobart, Tasmania.

ID	23
NAME	River modelling and water availability for the Derwent-South East region of Tasmania, Tasmanian Sustainable Yields Project
PARAMETERS	Modelling: hydrological modelling for river systems, incorporating rainfall-runoff models, groundwater recharge models, river models and groundwater models
DESCRIPTION	The impacts of catchment development (commercial forestry plantations and future irrigation development), changing groundwater extraction, climate variability and anticipated climate change on water resources at a whole-of-region scale were assessed. This was achieved through hydrological modelling, incorporating rainfall-runoff models, groundwater recharge models, river models and groundwater models. River system/other modelling and water availability are described for the Derwent-South East region. The objective of modelling is to estimate flows in river systems across Tasmania using a consistent Tasmania-wide modelling approach for four scenarios involving a range of climate conditions and catchment development levels. Predictions were produced to 2030.

SPATIAL EXTENT	Tasmania wide; model catchments included (amongst others) the Huon and Derwent Estuary (latter including upper D'Entrecasteaux sub-catchments)
TEMPORAL EXTENT	Input data from 1924 to 2007, modelling performed 2008-2009, and model predictions extended to 2030
DATA LIMITATIONS	Catchment boundaries inconsistent with current study area boundary, with upper D'Entrecasteaux Channel combined with the Derwent Estuary
CUSTODIAN	CSIRO Land and Water
CONTACT PERSON	Bill Young (Director, Water for a Healthy Country Flagship)
CITATION/S	Ling, F.L.N., Gupta, V., Willis, M., Bennett, J.C., Robinson, K.A., Paudel, K., Post, D.A. and Marvanek, S. (2009). River modelling for Tasmania. Volume 5: the Derwent-South East region, A report to the Australian Government from the CSIRO Tasmania Sustainable Yields Project. CSIRO Water for a Healthy Country Flagship, Australia. CSIRO (2009). Water availability for the Derwent-South East region. Report seven of seven to the Australian Government from the CSIRO Tasmania Sustainable Yields Project., CSIRO Water for a Healthy Country Flagship, Australia.

ID	24
NAME	Indicative mapping of Tasmanian coastal vulnerability to climate change and sea-level rise
PARAMETERS	Modelling: coastal flooding vulnerability on basis of current and predicted sea levels
DESCRIPTION	Describes a digital map set that was developed during 2004 - 2006 to provide an indicative identification of Tasmanian coastal areas potentially vulnerable to increased storm surge flooding, shoreline erosion, rock falls, and slumping as a result of global climate change and sea-level rise. Vulnerability maps are produced in relation to each of these potential hazards.
SPATIAL EXTENT	Tasmania-wide, incorporating the D'Entrecasteaux Channel and Huon Estuary
TEMPORAL EXTENT	2004-2006, although some input data preceded this period
DATA LIMITATIONS	Author states that this is a 'first pass' assessment and should be updated as additional data sets become available
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	? Chris Sharples (School of Geography and Environmental Studies, Utas)
CITATION/S	Sharples, C. (2006). Indicative mapping of Tasmanian coastal vulnerability to climate change and sea-level rise: explanatory report (2nd Edition). Consultant report to: Department of Primary Industries & Water, Tasmania, 173 pp.

ID	25
NAME	A "detailed first pass" coastal hazard assessment for Kingborough municipality
PARAMETERS	Modelling: coastal flooding vulnerability
DESCRIPTION	A low cost comprehensive coastal hazard assessment approach is described for the Kingborough LGA using a combination of existing data and strategically-targeted additional fieldwork. By the use of existing 'bathtub' inundation modelling for a couple of simple scenarios, existing coastal landform and geology mapping including the Smartline coastal geomorphic map, and careful field inspection of key shoreline types and locations, it is possible to clearly and comprehensively identify coastal 'hotspots' at

	significant risk of inundation, erosion and recession, for the coast.
SPATIAL EXTENT	Kingborough Municipality
TEMPORAL EXTENT	Project underway, due for completion end June 2012
DATA LIMITATIONS	Report currently not available
CUSTODIAN	Kingborough Council
CONTACT PERSON	Jon Doole
CITATION/S	Sharples, C. and Donaldson, P. (in press). A “detailed first pass” coastal hazard assessment for Kingborough municipality (Tasmania), as a cost-effective method of comprehensive coastal hazard identification along a complex shoreline. School of Geography and Environmental Studies, University of Tasmania.

ID	26
NAME	Climate Futures for Tasmania
PARAMETERS	Modelling: climate modelling and hydrological modelling for river systems, based on climate predictions to 2100
DESCRIPTION	The Climate Futures for Tasmania project generated climate projections specific to Tasmania through fine-scale climate modelling using dynamical downscaling. The aim of the project was to produce projections of climate change for the Tasmanian region of sufficient spatial resolution to allow the analysis of climate impacts at different locations within Tasmania. In addition, the project aimed to produce projections at sufficient temporal resolution to allow the analysis of changes to seasonality and extreme events. It then combined this regional climate modelling and hydrological models to project future catchment yields for Tasmania. Hydrological models built for the Tasmania Sustainable Yields Project (linked study ID: 23) were used here. The latter project produced runoff projections for the year 2030, the timeframe approximating the ‘near future’ period (2010-2039) described in this study. The project has produced runoff projections from an ensemble of six dynamically downscaled global climate models and five runoff models to 2100. River flows were projected for more than 1900 subcatchments in 78 river catchments that cover more than 70% of the state by area.
SPATIAL EXTENT	Tasmania wide, incorporating the D’Entrecasteaux Channel and Huon Estuary
TEMPORAL EXTENT	Study completed 2010, however data input precedes this and predictions extend to 2100
DATA LIMITATIONS	The runoff models incorporated in the study tended to produce lower river flows than observed – a finding that the authors felt warranted further investigation. In contrast to linked study ID: 23, this study describes quantitative assessments at statewide, or at best regional, level as opposed to catchment level. Authors comment that projections could be used to assess the long-term impacts of climate change at the catchment scale. Current level of reporting means that, while information is incorporated for the D’Entrecasteaux and Huon catchment (e.g. in maps presented), it is not reported specifically for these catchments.
CUSTODIAN	Antarctic Climate & Ecosystems Cooperative Research Centre
CONTACT PERSON	Tony Press
CITATION/S	Bennett, J.C., Ling, F.L.N., Graham, B., Grose, M.R., Corney, S.P., White, C.J., Holz, G.K., Post, D.A., Gaynor, S.M. and Bindoff, N.L. (2010). Climate Futures for Tasmania: water and catchments technical report. Antarctic Climate & Ecosystems Cooperative Research Centre, Hobart, Tasmania.

	<p>Corney, S.P., Katzfey, J.J., McGregor, J.L., Grose, M.R., Bennett, J.C., White, C.J., Holz, G.K., Gaynor, S.M. and Bindoff, N.L. (2010). Climate Futures for Tasmania: climate modelling technical report. Antarctic Climate & Ecosystems Cooperative Research Centre, Hobart, Tasmania.</p> <p>Grose, M.R., Barnes-Keoghan, I., Corney, S.P., White, C.J., Holz, G.K., Bennett, J.B., Gaynor, S.M. and Bindoff, N.L. (2010). Climate Futures for Tasmania: general climate impacts technical report. Antarctic Climate & Ecosystems Cooperative Research Centre, Hobart, Tasmania.</p>
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ID	27
NAME	The conservation significance of Tasmanian estuaries
PARAMETERS	<p>Biota: benthic infauna, seagrass composition/biomass, estuarine fish (the latter extracted from an earlier data set compiled during the 1980s)</p> <p>Sediment quality: particle size distribution</p> <p>Water quality: temperature, salinity, dissolved oxygen, secchi disc depth (measurements collected from a total of 646 stations at 466 sites in 74 estuaries)</p>
DESCRIPTION	<p>The conservation significance of 111 large- and moderate-size estuaries in Tasmania was assessed by firstly categorising estuaries into nine groups on the basis of similarities in physical attributes. These attributes were quantified using Geographic Information System (GIS) maps of estuaries and their catchments and field-collected data, with separation of groups primarily reflecting presence of a seaward barrier, tidal range, salinity, estuary size and river runoff. The adequacy of the physical groups as surrogates for biological patterns was assessed by comparison with data on the distribution of 390 macrobenthic invertebrate taxa in 48 estuaries and 101 beach-seined fish species in 75 estuaries. Within each of the estuarine groups, human population, land use and land tenure data were used to assess the level of anthropogenic disturbance to each estuary, and the estuary with least disturbance in each group assigned highest conservation significance.</p> <p>The macrobenthic invertebrate data set collected as part of this study was used to investigate additional issues reported in separate journal articles: effects of catchment activities on macrofaunal assemblages, appropriate scales of investigation for soft-sediment biota distributed in estuaries, and relationship of these biota to environmental variables as salinity, seagrass biomass and sediment particle size.</p>
SPATIAL EXTENT	Huon Estuary (Port Cygnet, Crookes, Eggs and Bacon Bay, Brabazon Pt, Garden Island), Esperance, North West Bay and additional Tasmanian estuaries outside the study area. The Huon was one of only five estuaries statewide in which multiple sampling stations were sampled in order to assess spatial variation within estuaries.
TEMPORAL EXTENT	Data collected winter 1996/summer 1997 (plus some later sampling for Huon Estuary sites 6-38 months after initial sampling) and compiled with earlier data sets.
DATA LIMITATIONS	Some data sets not available for all estuaries
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Graham Edgar

CITATION/S	<p>Edgar, G.J. and Barrett, N.S. (2000). Effects of catchment activities on macrofaunal assemblages in Tasmanian estuaries. <i>Estuarine, Coastal and Shelf Science</i> 50(5): 639-654.</p> <p>Edgar, G.J. and Barrett, N.S. (2002). Benthic macrofauna in Tasmanian estuaries: scales of distribution and relationships with environmental variables. <i>Journal of Experimental Marine Biology and Ecology</i> 270(1): 1-24.</p> <p>Edgar, G.J., Barrett, N.S., Graddon, D.J. and Last, P.R. (2000). The conservation significance of estuaries: a classification of Tasmanian estuaries using ecological, physical and demographic attributes as a case study. <i>Biological Conservation</i> 92(3): 383-397.</p>
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ID	28
NAME	Catastrophic decline in mollusc diversity in eastern Tasmania
PARAMETERS	<p>Biota: historical mollusc assemblage from shell remains</p> <p>Sediment quality: heavy metals, 210Pb-dating and sedimentation rate</p>
DESCRIPTION	Historical patterns of deposition of mollusc shells were used to infer changes to inshore benthic assemblages in the southeastern Tasmanian region over the past 120 years. Sediment cores ~1m long were collected at 13 sites in water depths of 8–16 m and were subsequently 210Pb-dated, and shells identified and counted. Declines in mollusc species richness and shell production occurred during the past century at all sites studied. The time of decline notably corresponded with the history of the scallop dredge fishery, presumably either because scallop dredging caused general declines in populations of mollusc species or because other factors caused a catastrophic regional decline in molluscs that included scallops. Of major concern is that losses had not previously been recognized but extended throughout the 100-km coastal span of the study.
SPATIAL EXTENT	Upper D’Entrecasteaux Channel (6 sites) and Huon Estuary (2 sites) (and Derwent Estuary – 5 sites)
TEMPORAL EXTENT	Sampled October 2000 to January 2002
DATA LIMITATIONS	Data are primarily concerned with historical changes in the benthic mollusc assemblage as opposed to conducting a spatial assessment of current assemblages.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Graham Edgar
CITATION/S	Edgar, G.J. and Samson, C.R. (2004). Catastrophic decline in mollusc diversity in eastern Tasmania and its concurrence with shellfish fisheries. <i>Conservation Biology</i> 18(6): 1579-1588.

ID	29
NAME	Coastal and estuarine resource condition assessment (CERCA) in the Southern NRM region
PARAMETERS	<p>Biota: benthic infauna</p> <p>Water quality: temperature, salinity, dissolved oxygen, turbidity, pH, dissolved nutrients, silica, chlorophyll a</p>

DESCRIPTION	This report presents data obtained as part of the trial implementation of the Coastal and Estuarine Resource Condition Assessment (CERCA) project. CERCA was established to address the widely-acknowledged need for a standardised means of collecting, analysing and presenting coastal and estuarine condition information. A comprehensive review of condition assessment methodologies, followed by extensive consultation with resource managers (including state and local government, industry and community groups), resulted in the selection of baseline monitoring parameters and priority monitoring sites. A 12-month program was developed and implemented in order to obtain baseline information on water quality, ecological condition as shown by Chlorophyll a, benthic macroinvertebrates, and pathogens (from other data sets), and habitat extent determined from habitat mapping (from other data sets). Six estuaries were selected to be surveyed as part of a baseline survey program for the southern NRM region.
SPATIAL EXTENT	North West Bay – 7 sites, Port Cygnet – 6 sites (and 4 other estuaries in the Southern NRM region)
TEMPORAL EXTENT	April 2007 to April 2008
DATA LIMITATIONS	Total nitrogen (TN) and total phosphorous (TP) excluded from nutrients analyses, but are recommended for inclusion in future monitoring if information is required on nutrient loads from rivers into estuaries
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Christine Crawford
CITATION/S	Temby, N. and Crawford, C. (2008). Coastal and estuarine resource condition assessment. A baseline survey in the Southern NRM region, Tasmania, Final Report to NHT. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.

ID	30
NAME	Coastal Values of Southern Tasmania
PARAMETERS	Biota: threatened/other significant native fauna habitat, vegetation community based on TASVEG19 mapping units Habitats: geomorphic shoreline types, coastal sediment and geomorphic types polygon map (i.e. extent and types of coastal sediment bodies and "soft" coastal landforms)
DESCRIPTION	This project was aimed at mapping vegetation, fauna habitat and geomorphology from High Water mark to 100 metres inland for the Southern NRM region. The purpose was to provide an easily accessible database on vegetation and geomorphology to support better strategic planning, land use planning and management on the coast. The project constitutes an extension and further development of work undertaken in 2000-2001 for the South East Integrated Coastal Management Strategy. Digital spatial information was compiled for vegetation and geomorphology through aerial photograph interpretation verified by field ground truthing surveys. Data sets include a mixture of direct mapping of environmental parameters (e.g. vegetation type, shoreline type) and derived 'Decision Support Tools' layers (e.g. sensitivity, viability etc).

	<p>Geomorphology mapping layers produced:</p> <ul style="list-style-type: none"> • Geomorphic Shoreline Types line map (updating an earlier version) • Coastal Sediment and Geomorphic Types polygon map (Mapping of areal extent and types of Quaternary coastal sediment bodies and "soft" coastal landforms) • Coastal Geomorphic Sensitivity and Condition mapping • Coastal Geomorphic Hazard (Vulnerability) mapping • Coastal Geoheritage Sites mapping • Geoconservation Priority (Indicative Geovalues) mapping <p>Coastal Vegetation and Fauna Habitat mapping layers produced:</p> <ul style="list-style-type: none"> • Vegetation community based on TASVEG19 mapping units • Environmental weeds present • Condition of the native vegetation • Fauna habitat for threatened and other significant native fauna • Significance of vegetation • Significance of fauna habitat • Viability of coastal values
SPATIAL EXTENT	Coastlines of the Huon Valley and Kingborough municipalities (and additional coasts within the Southern NRM region), minus National Parks (i.e. south west tip of Bruny Island)
TEMPORAL EXTENT	Field surveys performed during 2005 – 2006; digitisation of data included comparisons of 1949 and early 1950s aerial photography with flight runs during 2001 to 2005
DATA LIMITATIONS	National Parks excluded; re geomorphology, authors indicate that limited funding and time available for mapping resulted in work being prioritised to focus on key coastal landform types and attributes considered most important from the perspective of managing coastal geomorphic values and land degradation issues; additional ongoing ground truthing also desirable.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	? Chris Sharples (School of Geography and Environmental Studies, UTas) /Phil Barker (North Barker Ecosystem Services)
CITATION/S	DTAE (2007). Vegetation, fauna habitat and geomorphology coastal values information for the Southern Tasmania NRM Region, Interpretation Manual. Coastal and Marine Branch, Department of Tourism, Arts and the Environment, Tasmania.

ID	31
NAME	Water Information System of Tasmania (WIST) and annual waterways reports
PARAMETERS	<p>Water quality: freshwater surveys - river flow, temperature, salinity, turbidity, dissolved oxygen, dissolved oxygen saturation, pH, nutrients, pesticides</p> <p>Biota: AUSRIVAS assessments (freshwater invertebrates)</p>
DESCRIPTION	The Department of Primary Industries, Parks, Water and Environment (DPIPWE) of Tasmania conducts statutory water flow and quality monitoring in rivers/streams of D'Entrecasteaux Channel and Huon catchments while additional non-statutory AUSRIVAS (Australian River Assessment System - biological) river health monitoring sites are also surveyed as part of the Tasmania Together Program. Results from the water quality and biological monitoring is reported in the DPIPWE annual waterways reports, which are produced for a) the Derwent Estuary – Bruny catchment and b) the Huon River

	catchment (as well as additional Tasmanian catchments). The reports describe the catchments and present data on stream flows, water allocations for water supply/industry/other purposes, water quality and (where monitored) river health using AUSRIVAS assessments. The waterways reports are produced annually for each catchment, with last reports based on 2008 data (the waterways reports have now been discontinued). Data are also incorporated in the Water Information System of Tasmania (WIST).
SPATIAL EXTENT	<p>Program is statewide, but sites of relevance to the D'Entrecasteaux Channel/Huon catchments are described below:</p> <ul style="list-style-type: none"> • Water quality and/or river flow: Six sites - four sites in the Huon River Catchment (Huon River at Judbury, Huon River upstream of Frying Pan Creek, Mountain River, Esperance River), Two sites in the Derwent-Bruny catchment (North West Bay River, Snug Rivulet); not all water quality parameters are measured at all sites • AUSRIVAS: four sites in the Huon catchment (Russell, Kermandie, Mountain and Esperance rivers), all well inland (>1km) from the coast. <p>Only one site technically falls within the study area – i.e. within 1 km of the coast (water quality/river flow site on the Esperance River, at Dover water supply) however all sites are described due to this being an important long-term data set for the associated catchments.</p>
TEMPORAL EXTENT	<ul style="list-style-type: none"> • River flow: variable – the most complete record is for Huon River site upstream of Frying Pan Creek (1949 – ongoing); at other sites monitoring started as early as 1966 and as late as 2008, and monitoring has been intermittent at some sites. Stream flows have been monitored using continuous instruments since 2000 (2008 at Mountain River) and monthly flows estimated. • Water quality: variable – monthly monitoring involving spot sampling of physico-chemical parameters and collection of water samples for nutrient (and pesticide, quarterly during 2005-2010) analysis is performed at 3 sites (Huon River at Judbury, Snug Rivulet, Esperance River); monthly monitoring of sites began in 2003 and ceased at a statewide level in 2011, but monitoring at these 3 sites has been ongoing through cooperation with the Marine Farming Branch at DPIPW. Three monthly spot sampling of physico-chemical parameters is also undertaken at the other three river flow sites. Continuous monitoring of physico-chemical parameters using instream sensors is also performed at the Huon River at Judbury (1996-ongoing, but data of poor quality) and previously at Esperance (2004-2011, instruments have now failed, so no further data). • River health (AUSRIVAS): performed at the four sites twice a year (autumn and spring) each year 1998-2011 but is now to be performed every two years.
DATA LIMITATIONS	Length of temporal data sets highly variable across sites; data missing for some periods due to instrument malfunction or cut backs to monitoring activities; some data described as being of poor quality; some of records in WIST are inconsistent with waterways reports regarding temporal availability of data.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Martin Read

CITATION/S	<p>WIST (2012). Water Information System of Tasmania. Department of Primary Industries, Parks, Water and Environment, Tasmania. Available at: http://water.dpiw.tas.gov.au/wist/ui.</p> <p>DPIPWE (2011). ASCHEM Pesticide Water Monitoring Program: routine monitoring results 2005-2011. Department of Primary Industries, Parks, Water and Environment, Tasmania.</p> <p>DPIW (2009). Annual waterways report: Derwent Estuary - Bruny catchment, Water Assessment Branch, Department of Primary Industries and Water, Tasmania.</p> <p>DPIW (2009). Annual waterways report: Huon River catchment, Water Assessment Branch, Department of Primary Industries and Water, Tasmania.</p> <p>(additional annual waterways reports dated 2004-2008 are also readily available)</p>
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ID	32
NAME	SEAMAP habitat mapping
PARAMETERS	<p>Habitats: seabed habitats, bathymetry, wave exposure</p> <p>Biota: visual characterisation of benthic organisms</p>
DESCRIPTION	<p>SEAMAP Tasmania aims to improve the management of the marine environment and resources in State coastal waters through mapping the distribution of seabed habitat types in estuarine, coastal and marine waters. Mapping is conducted at a scale of 1:25,000 on the basis of photographic, acoustic, biological and sediment sampling, and incorporates shallow inshore coastal waters to the 40 m depth contour. Bathymetry mapping is included, while for the Bruny Bioregion (incorporating the entire D'Entrecasteaux Channel and Huon Estuary), a wave exposure index was also mapped.</p> <p>Habitats mapped include various categories of reef, unconsolidated habitats, vegetated unconsolidated substrates (e.g. seagrass, <i>Caulerpa</i> algal beds). Underwater video ground truthing surveys also provide a visual characterisation of benthic organisms and identification of dominant species. Relationships between dominant species and depth/wave exposure have been investigated.</p>
SPATIAL EXTENT	Entire coast of the D'Entrecasteaux Channel and the lower Huon Estuary to as far upstream as Eggs and Bacon Bay/Police Point (and other Tasmanian coastal waters)
TEMPORAL EXTENT	Mapping reported 2001, additional mapping conducted since then
DATA LIMITATIONS	
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Vanessa Lucieer
CITATION/S	Barrett, N., Sanderson, J.C., Lawler, M., Halley, V. and Jordan, A. (2001). Mapping of Inshore Marine Habitats in South-eastern Tasmania for Marine Protected Area Planning and Marine Management. Technical Report Series No. 7. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.
	IMAS (2012). Seamap Tasmania. Institute for Marine and Antarctic Studies, University of Tasmania, Hobart.

ID	33
NAME	Long term monitoring of Tasmanian Marine Reserves
PARAMETERS	Biota: fish species diversity, abundance and size; invertebrate species diversity and abundance; size of lobsters and abalone; percentage cover of macroalgal species/taxa and sessile invertebrates
DESCRIPTION	<p>Long-term changes within fully protected Tasmanian marine reserves were compared with changes at external reference sites on an annual basis over the first ten years of protection, with the aim of examining effects of marine protected areas (MPAs) on fish assemblages. Data collected at reserves at Tinderbox in the D'Entrecasteaux Channel and Ninepin Point near the mouth of the Huon Estuary (in addition to two other Tasmanian reserve sites) were included in the analysis. Results suggest that long term data sets are important for the assessment of the effects of MPAs, given that responses can be slow, complex and species-specific.</p> <p>At Tinderbox two 5-m deep sites were contrasted against two reference sites, while one Ninepin Pt internal site was compared to two reference sites.</p>
SPATIAL EXTENT	Tinderbox (D'Entrecasteaux Channel) and Ninepin Point (mouth of Huon Estuary) marine reserves (plus two additional Tasmanian marine reserves outside the study area)
TEMPORAL EXTENT	1992-2002
DATA LIMITATIONS	Where feasible, surveys were conducted in spring and summer each year, but in some years only one survey was performed during autumn and no surveys were performed at the Tinderbox or Ninepin Pt Reserves in 1998.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Neville Barrett
CITATION/S	<p>Barrett, N.S., Edgar, G.J., Buxton, C.D. Haddon, M. (2007). Changes in fish assemblages following 10 years of protection in Tasmanian marine protected areas. <i>Journal of Experimental Marine Biology and Ecology</i> 345(2): 141-157.</p> <p>Barrett, N.S., Buxton, C.D. and Edgar, G.J. (2009). Changes in invertebrate and macroalgal populations in Tasmanian marine reserves in the decade following protection. <i>Journal of Experimental Marine Biology and Ecology</i> 370(1-2): 104-119.</p>

ID	34
NAME	Establishment of the long-spined sea urchin (<i>Centrostephanus rodgersii</i>) in Tasmania
PARAMETERS	Biota: distribution of the Long-spined Sea Urchin (<i>Centrostephanus rodgersii</i>)
DESCRIPTION	<p>Historically, the Long-spined Sea Urchin (<i>Centrostephanus rodgersii</i>) in Australia has been largely restricted to the coast of New South Wales, but in recent decades the range of this species has extended southwards. It was first recorded on the east coast of Tasmania in 1978. Work has been conducted to assess the potential threat of <i>C. rodgersii</i> to the integrity of shallow reef systems in eastern Tasmanian waters, and to the important abalone and rock lobster fisheries that these reefs support. To do this, the following were investigated: the pattern of distribution of <i>C. rodgersii</i>, including its history of establishment at Bass Strait islands and the east coast of Tasmania; the underpinning mechanisms for the southward extension of the species' range; and relationships between <i>C. rodgersii</i> density, and extent of <i>C. rodgersii</i></p>

	<p>barrens, with habitat features (depth, substratum type and algal community composition), and with abundances of abalone and rock lobster. Transect surveys were performed at 13 sites along the Tasmanian east coast to ascertain the distribution of <i>C. rodgersii</i> and its barrens.</p> <p>Specific survey sites are not summarised here because none of the targeted surveys were conducted within the D'Entrecasteaux Channel/lower Huon Estuary, however sightings of <i>C. rodgersii</i> are reported to extend to this region and are specifically mapped at the southern and northern ends of the D'Entrecasteaux Channel. Additional studies have also been conducted on <i>C. rodgersii</i> but provide no information on this species in the D'Entrecasteaux Channel/lower Huon Estuary region.</p>
SPATIAL EXTENT	Bass Strait islands and Tasmanian east coast, incorporating sightings in the D'Entrecasteaux Channel/ Port Esperance
TEMPORAL EXTENT	Dates of sightings in the D'Entrecasteaux Channel are not reported; other investigative work based on data collected primarily during 2000-2005
DATA LIMITATIONS	No targeted monitoring in the D'Entrecasteaux Channel/lower Huon Estuary, only opportunistic sightings are reported
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Craig Johnson
CITATION/S	Johnson, C., Ling, S., Ross, J., Shepherd, S. and Miller, K. (2005). Establishment of the long-spined sea urchin (<i>Centrostephanus rodgersii</i>) in Tasmania: first assessment of potential threats to fisheries. Report for Fisheries Research and Development Corporation, FRDC Project No. 2001/044. Tasmanian Aquaculture and Fisheries Institute, School of Zoology, University of Tasmania.

ID	35
NAME	Tasmanian rocky reef health studies
PARAMETERS	<p>Biota: fish species diversity, abundance and size; invertebrate species diversity and abundance; size of lobsters and abalone; percentage cover of macroalgal species/taxa and sessile invertebrates</p> <p>Habitats: wave exposure, substrate complexity</p>
DESCRIPTION	<p>A detailed resurvey of rocky reef fishes, large mobile invertebrates and algae at 136 sites around the entire Tasmanian coastline was conducted during 2006/2007, to assess the current condition of reef communities and determine whether there have been any substantial changes to inshore marine biota since previous similar surveys performed between 1992 and 1995 (primarily 1994). A range of indicators are presented that have been developed specifically for monitoring the condition of Tasmanian reef communities. The reef surveys also provided useful data to assess the effects of fishing, and specifically, whether fishing impacts are related to the positioning of the boat ramps along Tasmania's coastline. Thus, an additional component of the study was to examine the abundance and size of harvested reef species at varying distances from publicly accessible boat ramps. This part of the investigation studied 133 sites, some of which were not part of the above longer term temporal data set. Indices of wave exposure (based on algal wave exposure indicator species) and substrate complexity (based on topography and availability of crevices) were also related to the data sets to check that assessment of the effects of proximity to fisher access was not being confounded by these habitat characteristics.</p>

	Field survey methods were essentially the same as used for long term monitoring of Tasmanian marine reserves (study ID: 33). The long term assessment involved surveying of a number of sites in the D'Entrecasteaux Channel and near the mouth of the Huon Estuary; the study of the effects of proximity to fisher access points included survey sites in the D'Entrecasteaux Channel and all reaches of the Huon Estuary.
SPATIAL EXTENT	Tasmania wide, but incorporating sites in the D'Entrecasteaux Channel and Huon Estuary
TEMPORAL EXTENT	2006/2007, with comparisons made with earlier 1992-1995 data
DATA LIMITATIONS	Results are presented at a statewide level, so it is not possible to readily view data specific to the D'Entrecasteaux Channel and Huon Estuary
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Rick Stuart-Smith
CITATION/S	Stuart-Smith, R., Barrett, N., Crawford, C., Edgar, G. and Frusher, S. (2008). Condition of rocky reef communities: a key marine habitat around Tasmania, NRM/NHT Final Report. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.
	Stuart-Smith, R.D., Barrett, N.S., Crawford, C. M., Frusher, S.D., Stevenson, D.G. and Edgar, G.J. (2008). Spatial patterns in impacts of fishing on temperate rocky reefs: Are fish abundance and mean size related to proximity to fisher access points? <i>Journal of Experimental Marine Biology and Ecology</i> 365: 116-125. Stuart-Smith, R.D., Barrett, N.S., Stevenson, D.G. and Edgar, G.J. (2010). Stability in temperate reef communities over a decadal time scale despite concurrent ocean warming. <i>Global Change Biology</i> 16: 122-134.

ID	36
NAME	Conservation, monitoring and recovery of threatened giant kelp (<i>Macrocystis pyrifera</i>) beds in Tasmania
PARAMETERS	Biota: distribution of the giant kelp (<i>Macrocystis pyrifera</i>) Habitats: giant kelp (<i>Macrocystis pyrifera</i>) habitat mapping
DESCRIPTION	A study of the giant kelp <i>Macrocystis pyrifera</i> incorporating: a review of biology/ecology; kelp mapping; long term temporal analysis of change in areal extent; review and analysis of inshore oceanographic and meteorological data to assist with interpretation of temporal changes observed; a conservation and threat analysis; and recommendations on monitoring and recovery. Kelp mapping was undertaken using a wide range of data sources, including early navigational charts, aerial photography, aerial survey information (1986, 1999), and Landsat TM imagery (1999). Additional field data obtained for surface and sub-surface records of Giant Kelp in the Bruny Bioregion provided verification and 'ground-truthing' of kelp beds, while marine habitat mapping (study ID: 32) provided important information on the known extent of reef habitat.
	Whilst only providing a relatively small total area of potentially suitable habitat for this species, mapping data do nevertheless include the D'Entrecasteaux Channel and Huon Estuary and display areas of recorded kelp occurrence.

SPATIAL EXTENT	Tasmanian east and south east coasts, incorporating the D'Entrecasteaux Channel and Huon Estuary
TEMPORAL EXTENT	Data collected specifically for the study in 1999, however other information sources extending back as far as 1890 navigational charts were used in analyses of temporal change
DATA LIMITATIONS	Some inconsistencies in results of different mapping methods based on, for example, variable accuracy of methods at different depths or different levels of achievable spatial resolution.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania
CONTACT PERSON	Resource Management and Conservation Division / Water and Marine Resources Division, DPIPWE
CITATION/S	Edyvane, K.S. (2003). Conservation, monitoring and recovery of threatened giant kelp (<i>Macrocystis pyrifera</i>) beds in Tasmania, Department of Primary Industries, Water and Environment, Hobart.

ID	37
NAME	Southern Tasmanian coastal saltmarsh futures: a preliminary strategic assessment
PARAMETERS	Biota: saltmarsh vegetation communities (i.e TASVEG codes and additional 'structural dominance' communities and key indicator species) Habitats: saltmarsh mapping
DESCRIPTION	<p>A large portion of important saltmarsh ecosystems have already been lost to human development or poor management practices in Tasmania. Climate change and relative increases in sea-level and coastal erosion pose an additional future threat, with climate change and sea level rise related losses in wetland and saltmarsh extent already detectable in some areas. Strategic planning for the future protection and management of coastal saltmarshes requires information that will enable us to anticipate the likely extent of these habitats in the future (i.e. mapping the retreat areas or the 'future saltmarsh footprint'). This project mapped current saltmarshes and likely future saltmarsh footprints over the period 2010-2100 for the entire Southern NRM region, building on earlier work performed for the Derwent Estuary. Existing saltmarshes were mapped using CFEV data (study ID: 22) and additional (field-validated) data for 56% of CFEV polygons. The future saltmarsh footprint was mapped with reference to former inundation mapping. The question of whether sufficient space, appropriate land-use and on-ground management is being provided to enable saltmarshes to retreat in response to sea level rise was also addressed.</p> <p>Saltmarshes were assessed at different spatial scales in accordance with a number of defined inventory classes. One of these, the 'coastal complex' refers to broad ecosystems containing smaller saltmarsh clusters distinguished on the basis of physical attributes of the environment. A number of saltmarsh coastal complexes identified are relevant here: D'Entrecasteaux Channel Coastal Complex, North West Bay Coastal Complex, Huon River-Port Cygnet Coastal Complex, and the Port Esperance Coastal Complex.</p>
SPATIAL EXTENT	Southern NRM region, incorporating saltmarsh complexes the D'Entrecasteaux Channel and Huon Estuary
TEMPORAL EXTENT	Mapping compiled 2011-2012, although input mapping data dates to 2004-2008, and aerial imagery incorporated dates to 2001-2008

DATA LIMITATIONS	Current locations and attributes of some saltmarshes are yet to be field validated
CUSTODIAN	NRM South
CONTACT PERSON	Jill Pearson
CITATION/S	Prahalad, V. and Pearson, J. (2012). Tasmanian southern coastal saltmarsh futures: a preliminary strategic assessment. Draft Report, May 2012. NRM South, Tasmania.

ID	38
NAME	Exotic marine pests survey of Tasmanian small ports
PARAMETERS	Biota: introduced marine pests
DESCRIPTION	This report presents the findings of a survey of introduced marine species in small ports and marinas around Tasmania. The survey was commissioned by the Department of Primary Industries, Water and Environment (DPIWE) in accordance with their Natural Heritage Trust funded project 'Assessment and Management of Introduced Marine Pests in Tasmania'. Surveys of introduced species had previously been conducted at most major Tasmanian Ports however smaller ports had not been surveyed prior to this study. A wide range of survey techniques, including pile scraping, cores, plankton tows, trapping and video/photography were employed.
SPATIAL EXTENT	Marina/port facilities at Kettering and Dover (and five other small ports around Tasmania)
TEMPORAL EXTENT	2003
DATA LIMITATIONS	One-off surveys, with no subsequent monitoring
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania
CONTACT PERSON	Marine and Water Resources Division, DPIWE
CITATION/S	Aquenal (2003). Exotic marine pests survey, small ports, Tasmania. Final Report, Report for The Department of Primary Industries, Water and Environment Tasmania. Prepared by Aquenal Pty Ltd.

ID	39
NAME	Distribution of feral Pacific oysters and environmental conditions
PARAMETERS	Biota: distribution of feral Pacific Oysters (<i>Crassostrea gigas</i>)
DESCRIPTION	A survey was undertaken around mainland Tasmania to record baseline data on the distribution and abundance of feral Pacific oysters (<i>Crassostrea gigas</i>) and to describe the environmental conditions (e.g. substrate type, exposure/water movement, sediment characteristics, proximity to closest oyster farm, shoreline stability, other species present etc) that they inhabit. A photographic record was taken of each site and estimates of oyster densities and size range were recorded at sites where oysters were found. The project arose from concerns expressed by the community about the spread of feral Pacific oysters and the effects that these oysters have on foreshore amenity, accessibility and changes in the ecology of areas around Tasmania.
SPATIAL EXTENT	Tasmania wide (excluding south west and west coasts), incorporating numerous sites in the D'Entrecasteaux Channel and lower Huon Estuary
TEMPORAL EXTENT	Spring-summer 1999/2000
DATA LIMITATIONS	
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Christine Crawford

CITATION/S	Mitchell, I., Jones, A. and Crawford, C. (2000). Distribution of feral Pacific oysters and environmental conditions. Natural Heritage Trust Final Report (NHT Project No. FAP13077). Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.
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ID	40
NAME	River health of the North West Bay River Catchment
PARAMETERS	Biota: AUSRIVAS assessments (freshwater invertebrates), freshwater fish Water quality: temperature, salinity, turbidity, dissolved oxygen, pH
DESCRIPTION	This report details the findings of an aquatic environment monitoring program undertaken by the Department of Primary Industries and Water to monitor the river health of selected sites within the North West Bay River catchment. The first part of the report discusses the results of macroinvertebrate surveys that were undertaken in the North West Bay catchment in spring 2005 and autumn 2006 (also incorporating results from other years where available). The second part of the document details the results of fish surveys performed in the North West Bay River catchment in 2007. A general river health report card is also presented for each survey site in the appendix, and includes results of spot sampling of water quality parameters.
SPATIAL EXTENT	North West Bay River catchment; only one site (AUSRIVAS and fish surveys) occurs within the data inventory study area – ie. within 1 km of the coast. An additional 17 AUSRIVAS sites and 6 fish survey sites were sampled in the broader catchment.
TEMPORAL EXTENT	<ul style="list-style-type: none"> • AUSRIVAS - primarily spring 2005 and autumn 2006, but also comparing with autumn/spring 1998 and spring 2007 at the site < 1 km from coast • Fish surveys – October and April 2007 (some historical data from the 1970s and 1995 also briefly presented) • Water quality: spring/autumn 1998 and 2005/2006, spring 2007
DATA LIMITATIONS	Most sites are outside the data inventory study area, but provide contextual information on the catchment
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Martin Read
CITATION/S	DPIW (2008). River health of the North West Bay River Catchment, Water Assessment Water Monitoring Report Series (Internal Reference No. WA08/47). Water Assessment Branch, Department of Primary Industries and Water, Hobart.

ID	41
NAME	MRT statewide groundwater monitoring network
PARAMETERS	Water quality: groundwater – water level, pH, salinity, alkalinity, metals, total dissolved solids, dissolved minerals such as sodium, calcium, magnesium, potassium, chloride, bicarbonate, and sulphate
DESCRIPTION	This report describes groundwater quality sampling undertaken during the March and September 2005 monitoring rounds of the MRT statewide groundwater monitoring network. The focus of the report is on describing observations of water levels and groundwater quality in the six monitored regions across Tasmania, including the 'south-east'.
SPATIAL EXTENT	Statewide, but only two sites are located within the D'Entrecasteaux Channel/Huon region – one well inland of the data inventory study area, at

	Huonville (ground water quality only), and one at Snug (groundwater quality and water level).
TEMPORAL EXTENT	Primarily March and September 2005, although water level data illustrated at Snug for March/September 1992-2005
DATA LIMITATIONS	Limited sampling sites in the D'Entrecasteaux Channel/Huon region; spot sampling only (continuous meters operate in some bore holes in Tasmania, but not in the D'Entrecasteaux Channel/Huon region)
CUSTODIAN	Mineral Resources Tasmania, Department of Infrastructure, Energy and Resources, Tasmania
CONTACT PERSON	?, previously Andrew Ezzy (now at the Environment Protection Authority, DPIPW)
CITATION/S	Ezzy, A.R. (2006). MRT statewide groundwater monitoring network: Preliminary results for data collected between December 2003 and September 2005. Record 2006/02, Tasmanian Geological Survey. Mineral Resources Tasmania.

ID	42
NAME	Geochemical comparisons between estuaries with non-industrialised and industrialised catchments: the Huon and Derwent River estuaries
PARAMETERS	Sediment quality: particle size distribution, organic content (LOI), heavy metals, temperature, pore-water pH, and redox potential Water quality: water temperature, salinity, pH and turbidity
DESCRIPTION	A comparative study between trace-element (metal) loadings in the lightly urbanised and industrialised Huon Estuary and the more extensively developed Derwent Estuary in southern Tasmania. The trace metal and metalloid contents in the sediments of the adjacent industrialised and non-industrialised estuaries were documented, and an assessment made of the distribution and degree of pollution from ten of these trace elements that might cause concern in the industrialised estuary. It presents maps of sediment type (>50% sand and >50% mud) and heavy metal concentrations for each estuary.
SPATIAL EXTENT	18 sites dispersed throughout the Huon Estuary (as well as numerous sites in the Derwent Estuary).
TEMPORAL EXTENT	February 1997
DATA LIMITATIONS	Water quality appears to have been measured at 2m depth – i.e. no vertical profile
CUSTODIAN	School of Geosciences, University of Wollongong
CONTACT PERSON	Brian Jones
CITATION/S	Jones, B.G., Chenhall, B.E., Debretson, F. and Hutton, A.C. (2003). Geochemical comparisons between estuaries with non-industrialised and industrialised catchments: the Huon and Derwent River estuaries, Tasmania. Australian Journal of Earth Sciences 50: 653-667.

ID	43
NAME	Report on shorebird surveys conducted for the Mark Webber Challenge
PARAMETERS	Biota: shorebird distribution
DESCRIPTION	Birds Tasmania was requested to survey five beaches being used for the 2011 Mark Webber Challenge in December 2011, due to potential disturbance to beach nesting shorebirds. Beaches were surveyed by walking along the

	water's edge and continuously scanning the beach with binoculars.
SPATIAL EXTENT	Mickeys Bay, south Bruny Island (and additional beach sites on the Tasmanian south east and east coasts)
TEMPORAL EXTENT	November 2011
DATA LIMITATIONS	A one-off survey; no searches for nests and/or chicks were conducted for the survey and hence no data on breeding is provided.
CUSTODIAN	Birds Tasmania/ Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Eric Woehler (Birds Tasmania)
CITATION/S	Woehler, E.J. (2011). Report on shorebird surveys conducted for the Mark Webber Challenge 2011. Report to Octagon Australia and the Department of Primary Industries, Parks, Water and Environment. Birds Tasmania.

ID	44
NAME	Population decreases in little penguins <i>Eudyptula minor</i> in southeastern Tasmania
PARAMETERS	Biota: Little Penguin surveys
DESCRIPTION	The distribution and abundance of Little Penguins <i>Eudyptula minor</i> were investigated at 12 known colony locations on mainland south eastern Tasmania. Surveys of scientific journals, unpublished field surveys and oral records were compiled to assess the historical distribution (before 1996) of this species within a 150-km radius of Hobart. Current status of each site was assessed by conducting surveys of the areas of historical distribution during the 2002/03 breeding season. Transects were used to conduct burrow counts, supplemented by counts of penguins coming ashore at night. Field surveys were supplemented with aerial photographs to assess the extent of vegetation changes.
SPATIAL EXTENT	The Neck - Bruny Island (and 11 other sites on Tasmanian south east/east coasts)
TEMPORAL EXTENT	2002/2003 breeding season (with historical data dating back as far as 1960 also examined)
DATA LIMITATIONS	
CUSTODIAN	University of Tasmania/Birds Tasmania
CONTACT PERSON	Eric Woehler (Birds Tasmania)
CITATION/S	Stevenson, C. and Woehler, E.J. (2007). Population decreases in little penguins <i>Eudyptula minor</i> in southeastern Tasmania, Australia, over the past 45 years. Marine Ornithology 35: 71-76.

ID	45
NAME	Survey of little penguins in Kingborough
PARAMETERS	Biota: Little Penguin surveys
DESCRIPTION	A report on a survey of Little Penguins <i>Eudyptula minor</i> in the Kingborough Municipality. Little Penguins have been monitored in the Derwent Estuary southward to the Tinderbox Peninsula and Iron Pot since 2004, with all known nesting sites and colonies mapped. The aim of this study was to extend these efforts into North West Bay, the D'Entrecasteaux Channel and around Bruny Island.
SPATIAL EXTENT	North West Bay, Coningham, Dennes Point and Whalebone Point foreshores. A detailed survey was performed at Whalebone Point, Bruny Island, using

	transects to survey burrow density and occupancy rates; at other sites a shorewalk was performed to search for evidence of penguins, and interviews were conducted with locals.
TEMPORAL EXTENT	January-February 2012
DATA LIMITATIONS	
CUSTODIAN	Kingborough Council
CONTACT PERSON	Liz Quinn
CITATION/S	Vertigan, P. and Woehler, E. (2012). Survey of little penguins in Kingborough, 2011/12. Draft Report to Kingborough Council. Birds Tasmania.

ID	46
NAME	Conservation assessment of beach nesting and migratory shorebirds in Tasmania
PARAMETERS	Biota: shorebird surveys
DESCRIPTION	This inventory of coastal shorebirds in Tasmania was undertaken through field surveys and collation of existing data. Objectives included producing an inventory of species locations, their conservation assessment and identification of essential habitats including 'hot spots'. The assessment included information on beach type, breeding sites and localities, breeding productivity, areas of sensitivity, and disturbance factors. Data were collected through a statewide survey performed by volunteers using repeatable and simple survey techniques, supplemented by specialist, targeted shorebird surveys. Additional information on other attributes affecting beach nesting and migratory shorebirds was also compiled. Four groupings of birds were used in this project to represent Tasmania's 'beach nesting and migratory shorebirds': migratory shorebirds, and three categories of resident species - waders, terns and gulls.
SPATIAL EXTENT	Statewide, but incorporating sites in the D'Entrecasteaux Channel /lower Huon Estuary region, i.e.: Simpsons Bay (targeted survey), Green Island, The Neck, Great Bay, Arch Rock, Coningham Beach, Dennes Point, Dru Point, North West Bay (near railway), North West Bay (river mouth), Snug Beach, Trial Bay, Long Bay Shoal, Missionary Bay, Snake Island, Stockyard Point, Garden Island Creek, Rocky Bay, Charlotte Cove, Curlew Island, Partridge Island, Cygnet, Kettering, Little Peppermint Bay.
TEMPORAL EXTENT	September 1998 to May 1999 (while earlier data for 1990-1998 were also compiled)
DATA LIMITATIONS	Errors in reporting and range of responses precluded much of the site description data from being used.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Resource Management and Conservation Division, DPIWE
CITATION/S	Bryant, S. (2002). Conservation assessment of beach nesting and migratory shorebirds in Tasmania. Nature Conservation Branch, Department of Primary Industries, Water and Environment, Tasmania.

ID	47
NAME	Conservation assessment of the endangered forty-spotted pardalote
PARAMETERS	Biota: forty-spotted pardalote surveys
DESCRIPTION	Objectives: <ul style="list-style-type: none"> • Re-survey colonies of the forty-spotted pardalote throughout its known breeding range • Determine the conservation status of the species and the habitat condition of breeding colonies • Establish a survey methodology to enable consistent monitoring into the future • Identify monitoring sites to enable more frequent monitoring • Provide recommendations for future conservation management
SPATIAL EXTENT	Bruny Island, Tinderbox, Coningham, Howden (and three additional areas outside the D'Entrecasteaux Channel/Huon Estuary).
TEMPORAL EXTENT	September 2009 to February 2010
DATA LIMITATIONS	
CUSTODIAN	Department of Primary Industries, Water and Environment, Tasmania/NRM South
CONTACT PERSON	? Sally Bryant (Tasmanian Land Conservancy)
CITATION/S	Bryant, S.L. (2010). Conservation assessment of the endangered forty-spotted pardalote 2009 - 2010. Report to Threatened Species Section, DPIPW and NRM South, Hobart Tasmania.

ID	48
NAME	Local recruitment sources of southern calamari
PARAMETERS	Biota: southern calamari <i>Sepioteuthis australis</i> natal origins
DESCRIPTION	The southern calamari <i>Sepioteuthis australis</i> is a commercially harvested species in Tasmania. Using the elemental fingerprints of calamari statoliths, this study determined the natal origins (birth place) of newly hatched squid in the south east of the state. It involved collection of young hatchlings as well as adults from each location for detailed analysis of statoliths. One area where calamari samples were collected for analysis was the D'Entrecasteaux Channel. Great Oyster Bay on the east coast was identified as the birth place of a large percentage of calamari caught in the D'Entrecasteaux Channel and other sites in south eastern Tasmania.
SPATIAL EXTENT	D'Entrecasteaux Channel and other areas of south eastern Tasmania
TEMPORAL EXTENT	2004-2005
DATA LIMITATIONS	The study was aimed at studying the natal origins of calamari as opposed to mapping their nursery areas or surveying abundances; hence the study primarily reflects the presence of southern calamari and nursery areas in the D'Entrecasteaux Channel (and other areas of south east Tasmania) and investigates their birth origins.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Gretta Pecl
CITATION/S	Pecl, G.T., Tracey, S.R., Danyushevsky, L., Wotherspoon, S. and Moltschanowskyj, N.A. (2011). Elemental fingerprints of southern calamari (<i>Sepioteuthis australis</i>) reveal local recruitment sources and allow assessment of the importance of closed areas. Journal of Fisheries and Aquatic Sciences 68: 1351-1360.

ID	49
NAME	Scallop fishery stock assessments in the D'Entrecasteaux Channel
PARAMETERS	Biota: scallops (abundance, size and species composition), native and introduced seastars (abundance)
DESCRIPTION	<p>After a closure of 12 years, the recreational scallop fishery in the D'Entrecasteaux Channel re-opened during 2005-2011. These reports summarise the status of the fishery on the basis of dive surveys of the D'Entrecasteaux Channel. Diver based transect surveys were undertaken to examine abundance, size and species composition of scallop populations within the D'Entrecasteaux Channel. Three seastar species, the introduced Northern Pacific seastar <i>Asterias amurensis</i>, and the native species <i>Coscinasterias muricata</i> and <i>Uniophora granifera</i>, were also counted on each transect.</p> <p>Post-season telephone surveys of randomly selected recreational licence-holders with scallop endorsements were also conducted to collect information on fisher success, fishing effort by region and to gauge opinions on the health of the stocks and the management of the fishery.</p>
SPATIAL EXTENT	D'Entrecasteaux Channel – 24 standard sites surveyed for entire period, plus a further 38 sites added in 2008 (i.e. total of 62 sites)
TEMPORAL EXTENT	2004-2011: reported as surveys in 2004, and pre- and post- fishery season 2005-2008 in one publication; reported as pilot studies in 2004 and 2005 (using towed video sweeps and timed dive swims), pre-season 2006 and post-season 2006-2011 surveys across two other publications.
DATA LIMITATIONS	Field sites were added during later surveys and hence some of 2008-2011 sites were not surveyed during earlier surveys; timing of surveys was reported differently in several publications (i.e. some of pre-season surveys not reported in all publications); seastar counts only reported in one publication and only for 2006 and 2008 – it remains a bit unclear if these counts occurred on all of the temporal surveys included in the scallop survey program; maximum recorded densities indicated for native seastars, but no other data presented due to the low density of these species.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Sean Tracey
CITATION/S	<p>Tracey, S. and Lyle, J. (2008). Tasmanian recreational scallop fishery: 2005-2009. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.</p> <p>Tracey, S., and Lyle, J. (2011). Linking scallop distribution and abundance with fisher behaviour: implication for management to avoid repeated stock collapse in a recreational fishery. <i>Fisheries Management and Ecology</i> 18: 221-232.</p> <p>Tracey, S., and Lyle, J. (2011). Stock assessment of scallops in the D'Entrecasteaux Channel, 2006-2011. Institute for Marine and Antarctic Studies, University of Tasmania.</p>

ID	50
NAME	Annual recreational water quality reports – Kingborough Council
PARAMETERS	Water quality: thermotolerant coliforms (1999-2000 through to 2003-2004 for some sites and discontinued completely from 2004-2005), enterococci (all years)
DESCRIPTION	The Recreational Water Quality Guidelines 2007 issued under the <i>Public Health Act 1997</i> require Kingborough Council and other Tasmanian Councils to regularly monitor the water quality of municipal areas used for significant recreational activity and respond to identified risks to public health. The Guidelines also require Councils to provide an annual report to the Department of Health and Human Services. These Annual Reports detail each Council's activity in relation to recreational water quality monitoring and report on water quality issues.
SPATIAL EXTENT	D'Entrecasteaux Channel (and other sites in the Kingborough Municipality) – 14 sites in total - including sites extending from Tinderbox in the north to Lunawanna Beach in the south.
TEMPORAL EXTENT	Kingborough Council reports have been made available for 1999-2000 through to 2011-2012
DATA LIMITATIONS	Sites surveyed are not completely consistent between years, and hence temporal nature of data sets varies between sites; frequency and duration of sampling varies between sites within years and also varies between years. Guidelines for 'compliance' have changed over time and hence data over the temporal series need to be re-assessed in light of current guidelines/trigger values.
CUSTODIAN	Kingborough Council
CONTACT PERSON	John Devries
CITATION/S	Kingborough Council (2000-2012). Annual recreational water quality reports 1999-2000 to 2011-2012. Prepared for the Department of Health and Human Services, Tasmania.

ID	51
NAME	Annual recreational water quality reports – Huon Valley Council
PARAMETERS	Water quality: thermotolerant coliforms? (assumed in early surveys, excluded 2008-2009 and later), enterococci
DESCRIPTION	The Recreational Water Quality Guidelines 2007 issued under the <i>Public Health Act 1997</i> require Huon Valley Council and other Tasmanian Councils to regularly monitor the water quality of municipal areas used for significant recreational activity and respond to identified risks to public health. The Guidelines also require Councils to provide an annual report to the Department of Health and Human Services. These Annual Reports detail each Council's activity in relation to recreational water quality monitoring and report on water quality issues.
SPATIAL EXTENT	Huon Estuary – including a total of eight sites – four located upstream of the data inventory study area, 1 located near its upper estuary limit, 2 at the estuary mouth and 1 in Port Esperance (Dover).
TEMPORAL EXTENT	Reports made available for 2002-2003 to 2010-2011, excluding 2007-2008.
DATA LIMITATIONS	Sites surveyed are not consistent between years; early surveys focussed on upper estuary sites that are outside the data inventory study area, although one site surveyed 2002-2003 and 2003-2004 (Seven Inch Beach) is located just within the study area; later surveys from 2008-2009 focussed on lower estuary

	sites although there is still some inconsistency between years in terms of sites sampled. Frequency and duration of sampling varies between sites within years and also varies between years. Guidelines for 'compliance' have changed over time and hence data over the temporal series need to be re-assessed in light of current guidelines/trigger values. Data not available pre-2002-2003 report, or for 2007-2008, although these reports are likely to focus on upper estuary sites and therefore be of limited relevance.
CUSTODIAN	Huon Valley Council
CONTACT PERSON	Jocelyn Scopes
CITATION/S	Huon Valley Council (2003-2011). Annual recreational water quality reports 2002-2003 to 2010-2011. Prepared for the Department of Health and Human Services, Tasmania.

ID	52
NAME	The Tasmanian Shellfish Quality Assurance Program (TSQAP)
PARAMETERS	<p>Water quality: phytoplankton species and cell counts, salinity, thermotolerant coliforms</p> <p>Seafood safety: bacteria (<i>E.coli</i>) in shellfish meat, biotoxins in shellfish meat, heavy metals and pesticides/herbicides/fungicides in shellfish meat</p>
DESCRIPTION	<p>The Tasmanian Shellfish Quality Assurance Program (TSQAP) has been conducted since the mid 1980's and is aimed at reducing food safety risks associated with shellfish consumption. In carrying out its role the TSQAP implements the objectives and strategies of the Australian Shellfish Quality Assurance Program (ASQAP). The basis of this program is to ensure that shellfish are only harvested from waters that are shown to be free of harmful contaminants. The implementation of the ASQAP strategies requires each shellfish growing area to have-</p> <ul style="list-style-type: none"> • A comprehensive sanitary survey which includes classification and management plan development • An ongoing water and shellfish bacteriological monitoring program • A continuous environmental monitoring program to ensure that harvesting only takes place within management plan criteria • A biotoxin monitoring program and management plan • A chemical residue testing program • An annual review of both the recent data collected and the current management plan. <p>Following the introduction of the toxic dinoflagellate <i>Gymnodinium catenatum</i> around 1980, a biotoxin monitoring program was set up to routinely test for the levels of biotoxins in shellfish and is an integral component of TSQAP in accordance with a designated Biotoxin Monitoring Plan. Each growing area has undergone a risk assessment based on historical data of algae identified in water and cysts identified in sediments. Particular attention has been paid to the history of the toxic dinoflagellate <i>G. catenatum</i>. Farming areas are each allocated as high, medium or low risk of blooms. The frequency of sampling varies according to risk status and the biotoxin history of each growing area. Criteria for farm closure on the basis of seafood safety risk are described. TSQAP reports also provide up to date details on which shellfish farms are active, plus dates of closure for those that are not.</p>

SPATIAL EXTENT	<p>D'Entrecasteaux Channel, Port Esperance and lower Huon Estuary within marine farm leases in the D'Entrecasteaux Channel Marine Farming Development Plan (MFDP) and Huon River & Port Esperance MFDP areas respectively. The following areas are included within the data inventory study area (with year of initiation of monitoring, allocated biotoxin risk category, and frequency of sampling as set out in the Biotoxin Monitoring Plan):</p> <ul style="list-style-type: none"> • Deep Bay (since 1988, sporadic data – often closed due to high biotoxin risk, high risk, monthly in winter/fortnightly in summer) • Great Bay (since 1988, medium risk, monthly sampling) • Port Esperance (since 1983, high risk, monthly in winter/fortnightly in summer but weekly from mid-February to mid-May) • Fleurty's Point (since 1985, medium risk, monthly sampling) • Gardners Bay (since 1991, high risk, monthly in winter/fortnightly in summer) • Little Taylors Bay (since 1988, medium risk, monthly sampling) <p>Additional shellfish farming sites around other parts of Tasmania are also monitored.</p>
TEMPORAL EXTENT	<p>Temporal extent and frequency of monitoring varies between marine farm areas, as indicated above in 'Spatial Extent' – starting from 1983 to 1991, and ongoing, and with monitoring currently monthly during winter, but fortnightly or weekly during summer in some areas – depending on risk status. Note that Great Bay, Fleurty's Point and Little Taylors Bay are part of the D'Entrecasteaux network and have more frequent sampling than monthly if <i>Gymnodinium catenatum</i> is found in the general area. Nb. Here, winter = June-September, summer = October-May.</p> <p>Additional sampling is sometimes undertaken in response to particular events, such as notification from Southern Water of effluent overflows in nearby areas during high rainfall events; water and shellfish meats are typically tested in this scenario. Any area may be sampled at a lower frequency when not actively harvesting.</p> <p>Monitoring reports are readily available for 2007-2010, although Thompson et al. (2008), a sub-report within linked study ID: 5, has summarised TSQAP data (re: density of the toxic microalga <i>Gymnodinium catenatum</i>, and mean days of closure due to harmful algal blooms) for the D'Entrecasteaux Channel/Huon Estuary region for the period 2001-2008. Hence this may act as a suitable summary data source, to be supplemented by TSQAP findings in 2009-2010 data.</p>
DATA LIMITATIONS	<p>While microalgal sampling in water samples generally follows the frequencies outlined in the Biotoxin Monitoring Plan for most areas, there are occasions where this frequency is not met; this was documented for example in 2007, as reported in the most recent statewide annual 2007/2008 report. A subsequent more stringent approach of closing growing areas that do not comply with the required frequency of sampling resulted in all growing areas complying in the first half of 2008. Analytes surveyed in shellfish meat are only surveyed every 3 years (metals, pesticides etc), or in response to water quality triggers (biotoxins, bacteria).</p>

CUSTODIAN	The Tasmanian Shellfish Quality Assurance Program, Department of Health and Human Services
CONTACT PERSON	Alison Turnbull
CITATION/S	<p>DHHS (2007-2010). The Tasmanian Shellfish Quality Assurance Program: annual data reviews, triennial reviews and data analyses and annual summary reports. Department of Health and Human Services.</p> <p>The above citation incorporates individual reports covering specific shellfish farming areas within the D'Entrecasteaux Channel/Lower Huon Estuary study area, including annual data reviews for 2007-2010 (3 relevant reports available per year), and triennial reviews and data analyses for 2007, 2008, (3 reports available each) and 2010 (2 reports). The most recent statewide summary annual report was produced for 2007-2008 data.</p> <p>Additional reports are available for other areas of Tasmania, while earlier reports for D'Entrecasteaux Channel/Lower Huon Estuary sites may still be available but are not accessible online.</p>

ID	53
NAME	Environmental monitoring for fish health - Tassal
PARAMETERS	Water quality: dissolved oxygen, temperature, salinity, phytoplankton species and cell count
DESCRIPTION	<p>In addition to compliance monitoring conducted in accordance with marine farm licence conditions (see linked study IDs: 3 and 8), Tassal conducts in-farm monitoring for site management of feeding and fish health. The monitoring essentially consists of monitoring dissolved oxygen, temperature, salinity and phytoplankton densities at active leases. Phytoplankton species identification and cell counts are conducted using net tow samples, and checked against trigger levels for those that are known to be harmful to finfish.</p> <p>Tassal shares data from the phytoplankton monitoring with the Tasmanian Shellfish Quality Assurance Program (TSQAP) (study ID: 52) and Huon Aquaculture Company (study ID: 54) on an 'as needs' basis regarding information on Harmful Algal Bloom (HAB) species.</p> <p>A 'crisis' sampling arrangement is also in place which covers phytoplankton (identification and count), nutrients, metals, pesticides and coliforms. This has not been applied to date, and will only be activated in response to crisis events.</p>
SPATIAL EXTENT	All Tassal marine farm leases in the D'Entrecasteaux Channel and Huon Estuary (total of 16 leases - 8 in the upper Channel, 6 in lower Channel and 2 in the Huon Estuary)
TEMPORAL EXTENT	Data collected at least daily from each lease (physico-chemical parameters), and weekly for the phytoplankton; monitoring initiated at each lease approximately when first stocked, and ongoing.
DATA LIMITATIONS	Data is stored onsite in hard copy form; it is only used for feeding and fish health purposes. Feedback from Tassal indicates that the net tows for gathering phytoplankton data are probably not as spatially representative as they could be. Given that algal blooms can vary spatially in their abundance over a relatively small distance, collection of these samples could be expanded to cover larger areas of the leases. No detailed analysis of phytoplankton

	species – an assessment is made of the presence of any toxic species.
CUSTODIAN	Tassal Group Ltd
CONTACT PERSON	Matt Barrenger
CITATION/S	Unpublished data

ID	54
NAME	Environmental monitoring for fish health – Huon Aquaculture Company
PARAMETERS	Water quality: dissolved oxygen, temperature, salinity, phytoplankton species and cell count
DESCRIPTION	<p>In addition to compliance monitoring conducted in accordance with marine farm licence conditions (see linked study IDs: 3 and 8), the Huon Aquaculture Company conducts in-farm monitoring for site management of feeding and fish health. The monitoring essentially consists of monitoring dissolved oxygen, temperature, salinity and phytoplankton densities at active leases. Phytoplankton species identification and cell counts are conducted using an integrated sampler, and checked against trigger levels for those that are known to be harmful to finfish.</p> <p>Huon Aquaculture Company shares data from the phytoplankton monitoring with the Tasmanian Shellfish Quality Assurance Program (TSQAP) (study ID: 52) and Tassal (study ID: 53) on an ‘as needs’ basis regarding information on Harmful Algal Bloom (HAB) species.</p> <p>In addition to regular monitoring, video monitoring of the seafloor is conducted randomly to check for excess feeding if considered a concern.</p>
SPATIAL EXTENT	All Huon Aquaculture Company marine farm leases in the Huon Estuary and lower D’Entrecasteaux Channel (total of 9 leases - 6 in the Huon Estuary and 3 in the lower Channel/Port Esperance). Physico-chemical monitoring is conducted inside and outside most pens. Phytoplankton sampling is performed at representative leases of the different areas – lower and upper Huon Estuary and western and eastern shores of the lower Channel.
TEMPORAL EXTENT	Physico-chemical parameters are monitored at most leases on a daily basis while phytoplankton sampling is generally conducted weekly; some are measured within pens continuously for trials using continuous monitoring systems from time to time. Monitoring was initiated at each lease as soon as it was stocked; present database has 10 years of data while older data has been retained in hard copy format.
DATA LIMITATIONS	Monitoring equipment failure happens occasionally but usually only for a day or two; main data gaps will be where the leases are not occupied by fish (i.e. fallowed) and hence data collection ceases. Physico-chemical parameters monitored for most pens but not necessarily always recorded; data are recorded for each lease.
CUSTODIAN	Huon Aquaculture Company Pty Ltd
CONTACT PERSON	Dom O’Brien
CITATION/S	Unpublished data

ID	55
NAME	Nyrstar Hobart zinc smelter seafood monitoring program
PARAMETERS	Seafood safety: mercury in flathead (common flathead <i>Platycephalus bassensis</i>), heavy metals in oysters and mussels
DESCRIPTION	Nyrstar Hobart zinc smelter and previous site managers have conducted a long-term seafood monitoring program in the Derwent Estuary, with mercury levels in flathead monitored since 1984, and heavy metal levels in wild oysters and mussels monitored since 1992. In addition, caged oyster experiments have been carried out annually since 2003/2004 to evaluate uptake rates of heavy metals in different parts of the Derwent. As part of this project, monitoring has also been conducted at several sites in the D'Entrecasteaux Channel.
SPATIAL EXTENT	Mickeys Bay (flathead, wild oysters and mussels, and caged oyster experiments), Apollo Bay, Aiken Point, and Barnes Bay Ferry Terminal (wild mussels and oysters at each; some flathead monitoring in the 1980s but discontinued); and numerous sites in the Derwent Estuary
TEMPORAL EXTENT	<ul style="list-style-type: none"> Flathead: August to November annually, 1991-ongoing at Mickeys Bay (data currently available up to 2010) Wild oysters and mussels: summer, annually from 1991 to 2002, triennially (i.e. every 3 years) since 2002 and ongoing; i.e. most recent sampling in summers of 2002-03, 2005-06 and 2008-09, 2011-2012. Caged oyster experiments: summer, annually since 2003/2004 and ongoing
DATA LIMITATIONS	Monitoring is primarily conducted for the Derwent Estuary, hence limited sites are monitored in the D'Entrecasteaux Channel – with this region included primarily to establish 'background' levels of heavy metals in seafood.
CUSTODIAN	Nyrstar Hobart
CONTACT PERSON	James Burke
CITATION/S	McPherson, G. (2008). Temporal changes in mercury levels in flathead in the Derwent Estuary between 1991 and 2007. Report to Nyrstar Hobart, prepared by Glen Macpherson Consultancy. (this report incorporates data from the D'Entrecasteaux Channel)

ID	56
NAME	Waste Water Treatment Plant (WWTP) effluent monitoring
PARAMETERS	Water quality: wastewater effluent – nutrients, biochemical oxygen demand (BOD), pH, oil and grease, total suspended solids (TSS), thermotolerant coliforms
DESCRIPTION	Waste Water Treatment Plants (WWTPs) in the D'Entrecasteaux Channel/lower Huon Estuary process a range of domestic and commercial wastes and apply secondary treatment processes before discharging treated effluent to waterways. WWTPs exceeding 100 kL/day design capacity are regulated by the Environment Protection Authority (EPA), under the provisions of the <i>Environmental Management and Pollution Control Act 1994</i> (EMPCA). These are deemed 'Level 2' activities in accordance with EMPCA, whilst WWTPs with smaller discharges are classified as Level 1 activities. Southern Water is responsible for managing and maintaining WWTPs within the Kingborough and Huon Valley municipalities. All WWTPs are required to monitor the quality of their effluent discharge in accordance with effluent

	quality guidelines.
SPATIAL EXTENT	WWTPs at Howden, Woodbridge (Level 1), Margate, Electrona, Cygnet, Geeveston, and Dover (Level 2); an additional WWTP is located at Ranelagh (Level 2) upstream of the upper Huon - outside the data inventory study area but also potentially relevant in regards to downstream effects.
TEMPORAL EXTENT	Monthly upon commissioning of each WWTP
DATA LIMITATIONS	Southern Water commented that pH data looks a bit patchy for some sites. Note that this data is collected to assess compliance of effluent discharge with environmental requirements; it does not reflect ambient conditions.
CUSTODIAN	Southern Water
CONTACT PERSON	Kathryn McLeod/Lance Stapleton
CITATION/S	Unpublished data

ID	57
NAME	Waste Water Treatment Plant (WWTP) ambient monitoring and near-field modelling
PARAMETERS	<p>Water quality: nutrients, total suspended solids (TSS), thermotolerant coliforms, enterococci, temperature, dissolved oxygen, salinity, turbidity, pH, chlorophyll a, specific conductance (analytes varying between WWTPs/surveys)</p> <p>Biota: visual characterisation by video including searches for threatened species (Geeveston only)</p> <p>Modelling: near-field outfall dilution modelling</p>
DESCRIPTION	<p>There are currently no ongoing ambient monitoring programs for marine/estuarine receiving environments adjacent to Waste Water Treatment Plants (WWTPs) in the D'Entrecasteaux Channel/lower Huon Estuary. However, a number of environmental surveys and limited monitoring programs have been undertaken in the past and hence provide a potential data source on attributes of receiving environments for some WWTPs. Previous ambient monitoring surveys have been performed to address one or more of the following: public complaints/concerns, environmental assessments for upgrade planning, environmental monitoring during upgrades, design of ambient monitoring programs, testing the effectiveness of new treatment systems.</p> <p>In addition, many WWTPs are being reviewed and upgrades performed. As part of this, near-field dilution modelling has been performed for a number of the WWTPs. Note that while the Ranelagh WWTP is outside the data inventory study area, it has been included here so that all WWTPs in the region are addressed.</p>
SPATIAL EXTENT	<ul style="list-style-type: none"> • Margate WWTP (nutrients, thermotolerant coliforms, enterococci). • Woodbridge WWTP (nutrients, thermotolerant coliforms, enterococci). • Ranelagh WWTP (nutrients, total suspended solids, thermotolerant coliforms, enterococci, temperature, DO, salinity, turbidity, pH, chlorophyll a, specific conductance). • Dover WWTP (nutrients, thermotolerant coliforms, enterococci, temperature, DO, salinity, turbidity, pH, chlorophyll a, specific conductance). • Geeveston WWTP (video transects of potential new outfall locations; snapshot biological assessment).

	Dilution modelling has been performed for the Margate, Electrona, Woodbridge, Ranelagh, Geeveston and Dover WWTPs; the Cygnet WWTP will be modelled next.
TEMPORAL EXTENT	<p>Field surveys:</p> <ul style="list-style-type: none"> • Margate WWTP - monitoring Dec 2011 - April 2012 at 6 sites. • Woodbridge WWTP – 2 surveys in February 2012. • Ranelagh WWTP – 1 survey in 2008, 1 survey at 6 sites upstream and downstream of the outfall in May 2012. • Dover WWTP – surveys February 2009, April 2009, June/July 2010 and Jan 2012. • Geeveston WWTP – November 2011
DATA LIMITATIONS	Since 2009 Southern Water has been responsible for managing WWTPs in the Kingborough and Huon Valley municipalities, but prior to this, WWTPs were managed by respective councils. Due to differences in recording systems and the transfer process to Southern Water, information on ambient monitoring has not been recorded using a standard approach and hence it is difficult to obtain a complete list of all surveys conducted. The surveys listed above are those readily identified by Southern Water on the basis of a simple search of their database. No longer term ambient monitoring programs have been performed for any of the WWTPs.
CUSTODIAN	Southern Water
CONTACT PERSON	Kathryn McLeod/Lance Stapleton
CITATION/S	

ID	58
NAME	Woodbridge Marine Discovery Centre educational monitoring
PARAMETERS	<p>Water quality: temperature, salinity, dissolved oxygen, secchi disc depth</p> <p>Biota: benthic species in dredge samples</p> <p>Sediment quality: sediment particle size, temperature and colour</p>
DESCRIPTION	The Woodbridge Marine Discovery Centre is a part of the Woodbridge School and conducts hands-on educational programs on the marine environment. Environmental monitoring is performed for educational purposes using the centres' own research vessel, the Penghana.
SPATIAL EXTENT	Nine sites in the D'Entrecasteaux Channel, ranging in depth from 6 m to 40 m; all sites are within 20 minutes boat trip from the Marine Discovery Centre – i.e. extending just south of Soldiers Point and North to Apollo Bay and Kettering.
TEMPORAL EXTENT	Records date back to 1997; no monitoring is undertaken over the summer or other school holidays. Data are usually collected at least every month during other parts of the year although not always at the same sites due to weather and other factors; hence each site may have been visited between 4-20 times within a year.
DATA LIMITATIONS	The data are available but still on paper; the centre is hoping that it will be entered into an electronic spreadsheet in the future. Records of early data are patchy, but relatively good for the last 10 years. Some data gaps are due to weather limitations and occasional times when a meter may be offline for a brief period. As noted above, all sites are not consistently monitored during each survey, and no monitoring is conducted during school holidays. Data are collected for educational purposes rather than scientific assessment and hence some methods are designed to engage students rather than collect data

	using scientifically rigorous techniques.
CUSTODIAN	Woodbridge Marine Discovery Centre
CONTACT PERSON	Pam Elliot
CITATION/S	Unpublished data

ID	59
NAME	Kingborough Waste Centre, Baretta – groundwater monitoring
PARAMETERS	Water quality: groundwater – groundwater depth, bore depth, riser height, pH/Oxidation-Reduction Potential (ORP mV), temperature, dissolved oxygen, conductivity/salinity, total organic carbon, alkalinity, metals, nutrients, total dissolved solids, dissolved minerals such as sodium, calcium, magnesium, potassium, chloride, and sulphate
DESCRIPTION	The Kingborough Waste Centre at Baretta currently operates as a waste transfer station only but is a former tip site that was regulated by the EPA as a level 2 activity. As part of remediation activities, a groundwater monitoring program is ongoing at the site.
SPATIAL EXTENT	11 bore sites adjacent to the Kingborough Waste Centre at Baretta
TEMPORAL EXTENT	Quarterly, some bore monitoring initiated in 1996 but monitoring of a series of routine sites was not established until 2006, and additional sites were added in 2009 and again in 2011 - ongoing
DATA LIMITATIONS	
CUSTODIAN	Kingborough Council
CONTACT PERSON	Jon Doole
CITATION/S	Millin EMS (2011). Baretta Waste Management Centre: water quality monitoring report. Report for Kingborough Council. Millin EMS Pty Ltd.

ID	60
NAME	Huon Valley Municipality former tip sites – groundwater and surface water monitoring
PARAMETERS	Water quality: groundwater and surface water - pH, conductivity/salinity, alkalinity, metals, total dissolved solids, total suspended solids, redox potential, alkalinity, nutrients, pesticides, dissolved minerals such as sodium, calcium, magnesium, potassium, and chloride
DESCRIPTION	Former tip sites at Geeveston and Cygnet currently operate as waste transfer stations only but were formerly regulated by the EPA as level 2 activities. As part of remediation, groundwater monitoring programs are ongoing at both sites.
SPATIAL EXTENT	Geeveston former tip site – 2 bores, 1 leachate pond, one stormwater drain and two nearby creek sites; Cygnet former tip site – 2 bores, two ponds.
TEMPORAL EXTENT	The sites were modified to transfer stations in 2004. Monitoring was initiated after that, and is ongoing - performed quarterly.
DATA LIMITATIONS	
CUSTODIAN	Huon Valley Council
CONTACT PERSON	Jocelyn Scopes
CITATION/S	

ID	61
NAME	Forestry Tasmania Huon District Water Sampling Program
PARAMETERS	Water quality: freshwater - temperature, pH, electrical conductivity and turbidity
DESCRIPTION	Forestry Tasmania has conducted a long term monitoring program of sites in the Huon catchment, with monthly water sampling starting at 14 locations in the Huon District State Forests in 1997 (upper and lower sites on seven rivers). A further 2 locations were added in 1999 and 3 more were added in 2004. The original purpose of the sampling program was to develop an integrated system of water sampling sites and protocols for Tasmanian Forests.
SPATIAL EXTENT	19 sites in the Huon Catchment; all are freshwater but 3 are included in the data inventory study area (i.e. within 1 km of the coast) in the vicinity of Port Esperance: lower Esperance River, lower Hawkers Creek and lower Stringers Creek. The majority of the remaining sites are a long distance inland from the coast.
TEMPORAL EXTENT	Monthly 1997 until April 2012 (program has just recently ceased), although monitoring at some sites was initiated a bit later – 1999 or 2004.
DATA LIMITATIONS	Forestry Tasmania has determined that the data is useful for describing the range of values of turbidity, pH and EC measured at each site over a 15 year period, but without significant additional data on catchment attributes and history, the water quality data cannot be used to identify the reasons for the differences between upstream and downstream sites or variation across the district. Few queries have been made of the data over the years that it has been collected, and hence it has been concluded that the program offers little value to Forestry Tasmania for the effort expended and the program ceased in April 2012.
CUSTODIAN	Forestry Tasmania
CONTACT PERSON	Sandra Roberts
CITATION/S	Roberts, S. (unpub.). Huon District Water Sampling Program, Forestry Tasmania.

ID	62
NAME	Electrona wharf marine environment study
PARAMETERS	Sediment quality: visual characterisation, particle size analysis, heavy metals Biota: rocky intertidal biota, visual characterisation of subtidal benthic biota, benthic infauna (sandy beach and subtidal)
DESCRIPTION	This report documents a marine environmental survey conducted as part of a Site Management Plan for a proposed wharf facility development in North West Bay near Electrona. The proposed development was on the site of a previous Carbide manufacturing and ship loading facility. The study involved a survey of the existing environmental conditions in the marine environment, and an assessment of likely impact and potential mitigation strategies for the proposed development. Environmental data collected during the field survey were supplemented by a literature review.
SPATIAL EXTENT	Electrona Wharf study site in North West Bay
TEMPORAL EXTENT	July-August 2000
DATA LIMITATIONS	
CUSTODIAN	Tasports
CONTACT PERSON	Louise Cherrie

CITATION/S	Aquenal (2000). Electrona wharf marine environment study. Report to Hobart Ports Corporation Pty Ltd. Prepared by Aquenal Pty Ltd.
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ID	63
NAME	Marine environmental survey at Oyster Cove Marina
PARAMETERS	<p>Sediment quality: visual assessment, particle size analysis, redox potential, heavy metals and tributyltin, pH</p> <p>Water quality: drogue surveys (hydrology)</p> <p>Biota: benthic infauna (threatened and other protected species only), visual characterisation of benthic biota (including searches for threatened and other protected species)</p>
DESCRIPTION	As part of its expansion, Oyster Cove Marina proposed to extend marina facilities and deposit dredged material in a reclamation zone previously used to receive dredge spoil. Marine ecological and hydrological investigations were required as part of an Environmental Effects Report for this project. Marine ecological, sediment quality and drogue studies were conducted, with the aim of providing data suitable for identifying hydrological issues and potential effects on water quality and marine fauna and flora. Heavy metal assessments of sediments were conducted for both the proposed dredging zone and the reclamation zone.
SPATIAL EXTENT	Proposed dredging and reclamation zones for Oyster Cove Marina expansion, Little Oyster Cove
TEMPORAL EXTENT	September-October 2005, April and July 2006
DATA LIMITATIONS	Sediment pH only measured in pre-existing onshore reclamation material
CUSTODIAN	Oyster Cove Marina
CONTACT PERSON	Anne and Phil Boustead
CITATION/S	<p>Aquenal (2005). Proposed Oyster Cove Marina extension and reclamation, Environmental Effects Report. Report for Oyster Cove Marina. Prepared by Aquenal Pty Ltd.</p> <p>Aquenal (2006). Marine environmental and hydrological survey for the proposed Oyster Cove Marina extension and reclamation. Report for Oyster Cove Marina. Prepared by Aquenal Pty Ltd.</p>

ID	64
NAME	Environmental surveys at Port Huon Marina
PARAMETERS	<p>Sediment quality: visual assessment of cores and sedimentary environment, particle size analysis, redox potential, organic content (LOI), settling rate, pH, metals and pesticides</p> <p>Water quality: total suspended solids (TSS) and heavy metals</p> <p>Biota: visual characterisation of benthic biota (including searches for threatened and other protected species), toxic dinoflagellates</p> <p>Habitats: bathymetry</p>
DESCRIPTION	Port Huon Marina Pty Ltd proposed to extend the existing marina located on the Kermadie River at Port Huon, with dredged material to be used to fill in and level existing reclaimed land for the marina. A site investigation was conducted in relation to concerns that the proposal could disturb sediments contaminated by a former decommissioned wood chip mill and refuse tip at Geeveston. The investigation included a sediment survey to determine the

	<p>nature and distribution of potential contaminants, and a marine biological survey to assess the potential for impact on marine habitats of significance and threatened marine species.</p> <p>Dredging operations were subsequently approved and a water quality investigation was conducted during dredging to monitor suspended material and contaminants in the water column.</p>
SPATIAL EXTENT	Proposed dredging site at Port Huon Marina, Huon Estuary
TEMPORAL EXTENT	December 2005 (pre-dredging site investigation), July 2006 (water quality monitoring)
DATA LIMITATIONS	Water quality monitoring was specific to a period of dredging activity and may not reflect conditions in the absence of dredging
CUSTODIAN	Port Huon Marina
CONTACT PERSON	Sean Langman
CITATION/S	<p>Aquenal (2006). Site investigation report for the proposed Port Huon Marina extension., Report for Port Huon Marina Pty Ltd. Prepared by Aquenal Pty Ltd.</p> <p>Aquenal (2006). Water quality investigation report for the Port Huon Marina extension. Report for Port Huon Marina Pty Ltd. Prepared by Aquenal Pty Ltd.</p>

ID	65
NAME	Tassal Margate fish processing plant re-development DPEMP
PARAMETERS	<p>Water quality: current speed and direction</p> <p>Sediment quality: metals, total organic carbon (TOC), total petroleum hydrocarbons (TPH), Tributyltin (TBT), particle size distribution</p> <p>Biota: benthic infauna, epibenthic fauna and flora, terrestrial flora and fauna habitat</p> <p>Modelling: near field dilution modelling for wastewater discharge</p>
DESCRIPTION	Tassal proposed to consolidate their Dover and Margate processing facilities into one upgraded facility at Margate. This proposal was a Level 2 activity assessed by the Environment Protection Authority (EPA) and required a number of environmental assessments, including surveys of the marine benthic environment, marine sediment quality and terrestrial flora/fauna habitat, and an outfall modelling study (nb. advice from the EPA indicates that the development described in this DPEMP has not been pursued).
SPATIAL EXTENT	Margate - at and adjacent to the Tassal fish processing plant.
TEMPORAL EXTENT	January-February 2008
DATA LIMITATIONS	One-off surveys associated with a small survey area specific to a proposed development.
CUSTODIAN	Tassal Operations Ptd Ltd
CONTACT PERSON	Fiona Ewing
CITATION/S	GHD (2008). Tassal Operations Ptd Ltd Margate fish processing plant re-development. Development Proposal and Environmental Management Plan. Report prepared by GHD.

ID	66
NAME	Tassal Dover processing plant production intensification DPEMP
PARAMETERS	<p>Water quality: current speed and direction, pH, EC/salinity, biochemical oxygen demand (BOD), total suspended solids (TSS), total dissolved solids (TDS), oil and grease, nutrients, chlorophyll a, thermotolerant coliforms, dissolved and total metals</p> <p>Biota: visual characterisation of benthic organisms, terrestrial flora and fauna habitat</p>
DESCRIPTION	Tassal anticipated production at their Dover processing facility to increase to 25,000 tonnes per annum by 2015, and hence proposed to upgrade their existing Waste Water Treatment Plant (WWTP) to treat the resultant increased flows to the required environmental standard. As part of the assessment of this proposal as a Level 2 activity by the Environment Protection Authority, a number of environmental assessments were conducted, including surveys of the marine benthic environment, water quality and terrestrial flora/fauna habitat. Note that on the advice of the EPA, the proposed WWTP upgrade has not yet been started; it is likely to be constructed this year (2012) and commissioned next year. The DPEMP refers to future monitoring of upgraded treated effluent for one year post-commissioning – involving a combination of treated effluent, receiving waters and biological monitoring.
SPATIAL EXTENT	Port Esperance, at and adjacent to the Tassal Dover fish processing plant approximately 15 km south of Dover
TEMPORAL EXTENT	December 2009 to March 2010
DATA LIMITATIONS	No information is included on how many water quality samples were collected in February 2010, or when they were collected in relation to tidal conditions etc. Benthic surveys were based on spot dives only.
CUSTODIAN	Tassal Operations Ptd Ltd
CONTACT PERSON	Fiona Ewing
CITATION/S	Tassal (2010). Dover processing plant production intensification. Development Proposal and Environmental Management Plan. Report prepared by Tassal Operations Pty Ltd.

ID	67
NAME	Huon Valley water quality report 1996-2002 – Waterwatch
PARAMETERS	<p>Water quality: temperature, turbidity, conductivity, pH, and (for some, limited waterways) phosphorus, or <i>E. coli</i> or dissolved oxygen</p> <p>(Waterwatch Groups data only, see below)</p>
DESCRIPTION	This report brings together water quality data from the (then) Department of Primary Industries, Water and Environment (DPIWE), Huon District of Forestry Tasmania and Huon Healthy Rivers Waterwatch groups. Note that the DPIWE data includes a water quality monitoring program conducted prior to 1999 (i.e. 1996-1997 and reported elsewhere during 1998) as well as additional more recent monitoring already described for study ID: 31; hence it has not been incorporated here. In addition, the Forestry Tasmania water quality monitoring has already been described for study ID: 61, and hence has also not been repeated here. The data contained in this report which has not been described for other studies therefore consists of water quality monitoring performed by the Waterwatch groups.

	The report refers to earlier reports which compiled water quality information across various data sources for the Huon Catchment (e.g. for 1996-2000 – incorporated and updated here, and several pre-1996 summaries)
SPATIAL EXTENT	Huon Catchment, including sites within (or close to – see comment below in ‘data limitations’) the study area for the following waterways: Dover Rivulet, Agnes Rivulet (incorporating the ‘Tip’ Creek and ‘BP’ Creek sections), Kermandie River, Garden Island Creek, Gardners Creek, Lasts Creek and Nicholls Rivulet (Esperance River also included but all data derived from study ID: 61); and many additional sites south of, or upstream from, the study area.
TEMPORAL EXTENT	1998-2002, with variable start dates, finish dates and sampling frequency between waterways and particular monitoring sites (earlier data are also described for a DPIWE 1996-1997 monitoring program reported in 1998 and hence excluded here).
DATA LIMITATIONS	Monitoring sites are mapped at a coarse level and described qualitatively, but precise locations are not illustrated. Hence waterways listed above are those identified as having monitoring sites either within or in close proximity to the study area. Variable frequency of survey dates, with data collected by school students and other volunteers and therefore potentially of variable quality.
CUSTODIAN	Huon Valley Council
CONTACT PERSON	Nepelle Crane/Jocelyn Scopes
CITATION/S	Griggs, A. (2003). Huon Valley water quality report 1996-2002. An update of the Huon Valley water quality report 1996-2000. Huon Healthy Rivers Project. Huon Valley Council.

ID	68
NAME	Huon mooring - near-real-time water quality data
PARAMETERS	Water quality: temperature, conductivity, pressure, dissolved oxygen, chlorophyll fluorescence, turbidity, light (Photosynthetically Active Radiation - PAR), nutrients Modelling: near-real-time skill assessment of existing hydrodynamic, sediment and biogeochemical models (linked study IDs: 5, 69)
DESCRIPTION	<p>A coastal mooring equipped with multiple water quality sensors and a near-real-time data telemetry system was deployed on two occasions at a site near the mouth of the Huon Estuary. This work was funded as part of the CSIRO Flagship Collaboration Fund Cluster Sensor Systems for the Analysis of Aquatic Environments, project 5 Optimising Biogeochemical sampling strategies. As the regional location for this work was in south east Tasmania results were shared with other projects under the INFORMD initiative (study ID: 69).</p> <p>The mooring device has provided live data streams for the skill assessment of a high resolution 3D coastal model (incorporating the SETAS hydrodynamic model, referred to in linked study ID: 69) and estuarine hydrodynamic, sediment and biogeochemical model used by resource managers (latter models refer to those in linked study ID: 5). Both deployments were for 3 months with the raw data logged and served through the Tasmanian Marine Analysis Network (TasMAN) portal of CSIRO (refer to linked study ID: 69).</p>
SPATIAL EXTENT	The mooring was deployed at a site in the D’Entrecasteaux Estuary, near the mouth of the Huon Estuary at a depth of 50 m
TEMPORAL EXTENT	Two deployments - August-November 2010, July-November 2011
DATA LIMITATIONS	The wet chemistry nutrient analyser was only included in the second

	deployment (2011) and did not work well. Despite good reproducibility in pre-deployment laboratory trials, the in situ nutrient data from the mooring exhibited significant offsets in absolute concentration compared to comparative grab samples. Work is being undertaken to optimise the nutrient analyses and understand the source of errors.
CUSTODIAN	CSIRO Marine and Atmospheric Research
CONTACT PERSON	Karen Wild-Allen
CITATION/S	Wild-Allen, K., Rayner, M., Malan, J., Hughes, D., DeBoer, P., Chalk C. and Allen, S. (2012). A near-real-time coastal mooring to support water quality modelling and resource management. Poster presentation at the 50 th Estuarine & Coastal Sciences Association Conference, Venice 3-7 June 2012. National Research Flagships Program. CSIRO Marine & Atmospheric Research, Hobart, Tasmania.

ID	69
NAME	INFORMD near-real-time hydrodynamic modelling and the TasMAN sensor network
PARAMETERS	Water quality: temperature, conductivity, pressure and (at limited sites) dissolved oxygen Modelling: near-real-time hydrodynamic modelling
DESCRIPTION	<p>INFORMD is a project aimed at providing near-real-time hydrodynamic modelling of the south-east Tasmania, including the Huon and Derwent Estuaries, D'Entrecasteaux Channel and Storm Bay. Input data are provided by a sensor network deployed throughout the region and used by a hydrodynamic model in a data assimilating capacity. The sensors currently provide salinity, temperature (and some dissolved oxygen) data in near real-time, with data transmitted back to CSIRO via 3G mobile networks. There it is linked to real-time hydrodynamic models in order to provide detailed information on water temperature, salinity and currents. A prototype model has been developed (SETAS2) which extends from South-West Cape to the Freycinet Peninsula.</p> <p>The TasMAN network consists of real-time wireless sensors deployed on buoys in the D'Entrecasteaux Channel and Huon and Derwent estuaries, providing near real-time data input for the INFORMD project. It is an instrumental component of a larger Wealth from Oceans flagship theme focused on scalable and relocatable solutions for coastal monitoring and prediction. The sensors at the moment are just for the physical environment, however there are plans to add sensors for biogeochemical attributes – e.g. pH (a type with very good long term calibration), oxygen sensors (which measure % saturation, rather than mg/L), and a fluorometer for measuring chlorophyll a and several other types of pigment.</p>
SPATIAL EXTENT	TasMAN sensors are currently deployed at 5 sites in the D'Entrecasteaux Channel, located from Simpsons Point down to Port Esperance. There are plans to deploy two additional sensors at the northern end of the D'Entrecasteaux Channel.
TEMPORAL EXTENT	INFORMD project initiated 2008; TasMAN sensors have been deployed over the period April 2012-current; it is anticipated that most buoys will keep sensing until March 2013

DATA LIMITATIONS	The network of TasMAN sensors has been a 'proof of concept' project – trialling a network of fairly basic sensors that collect information on estuarine and coastal environments in a cost-effective manner. The network is proving itself to be capable of collecting useful data, but a caveat is that it won't be as accurate as data collected using much more sophisticated sensors. Temperature and conductivity have been fairly accurate (± 0.2 degrees, ± 1 psu respectively), but dissolved oxygen has been trialed at a few sites and seems to drift out of calibration quickly, so data are less useful.
CUSTODIAN	CSIRO Marine and Atmospheric Research
CONTACT PERSON	Greg Timms
CITATION/S	TasMAN (2012). Tasmanian Marine Analysis Network. CSIRO Marine and Atmospheric Research. Data portal available at http://www.csiro.au/tasman/portal/index.htm .

ID	70
NAME	Assessment and mapping of foreshore values, condition and pressures for the southern natural resource management region
PARAMETERS	Habitats: intertidal (quadrat photographs)
DESCRIPTION	<p>The assessment and mapping of foreshore values, condition and pressures was conducted to assist in the future management of the regions' foreshores [foreshore = area between the high and low water marks where tidal influence exists, together with saltmarshes, rock platforms and un-vegetated beaches (excluding dunes)]. Seventeen electronic mapping layers were produced in relation to natural values (biology, geomorphology), human use values (amenities, recreation/tourism, European heritage), condition (ecological disturbance, geomorphology, introduced species), and pressure (anthropogenic modification, pollution, recreation/tourism, vulnerability to climate change, introduced species). Data for generating these layers were derived from other sources.</p> <p>The project did however conduct field assessments at 19 reference sites, which were selected to represent the differing levels of natural value, human use value, condition and pressure. At these sites, digital photographs of intertidal quadrats at 5 shore heights were performed along transects (paired transects 100m apart, giving four transects per site). Three of these reference sites fall within the current D'Entrecasteaux Channel/lower Huon Estuary study area.</p>
SPATIAL EXTENT	Southern NRM region, including three reference sites within the current D'Entrecasteaux Channel/lower Huon Estuary
TEMPORAL EXTENT	March 2008
DATA LIMITATIONS	Intertidal photographs were not analysed; they were archived for future monitoring purposes.
CUSTODIAN	NRM South
CONTACT PERSON	Jill Pearson
CITATION/S	Migus, S. (2008). Assessment and mapping of foreshore values, condition and pressures for the southern natural resource management region. Report prepared by Aquenal Pty Ltd for NRM South.

ID	71
NAME	Water quality monitoring program, Roaring Bay Beach Lagoon
PARAMETERS	Water quality: temperature, salinity, dissolved oxygen, dissolved oxygen saturation, turbidity, pH
DESCRIPTION	The community at Roaring Bay Beach have had concerns about changes they have observed in their local lagoon. Through the Port Esperance Coastcare Committee, a monitoring plan was developed and monitoring of water quality parameters was initiated. Six sites are monitored, 1 at the beach, 2 mid-lagoon and 3 upstream, with monitoring conducted at 2 depths - surface (0 m) and sub-surface (0.25-0.50 m).
SPATIAL EXTENT	Roaring Bay Beach, just south of entrance to the Huon Estuary
TEMPORAL EXTENT	Monitoring was initiated soon after release of a monitoring plan for the area in 2009, and is ongoing
DATA LIMITATIONS	Frequency of monitoring is currently not known.
CUSTODIAN	Port Esperance Coastcare Committee
CONTACT PERSON	Kath Delittle
CITATION/S	Unpublished data; however the citation for the monitoring plan is provided below: Crane, N. (2009). Roaring Bay Beach Lagoon water quality monitoring plan and manual. Compiled for Port Esperance Coastcare Committee.

ID	72
NAME	Fish processing sites – monitoring of discharges to the marine environment
PARAMETERS	Water quality: biochemical oxygen demand (BOD), total suspended solids (TSS), oil and grease, nutrients, pH, total residual chlorine, heavy metals (total copper, total zinc), thermotolerant coliforms; the range of analytes measured varies amongst the three outfall sites
DESCRIPTION	Currently, three seafood processing sites classified as Level 2 activities and regulated by the Environment Protection Authority (EPA) have waste water outfalls discharging to the marine environment in the study area. These include an abalone processor at Margate, and fish processing sites at Margate and Dover. The two Margate sites discharge wastewater to North West Bay, whilst the site at Dover discharges to Port Esperance. All three perform monthly monitoring of effluent quality, with the fish processing sites also required to report annually to the EPA.
SPATIAL EXTENT	Adjacent to seafood processing sites in North West Bay and Port Esperance
TEMPORAL EXTENT	Monitoring undertaken as a monthly requirement since operations were initiated
DATA LIMITATIONS	These data relate to end of pipe effluent quality and do not reflect ambient conditions.
CUSTODIAN	Tassal Operations Pty Ltd (fish processing sites), Tasmanian Seafoods Pty Ltd (abalone processor)
CONTACT PERSON	Tassal Operations Pty Ltd and Tasmanian Seafoods Pty Ltd environmental officers
CITATION/S	Reports yet to be provided by the EPA (annual reports for fish processing sites)

ID	73
NAME	Chaostola Skipper (endangered coastal butterfly species) in the Kingborough Municipality
PARAMETERS	Biota: terrestrial flora species distribution, and Chaostola Skipper (endangered butterfly) distribution
DESCRIPTION	This project documented and mapped the distribution of the Chaostola Skipper (an endangered and endemic butterfly species occurring primarily in near-coastal lowlands) and suitable habitat across the Kingborough Municipality with the aim of preparing a strategic management plan for this species. The overall strategic approach was based on assessments of ecological importance of habitat for species viability and conservation management opportunities. Field surveys were conducted in reserves and on roadsides to record the presence/absence and cover of <i>Gahnia radula</i> (preferred plant food of the Chaostola Skipper), vegetation type, and presence of weeds, disease or other threatening processes. The distribution of <i>Gahnia radula</i> was then mapped and broken down further into 'management units', a subset of which were surveyed for the presence of the Chaostola Skipper.
SPATIAL EXTENT	Kingborough Municipality, areas of potential habitat for the Chaostola Skipper identified using TASVEG mapping units, food plant distribution and geology
TEMPORAL EXTENT	April-May 2004
DATA LIMITATIONS	
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment
CONTACT PERSON	Threatened Species Section
CITATION/S	Threatened Species Section (2012). Chaostola Skipper in the Kingborough Municipality: extent of habitat, current status & a strategic plan. Department of Primary Industries, Parks, Water and Environment, Hobart.

ID	74
NAME	Ambient pathogen monitoring, North West Bay River
PARAMETERS	Water quality: thermotolerant coliforms, enterococci
DESCRIPTION	Water quality data were collected by a local resident with environmental science expertise as part of a community initiative, with support from the Kingborough Council.
SPATIAL EXTENT	11 sites on North West Bay River, with 1 of these located within the data inventory study area (others located upstream and > 1 km inland of the coast).
TEMPORAL EXTENT	July 2005 – March 2006 (two monthly)
DATA LIMITATIONS	Only one site is located within 1 km of the coast (i.e. data inventory study area), but monitoring program included here due to coastal-catchment connectivity of data sets; data missing for some sites in five of the six surveys performed.
CUSTODIAN	Kingborough Council
CONTACT PERSON	Environmental Health Section
CITATION/S	Unpublished data

ID	75
NAME	Water quality monitoring in the North West Bay River Catchment
PARAMETERS	Water quality: temperature, thermotolerant coliforms, enterococci, nutrients
DESCRIPTION	A water quality program performed by the North West Bay River Catchment Management Officer engaged as part of the North West Bay River Catchment Management Project.
SPATIAL EXTENT	12 sites on North West Bay River, with 1 of these located within the data inventory study area (others located upstream and > 1 km inland of the coast).
TEMPORAL EXTENT	March 2000 – June 2002; variable timing across sites
DATA LIMITATIONS	Only one site is located within 1 km of the coast (i.e. data inventory study area), but monitoring program included here due to coastal-catchment connectivity of data sets; variable timing of surveys and range of analytes measured at different times across sites
CUSTODIAN	Kingborough Council
CONTACT PERSON	Environmental Health Section
CITATION/S	Unpublished data

ID	76
NAME	Birds Tasmania nesting resident shorebird and migratory shorebird data
PARAMETERS	Biota: resident shorebird nesting sites, migratory shorebird feeding/roosting sites
DESCRIPTION	Birds Tasmania has compiled data on resident bird nesting sites and migratory feeding/roosting sites, including data sets compiled since 1999. Data have been presented in several formats: a) presence/absence of nest sites for eight resident bird species and feeding/roosting sites for migratory shorebirds along 100 m lengths of the coast were incorporated in the NRM South foreshore assessment - study ID: 70. Data for resident species were derived primarily from Birds Tasmania records, however data for several species were derived from a combination of Birds Tasmania and DPIPWE records. Data in study ID: 70 were pooled for resident species, to display 100 m lengths in which any of the eight resident species had been recorded nesting. However data are available for individual species, and hence included here as a separate data inventory entry; and b) Global Positioning System (GPS) data on resident shorebird species including notes on presence of nests, eggs, and juveniles. These GPS locations are unpublished and not for general public dissemination.
SPATIAL EXTENT	Southern NRM region, incorporating the coastline within the data inventory study area
TEMPORAL EXTENT	Data for 100 m coastal lengths compiled for inclusion in a 2008 study, GPS data compiled during October 2002 and February 2010 (also November 2011, but already included in study ID: 43).
DATA LIMITATIONS	GPS data for shorebird sites are for restricted use under specific data sharing agreements, and not for public distribution.
CUSTODIAN	Birds Tasmania
CONTACT PERSON	Eric Woehler
CITATION/S	Birds Tasmania (2008). Resident bird species breeding habitat mapping data. Incorporated in: Migus, S., Assessment and mapping of foreshore values, condition and pressures for the southern natural resource management region, Aquenal Pty Ltd. Birds Tasmania (GPS data – unpublished)

ID	77
NAME	Water quality nutrient monitoring program, Kingborough Municipality
PARAMETERS	Water quality: nutrients
DESCRIPTION	A water quality monitoring program for creeks and rivulets discharging to the D'Entrecasteaux Channel and Derwent Estuary from the Kingborough Municipality. Monitoring commenced in 1991 and was undertaken quarterly to provide Council with seasonal data to identify any upstream water quality issues requiring further investigation. The sampling has ceased, with review to be conducted to determine its use and any future/regularity of sampling.
SPATIAL EXTENT	17 sites in the Kingborough Municipality stretching from north of the study area to as far south as Woodbridge and also including parts of Bruny Island, with at least 6 sites located within the data inventory study area; geographical coordinates were not available for a total of 5 sites distributed across the North West Bay River and Masons Creek, and some of these may also occur in the study area.
TEMPORAL EXTENT	Quarterly during 1991-2010, although timing of surveys varied amongst sites. For sites confirmed as being in the study area: Snug River, Margate Rivulet – 1991-2010, Kettering Creek - 1995-2010, Coffee Creek 1997-2010, Gemalla Rd Creek – 2002-2010, Nebraska Lagoon – 1994 (one off survey).
DATA LIMITATIONS	Geographical coordinates not available for some sites, temporal extent of data set varies amongst sites
CUSTODIAN	Kingborough Council
CONTACT PERSON	Environmental Health Section
CITATION/S	Unpublished data

ID	78
NAME	Population and larval ecology study of the introduced New Zealand screwshell <i>Maoricolpus roseus</i>
PARAMETERS	Biota: introduced New Zealand screwshell <i>Maoricolpus roseus</i> Water quality: temperature
DESCRIPTION	<i>Maoricolpus roseus</i> is believed to have been introduced into Tasmania in the 1920s. Despite its wide distribution, dense populations and being considered successful in colonising and altering several habitats, details of its reproduction and life cycle had remained poorly known. This study collected specimens from two locations in the D'Entrecasteaux Channel (where high densities of <i>M. roseus</i> had been recorded) over 2 years for studies of population and larval ecology. A temperature logger was deployed 1 m above the seabed at one of the locations for the full extent of the study period. Information collected is considered important for the development of management strategies to control this invasive species.
SPATIAL EXTENT	Tinderbox and Simpsons Point, D'Entrecasteaux Channel
TEMPORAL EXTENT	September 2003 to October 2005
DATA LIMITATIONS	The study contributes to the understanding of the biology of this species, but did not collect data on potential indicators of impact (e.g. distribution or population density).
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Christine Crawford
CITATION/S	Probst, T.A. and Crawford, C.M. (2008). Population characteristics and planktonic larval stage of the New Zealand screwshell <i>Maoricolpus roseus</i> . Journal of Molluscan Studies 74: 191-197.

ID	79
NAME	Nitrogen uptake by phytoplankton in the Huon Estuary (links to study IDs: 4 and 5)
PARAMETERS	Water quality: conductivity, temperature, fluorescence, light (PAR), nutrients, HPLC, chlorophyll a, phytoplankton cell density/taxonomy, nitrogen uptake in phytoplankton
DESCRIPTION	<p>This research had two main objectives:</p> <ul style="list-style-type: none"> Determine whether phytoplankton in the Huon Estuary are using nitrogen that has a primarily oceanic source (e.g. nitrate) or is more locally supplied or generated (e.g. ammonia and urea) To examine the physiology of <i>Gymnodinium catenatum</i>, a toxic dinoflagellate which dominates the summer and autumn Huon Estuary phytoplankton biomass in many years. <p>Some results are partially incorporated in study ID:s 4 and 5.</p>

SPATIAL EXTENT	Garden Island and Hideaway Bay, entrance to the Huon Estuary (additional surveys performed at Southport during a microalgal bloom event)
TEMPORAL EXTENT	4 surveys between May 2003 and February 2004
DATA LIMITATIONS	A large portion of this project involved culturing experiments performed in the laboratory; i.e. study aimed more at understanding processes, although direct monitoring of environmental conditions was also included.
CUSTODIAN	National Centre for Marine Conservation and Resource Sustainability, University of Tasmania
CONTACT PERSON	Paul Armstrong
CITATION/S	Armstrong, P.B. (2010). Nitrogen uptake by phytoplankton in the Huon Estuary: with special reference to the physiology of the toxic dinoflagellate <i>Gymnodinium catenatum</i> . Thesis (MAppScAqua), University of Tasmania.

ID	80
NAME	The use of diatoms as biological indicators of water quality in south-east Tasmania
PARAMETERS	Biota: benthic algal mat biomass (chlorophyll a) and diatom counts/taxonomic identification Water quality: temperature, salinity, nutrients, secchi disc depth Sediment quality: particle size analysis, total organic carbon
DESCRIPTION	<p>This study was aimed at documenting the use of diatoms as biological indicators of water quality (with additional work assessing their value for environmental reconstruction – investigated outside the study area). The biomass (chlorophyll a) of marine benthic algal mats was determined along a depth gradient at two sites within the nearshore environment to determine whether depth significantly influenced biomass. Multivariate analysis was used to identify causative relationships between the species composition of diatom communities and corresponding physical and chemical variables from 51 sites within the nearshore subtidal environment of south-east Tasmania.</p>
SPATIAL EXTENT	Biomass study – Tinderbox and Coningham Beach; broader study to relate water quality to diatoms - 51 sites in south-east Tasmania, including 17 within the D'Entrecasteaux Channel/Huon study area
TEMPORAL EXTENT	Biomass study - six days spread across January to April 2001; broader study - 3 days during October/November 2001

DATA LIMITATIONS	
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Christopher Lane
CITATION/S	Lane, C. (2005). The use of diatoms as biological indicators of water quality, and for environmental reconstruction, in south-east Tasmania, Australia. PhD Thesis. University of Tasmania.

ID	81
NAME	Ecology of moon jellyfish <i>Aurelia</i> sp. in southern Tasmania in relation to Atlantic salmon farming
PARAMETERS	Biota: Moon jellyfish - medusa and scyphistomae (sessile polyp) stages Water quality: temperature, salinity
DESCRIPTION	<p>This study investigated the moon jellyfish <i>Aurelia</i> sp. in southern Tasmania, including the following aspects:</p> <ul style="list-style-type: none"> • Patterns of occurrence of medusa blooms, and links with the environment • Population dynamics and aggregatory mechanisms of medusa in the Huon Estuary • Population dynamics of scyphistomae (sessile polyp stage) in south-east Tasmania • An experimental study of the effects of temperature and salinity on asexual reproduction of scyphistomae <p>Applied significance was described, including implications for the Atlantic salmon farming industry.</p>
SPATIAL EXTENT	Medusae study - Huon Estuary; scyphistomae study – Kettering (and Derwent Estuary)
TEMPORAL EXTENT	Medusae - December 2002 to January 2003; scyphistomae - October 2002 to December 2004
DATA LIMITATIONS	
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Simon Willcox
CITATION/S	Willcox, S.T. (2006). Ecology of moon jellyfish <i>Aurelia</i> sp. in southern Tasmania in relation to Atlantic salmon farming. PhD Thesis. University of Tasmania.

ID	82
NAME	Baseline metal levels in selected faunal species from the Derwent Estuary and surrounding areas
PARAMETERS	Seafood Safety: metals in zooplankton, other invertebrates, macroalgae, sharks and skates (note that some species sampled are not 'seafood' but this study links most closely with the issue of seafood safety)
DESCRIPTION	<p>This project was primarily performed in the Derwent Estuary, but also involved limited sampling in the Huon Estuary and the southern end of Bruny Island. The Derwent Estuary is a site of significant heavy metal contamination, with metal toxicity a significant problem that limits both commercial and amateur food gathering. Bioaccumulation of metals up the food chain has been noted as an area of concern, with further assessment needed to determine the heavy metal loadings of a wider range of marine species, from a broader range of trophic levels. Consequently, the objective of this project was to undertake a pilot study to measure heavy metal concentrations in a range of species</p>

	from pelagic and benthic habitats within the Derwent Estuary and surrounding areas.
SPATIAL EXTENT	Primarily the Derwent Estuary, but additional zooplankton, macroalgal and invertebrate samples were collected from the Huon Estuary to provide a basis for comparison with organisms living in a relatively unimpacted environment. Specimens of sharks and skates collected at the southern end of Bruny Island were included in the analysis to represent top-predators.
TEMPORAL EXTENT	Huon Estuary: August 2008; Bruny Island: ?
DATA LIMITATIONS	Limited sampling within the study area because of the focus being primarily on the Derwent Estuary.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Kerrie Swadling
CITATION/S	Swadling, K. and Macleod, C. (2008). Baseline metal levels in selected faunal species from the Derwent Estuary and surrounding areas. Draft Report to Coastal Catchments Initiative and the Derwent Estuary Program. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.

ID	83
NAME	Benthic respiration and nutrient cycling in the Huon Estuary
PARAMETERS	Water quality: temperature, salinity, nutrients Sediment quality: particle size analysis, porosity, total organic carbon, stable isotopes (carbon and nitrogen, incorporating C:N ratio), lipid biomarkers, benthic respiration, effect of carbon loading on sediment fluxes, sediment-water interface – nutrients, alkalinity, oxygen, pH, ΣCO_2
DESCRIPTION	<p>This project studied sediment biogeochemistry in the Huon Estuary. The sources of organic matter and rates of decomposition were investigated as well as fluxes of nutrients, which are liberated during organic matter decomposition. The study aimed to develop a conceptual understanding of benthic respiration and nutrient cycling in the Huon Estuary and the influence of organic carbon on these processes. This study also sought to evaluate the ecological significance of nutrient inputs from sediments compared with other nutrient sources to the estuary.</p> <p>Note that the majority of this work was reported or summarised in reports for study IDs: 4 and 5, and has largely been documented for these study ID numbers in the spreadsheet files that accompany the current D'Entrecasteaux Channel/lower Huon Estuary data inventory report.</p>
SPATIAL EXTENT	Upper and lower reaches of the Huon Estuary
TEMPORAL EXTENT	Sampling in March, July and November in 2004 and at additional sites in April 2005
DATA LIMITATIONS	Many aspects were concerned with biogeochemical processes and hence involved laboratory manipulations rather than direct measures of environmental conditions in the Huon Estuary, although some in situ sampling was also incorporated.
CUSTODIAN	University of Tasmania, CSIRO Marine and Atmospheric Research
CONTACT PERSON	Dean Thompson (University of Tasmania)
CITATION/S	Thomson, D.C. (2008) Benthic respiration and nutrient cycling in the Huon Estuary (Southern Tasmania). PhD thesis, University of Tasmania.

ID	84
NAME	Algal-bacterial interactions: a study of <i>Gymnodinium catenatum</i> and its associated bacteria
PARAMETERS	Biota: bacteria Water quality: phytoplankton abundance/taxonomy and cell density
DESCRIPTION	<p>Using experimental model systems, this study examined the growth dynamics of <i>G. catenatum</i> and its associated bacteria, and studied the effect of bacteria on the toxicity of <i>G. catenatum</i>. The model systems involved <i>G. catenatum</i> and two of its associated bacteria known to support growth and survival of <i>G. catenatum</i> in culture.</p> <p>The study was based largely on laboratory culture experiments, with cultured strains obtained from the the Australian National Algae Culture Collection. Strains used had been collected from the Huon Estuary, Verona Sands and additional sites (Derwent Estuary, east coast Tasmania). Algal-bacterial interactions in the field were also measured on the basis of field water and plankton net samples.</p>
SPATIAL EXTENT	Field sampling – Port Esperance, Deep Bay (Huon Estuary), Fleurtys Point and Woodbridge (D’Entrecasteaux Estuary) (plus CSIRO Wharf in the Derwent Estuary)
TEMPORAL EXTENT	Field sampling May 2008; laboratory studies included strains isolated between 1986 and 2002.
DATA LIMITATIONS	Some aspects were based solely on laboratory culture experiments.
CUSTODIAN	University of Tasmania, CSIRO Marine and Atmospheric Research
CONTACT PERSON	Elisabeth Albinsson (University of Tasmania)
CITATION/S	Albinsson, E.M. (2011) Algal-bacterial interactions: a study of <i>Gymnodinium catenatum</i> and its associated bacteria. PhD Thesis, University of Tasmania.

ID	85
NAME	Impact of the introduced New Zealand Screwshell <i>Maoricolpus roseus</i> on soft-sediment assemblages
PARAMETERS	Biota: New Zealand screwshell <i>Maoricolpus roseus</i> , scallops, infauna, epifauna, microphytobenthos Sediment quality: particle size analysis, organic content (LOI) Water quality: temperature, dissolved oxygen, light (PAR)
DESCRIPTION	This study employed a combination of qualitative surveys and in situ manipulative experiments at a variety of spatial, temporal and conceptual scales in order to develop a robust quantitative assessment of the impact of the introduced New Zealand screwshell <i>Maoricolpus roseus</i> . Impacts were assessed in relation to benthic community structure, benthic community function (‘metabolism’), and abundance, growth and development of commercially important scallop species.
SPATIAL EXTENT	D’Entrecasteaux Channel – experimental site at Bligh Pt, north Bruny Island; sampling at 20 sites throughout the D’Entrecasteaux Channel for studies of impacts on scallops.
TEMPORAL EXTENT	Variable dates for different experiments/survey components, with field work occurring primarily during 2005-2007
DATA LIMITATIONS	Some data are from experimental manipulations and hence these were focussed on testing hypotheses rather than measuring current state of the biota and environment.

CUSTODIAN	Institute of Marine and Antarctic Studies, University of Tasmania
CONTACT PERSON	Anthony Reid (now at the Department of Primary Industries, Parks, Water and Environment, Tasmania)
CITATION/S	Reid, A.P. (2010) Impact of the introduced New Zealand Screwshell <i>Maoricolpus roseus</i> on soft-sediment assemblages in southeast Tasmania. PhD Thesis. University of Tasmania.

4.3 Descriptions of general information sources

A summary list of all of the general information sources described in this section is presented in Table 2.

Table 2 List of general information sources compiled for the D’Entrecasteaux Channel and lower Huon Estuary since 1999.

ID	Name of general information source	Custodian/s
G1	A Directory of Important Wetlands in Australia: Tasmania	DPIPWE
G2	A guide to the waterways of southern Tasmania	DPIPWE
G3	A Regional Ecosystem Model for prioritising the planning and management of biodiversity	KC/NRM South
G4	A review of the ecological impacts of antibiotics and antifoulants used in Tasmanian salmonid farming	IMAS (UTas)
G5	A revision of the Australian handfishes	CSIRO
G6	A summary of the geology and mineral deposits of Tasmania	MRT
G7	A survey strategy and environmental monitoring network for an estuary supporting finfish culture	CSIRO
G8	An assessment of surface water quality monitoring in the NRM South region	HTC/NRM South
G9	Australian Historic Shipwrecks Database	SEWPaC
G10	Australian Soil Resource Information System	CSIRO Australia
G11	Biolinks: biodiversity values at the landscape scale in the Huon Valley and D’Entrecasteaux Channel	KC/HVC
G12	Bird data, Birdlife IBA Important Bird Areas	Birds Australia
G13	Bruny Bioregion Marine Protected Area Inquiry	TPC
G14	Bruny Island Roadside Weed Management Plan	Kingborough Council
G15	Bruny Island Weed Management Strategy	Kingborough Council
G16	CFEV Assessment of the North West Bay River Catchment	DPIPWE
G17	Change in introduced species distributions and habitat condition in the D’Entrecasteaux Channel	IMAS (UTas)
G18	Channel Weed Management Strategy 2008-2013	Kingborough Council
G19	Climate change cascades: shifts in oceanography, species' ranges and subtidal community dynamics	IMAS (UTas)
G20	Climate-driven range expansion of <i>Noctiluca scintillans</i> into the Southern Ocean	CSIRO
G21	Coningham Nature Recreation Area: Management Statement 2009	DPIPWE
G22	Contaminated sites databases, Environment Protection Authority	DPIPWE
G23	Contaminated sites spatial dataset, Kingborough Council	Kingborough Council
G24	D’Entrecasteaux Channel Marine Farming Development Plan	DPIPWE
G25	Daily weather observations	Bureau of Meteorology

ID	Name of general information source	Custodian/s
G26	D'Entrecasteaux Channel hydrographic chart	Royal Australian Navy
G27	Digital Geology of Tasmania	MRT
G28	Environmental management goals for Tasmanian waters	DPIPWE
G29	Environmental risk assessment of shellfish farming in Tasmania	IMAS (UTas)
G30	Fishing guide for the D'Entrecasteaux Channel and Bruny Island	DPIPWE
G31	Global toxicology, ecophysiology and population relationships of <i>Gymnodinium catenatum</i>	IMAS (UTas)
G32	Huon Estuary fish farm load scenarios	HAC/CSIRO
G33	Huon River and Port Esperance Marine Farming Development Plan	DPIPWE
G34	Huon Trail Tasmania, tourist attractions database	Tourism operators
G35	Huon Valley Land Use and Development Strategy	Huon Valley Council
G36	Huon Valley Weed Management Strategy 2007-2012	Huon Valley Council
G37	Kingborough Council spatial data sets for recreational facilities	Kingborough Council
G38	Kingborough Council spatial data sets for stormwater infrastructure	Kingborough Council
G39	Kingborough Planning Scheme 2000	Kingborough Council
G40	Land Capability Survey of the D'Entrecasteaux	DPIPWE
G41	Level 2 activities assessment documents, Environment Protection Authority	DPIPWE
G42	Level 2 activities database, Environment Protection Authority	DPIPWE
G43	Managing Threatened species and communities on Bruny Island	DPIPWE
G44	Marine facilities spatial data, Huon Valley Council	Huon Valley Council
G45	Marine facilities spatial data, Kingborough Council	Kingborough Council
G46	Marine facilities, Marine and Safety Tasmania	MAST
G47	Marine Structures Assessment Project	DPIPWE
G48	National Pollutant Inventory	SEWPaC
G49	Nicholls Rivulet Rivercare Plan	Huon Valley Council
G50	NRM South Catchment summaries	NRM South
G51	Peter Murrell State Reserve and Conservation Area: Fire Management Plan 2006	DPIPWE
G52	Population change in Kingborough, 2001-2011	Kingborough Council
G53	Recreational boating survey results: 2010	MAST
G54	Regional population growth: estimated resident population for Statistical Local Areas in Tasmania	ABS
G55	Risk assessment of impacts of climate change for key marine species in South Eastern Australia	IMAS (UTas)
G56	Scalefish fishery management plan review	DPIPWE
G57	Scoping study into adaptation of the Tasmanian salmonid aquaculture industry to climate change	IMAS (UTas)/CSIRO
G58	Sea-level extremes in Tasmania	DPIPWE
G59	Sewage spills database, Southern Water	Southern Water

ID	Name of general information source	Custodian/s
G60	Shipping Data, Tasports	Tasports
G61	South Bruny National Park and Nature Reserves Management Plan	DPIPWE
G62	Southern Tasmanian Regional Land Use Strategy, 2010-2035	STCA
G63	Southern Tasmanian Weed Strategy	NRM South
G64	Species Profile and Threats Database	SEWPaC
G65	Spills and incidents database, Environment Protection Authority	DPIPWE
G66	State of the Environment Tasmania 2009	TPC
G67	State road spatial data set	DIER
G68	Survey of recreational fishing in Tasmanian: 2007-2008	IMAS, UTas
G69	Tasmania infrastructure report card 2010: water	Engineers Australia
G70	Tasmanian Aboriginal Site Index	AHT
G71	Tasmanian Coastal Inundation Mapping Project	TPC
G72	Tasmanian Heritage Register	Heritage Tasmania
G73	Tasmanian Natural Values Atlas	DPIPWE
G74	Tasmanian recreational rock lobster and abalone fisheries: 2008-09 fishing season	IMAS (UTas)
G75	Tasmanian Reserve Estate spatial layer	DPIPWE
G76	Tasmanian Slipways Management Framework	DPIPWE
G77	Tasmanian Visitor Survey data	Tourism Tasmania
G78	TASVEG updates, Kingborough municipality	Kingborough Council
G79	TASVEG updates, Huon Valley municipality	Huon Valley Council
G80	TASVEG Version 2.0	DPIPWE
G81	The South-east Regional Marine Plan indigenous assessment	SEWPaC
G82	The Tail of Two Rivers in Tasmania: The Derwent and Huon Estuaries	CSIRO
G83	Vulnerability of Tasmania's natural environment to climate change: an overview	DPIPWE
G84	Water quality in the Warra Long-Term Ecological Research study area 1998–2006	Forestry Tasmania
G85	Water quality of rivers in the Huon Catchment	DPIPWE

ID	G1
NAME	A Directory of Important Wetlands in Australia: Tasmania
CITATION/S	Blackhall, S.A., McEntee, A.C. and Rollins, E. (2001). Tasmania. In: Environment Australia (Ed): A Directory of Important Wetlands in Australia, Third Edition. Tasmania Parks and Wildlife Service.
DESCRIPTION	A report documenting wetlands in Tasmania that are listed on the Directory of Important Wetlands of Australia. The sites are allocated to a wetland category and information on their areal extent, location and values is provided. Two sites in the D'Entrecasteaux Channel/adjacent coast are included: Oyster Cove and D'Arcy's Lagoon.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G2
NAME	A guide to the waterways of southern Tasmania
CITATION/S	DPIW (2006). Cruising southern Tasmania: a guide to the waterways of the River Derwent, D'Entrecasteaux Channel, Huon River and their tributaries. Edition 3. Produced by TASMAP, Department of Primary Industries and Water.
DESCRIPTION	A guide to waterways including the D'Entrecasteaux Channel and Huon Estuary, with maps indicating bathymetry, and locations of anchorages, reefs, public boat ramps and jetties, navigation lights, beacons/piles and other features relevant to boating.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania

ID	G3
NAME	A Regional Ecosystem Model for prioritising the planning and management of biodiversity
CITATION/S	Knight, R.I. (2012). A Regional Ecosystem Model for prioritising the planning and management of biodiversity in the Kingborough Council and NRM South 'Mountain to Marine' project areas. A report to Kingborough Council and NRM South, May 2012. Natural Resource Planning, Hobart, Tasmania.
DESCRIPTION	<p>This project prioritised remnant and native vegetation in the Kingborough municipality and NRM South Mountain to Marine project area. The project included:</p> <ul style="list-style-type: none"> • development of a metric to determine the significance/importance of remnant vegetation • Rapid assessments of the condition and habitat values of remnant vegetation in areas under development pressure starting with <i>Eucalyptus amygdalina</i> forest and woodland on sandstone in Kingborough • Application of the metric to undertake a GIS analysis of the significance of all remnant vegetation within the project area <p>Data were pooled from pre-existing sources; some field mapping was conducted but did not include sites within the data inventory study area.</p>
CUSTODIAN	Kingborough Council and NRM South

ID	G4
NAME	A review of the ecological impacts of antibiotics and antifoulants used in Tasmanian salmonid farming
CITATION/S	<p>Macleod, C. and Eriksen, R. (2009). A review of the ecological impacts of selected antibiotics and antifoulants currently used in the Tasmanian salmonid farming industry (Marine Farming Phase). FRDC Final Report (Project No. 2007/246), Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.</p> <p>Macleod, C. and Eriksen, R. (2011). Antibiotics in salmonid aquaculture: environmental considerations for marine cage farming in: Fish Farms: Management, Disease Control and the Environment, Andrews, G.L. and Vexton, L.A. (Eds.), Nova Publishing Ltd.</p> <p>Eriksen, R. and Macleod, C. (2011). Antifoulants in salmonid aquaculture: environmental considerations for marine cage farming in: Fish Farms: Management, Disease Control and the Environment, Andrews, G.L. and Vexton, L.A. (Eds.), Nova Publishing Ltd.</p>
DESCRIPTION	Includes data on antibiotic usage (kg) for calendar years 2006, 2007 and 2008 in the salmon industry, with separate data for the D'Entrecasteaux Channel and Huon Estuary; discusses broadly the environmental impacts of antibiotic use.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania

ID	G5
NAME	A revision of the Australian handfishes
CITATION/S	Last, P.R. and Gledhill, D.C. (2009). A revision of the Australian handfishes (Lophiiformes: Brachionichthyidae), with descriptions of three new genera and nine new species. Zootaxa 2252: 1-77.
DESCRIPTION	A taxonomic revision of the Australian handfishes, incorporating information on records of threatened handfish species in the D'Entrecasteaux Channel.
CUSTODIAN	CSIRO Marine and Atmospheric Research

ID	G6
NAME	A summary of the geology and mineral deposits of Tasmania
CITATION/S	Seymour, D.B., Green, G.R. and Calver, C.R. (2007). The geology and mineral deposits of Tasmania: a summary. Tasmanian Geological Survey Bulletin 72. Mineral Resources Tasmania. Department of Infrastructure, Energy and Resources, Tasmania.
DESCRIPTION	A summary of the current state of knowledge of the geology of Tasmania, including a description of geological diversity and mineral deposits, compiled using information from a range of other published and unpublished sources. There is no particular focus on the D'Entrecasteaux Channel/Huon Estuary region however it is incorporated in the maps provided.
CUSTODIAN	Mineral Resources Tasmania, Department of Infrastructure, Energy and Resources, Tasmania

ID	G7
NAME	A survey strategy and environmental monitoring network for an estuary supporting finfish culture
CITATION/S	Butler, E.C.V., Blackburn, S.I., Clementson, L.A., Morgan, P.P., Parslow, J.S. and Volkman, J.K. (2001). A survey strategy and environmental monitoring network for an estuary supporting finfish cage culture. ICES Journal of Marine Science 58: 460-468.
DESCRIPTION	Presents the basis for a survey strategy for the Huon Estuary, which considers the entire estuary as a system and is aimed at evaluating its present status and functioning. It draws on the methods used in the Huon Estuary Program (Study ID: 2) and other studies, and emphasises the need for integrated, interdisciplinary scientific monitoring of both catchment and marine waterways.
CUSTODIAN	CSIRO Marine and Atmospheric Research

ID	G8
NAME	An assessment of surface water quality monitoring In the NRM South region
CITATION/S	Hydro Tasmania Consulting (2008). Stage 1 Report: an assessment of surface water quality monitoring in the NRM South region, Tasmania. Volume 2: Catchment chapters. Prepared by Hydro-Electric Corporation, Tasmania.
DESCRIPTION	A report describing water quality monitoring activities and related programs in catchments, including information for the Derwent Estuary/Bruny and Huon catchments. Includes summary information on land use, water quality analytes measured and frequency of measurement, and identifies gaps in monitoring of certain catchment activities. Data compiled in September 2007, and some monitoring activities listed have since ceased.
CUSTODIAN	Hydro Tasmania Consulting/NRM South

ID	G9
NAME	Australian Historic Shipwrecks Database
CITATION/S	SEWPaC (2009). Australian Historic Shipwrecks Database. Department of Sustainability, Environment, Water, Population and Communities. Available at: http://www.environment.gov.au/heritage/shipwrecks/database.html
DESCRIPTION	The Australian National Shipwrecks Database (ANSDB) was launched in December 2009. This database includes all known shipwrecks in Australian waters. New features of the ANSDB include many extra fields of information, such as site environment information for divers and site managers and a history field. Numerous shipwrecks are recorded on the database for the D'Entrecasteaux Channel/lower Huon Estuary.
CUSTODIAN	Commonwealth Department of Sustainability, Environment, Water, Population and Communities

ID	G10
NAME	Australian Soil Resource Information System
CITATION/S	CSIRO (2010). Australian Soil Resource Information System. CSIRO Australia. Available at: http://www.asris.csiro.au/index_ie.html .

DESCRIPTION	The Australian Soil Resource Information System (ASRIS) provides online access to available soil and land resource information in a consistent format across Australia. It includes, for example, mapping information for the presence or likelihood of acid sulphate soils.
CUSTODIAN	CSIRO Australia

ID	G11
NAME	Biolinks: biodiversity values at the landscape scale in the Huon Valley and D'Entrecasteaux Channel
CITATION/S	Rowland, M. (2008). Biolinks: maintaining and improving biodiversity values at the landscape scale in the Huon Valley and D'Entrecasteaux Channel. Report of the methodology development for a spatial analysis tool to prioritise areas for nature conservation based on principles of landscape connectivity. Prepared for the Kingborough and Huon Valley councils.
DESCRIPTION	<p>The Biolinks mapping method used satellite imagery of the Kingborough and Huon municipal regions and natural values spatial data to map areas of high natural value, as a means to identify priority areas for protection to efficiently maintain, increase and improve connectivity across the landscape. Spatial layers depicting a mosaic structure of polygons were developed to create maps to be utilised by regional planners and conservation managers. Connectivity of closely adjoining remnants were identified for the path of notional 'spines' or corridor lines mapped as polylines, aimed at large-scale connectivity to reconnect and/or prevent isolation of larger remnants. Mapping outputs were used to target priority areas for a range of on-ground works and to combat incremental vegetation loss and degradation of biodiversity.</p> <p>Objectives are summarised as:</p> <ul style="list-style-type: none"> • Improve connectivity and condition of ecosystems at the landscape scale across two municipal areas. • Protect National and State-listed threatened species and communities. • Address threats to National and State-listed threatened species and communities, including weeds, inappropriate stock access and fragmentation. <p>Protection of coastal areas containing remnant foreshore vegetation, wetlands and saltmarshes were identified as a significant inclusion in a system of connectivity and habitat protection.</p>
CUSTODIAN	Kingborough Council and Huon Valley Council

ID	G12
NAME	Bird data, Birdlife IBA Important Bird Areas
CITATION/S	Birds Australia (2005-2007). Bird data, Birdlife IBA Important Bird Areas. Birds Australia. Available at: http://www.birdsaustralia.com.au/our-projects/important-bird-areas.html .
DESCRIPTION	Important Bird Areas (IBAs) are sites that have been recognised as internationally important for bird conservation and known to support key bird species. To date, 314 sites Australia-wide have been designated as IBAs. An

	online database provides information on each IBA including a list of species denoting internationally significant values and information on their abundances. Two IBAs, the South-east Tasmania IBA and Bruny Island IBA together occupy all of the coast (excluding small islands) within the D'Entrecasteaux Channel/lower Huon Estuary study area. Species of primary importance in these IBAs are terrestrial birds, although two shorebirds are considered important within the Bruny Island IBA.
CUSTODIAN	Birds Australia

ID	G13
NAME	Bruny Bioregion Marine Protected Area Inquiry
CITATION/S	<p>RPDC (2006). Inquiry into the establishment of marine protected areas within the Bruny Bioregion. Background report, Resource Planning & Development Commission, Tasmania.</p> <p>RPDC (2007). Inquiry into the establishment of marine protected areas within the Bruny Bioregion. Interim report, Resource Planning & Development Commission, Tasmania.</p> <p>RPDC (2007). Inquiry into the establishment of marine protected areas within the Bruny Bioregion. Draft recommendations report, Resource Planning & Development Commission, Tasmania.</p> <p>RPDC (2008). Inquiry into the establishment of marine protected areas within the Bruny Bioregion: Final Recommendations Report, Resource Planning & Development Commission, Tasmania.</p>
DESCRIPTION	<p>Reports on an inquiry into the establishment of marine protected areas (MPAs) in the Interim Marine and Coastal Regionalisation of Australia Bioregion known as the Bruny Bioregion (incorporating the D'Entrecasteaux Channel, Huon Estuary and adjacent coastal waters of south east Tasmania). The reports incorporate descriptions of the physical environment, biological communities, cultural and heritage values, current management area status and human uses of coastal waters within the bioregion. They also describe the process of applying the CAR principles (Comprehensive, Adequate, representative) to selection of recommended areas to be protected as MPAs, threatening processes, priorities and potential management arrangements. The criteria met by recommended MPAs are outlined in detail for each site, including six areas with the D'Entrecasteaux Channel/lower Huon Estuary.</p>
CUSTODIAN	Tasmanian Planning Commission

ID	G14
NAME	Bruny Island Roadside Weed Management Plan
CITATION/S	Chamberlain, B. and Strain, C. (2009). Bruny Island Roadside Weed Management Plan, Kingborough Council roadsides. Report prepared by Beth Chamberlain - Environmental Consultant, and Cassandra Strain - Vegetation Surveys and Environmental Consulting.
DESCRIPTION	The primary purpose of the Bruny Island Roadside Weed Management Plan – Kingborough Council Roadsides (WMP) is to provide a framework for integrated strategic weed management to minimise the threat of introducing

	<p>new weeds, and spread of existing weeds, on Bruny Island roadsides. The WMP addresses the following goals of the Bruny Island Weed Management Strategy:</p> <ul style="list-style-type: none"> • Prioritise weed species for eradication or containment. • Map infestations of priority weed species. • Develop processes that will reduce the risk of introduction and spread of weeds on Bruny Island. • Improve the level of training provided within agencies & industry – weed identification and management techniques. • Improve community awareness and knowledge of weed issues on Bruny Island. <p>The report maps Council roads, lists weeds and describes their distribution on Bruny Island, and lists and maps weeds on particular roads.</p>
CUSTODIAN	Kingborough Council

ID	G15
NAME	Bruny Island Weed Management Strategy
CITATION/S	Chamberlain, B. (2007). Bruny Island Weed Management Strategy. Report prepared by Beth Chamberlain, Environmental Consultant.
DESCRIPTION	<p>In September 2006 a range of stakeholders met at Kingborough Council to discuss weed management on Bruny Island, and resolved that a Weed Management Strategy was required for the island. Field research and weed mapping were subsequently conducted to identify priority areas for weed management and to establish factors contributing to the introduction and spread of weeds on Bruny Island. The Bruny Island Weed Management Strategy is a local strategy that will contribute towards addressing targets from the Natural Resource Management South Strategy.</p> <p>The strategy lists and maps weeds on Bruny Island, and also maps threatened native vegetation communities, threatened flora records, threatened fauna records, CAR reserves, and vegetation.</p>
CUSTODIAN	Kingborough Council

ID	G16
NAME	CFEV Assessment of the North West Bay River Catchment
CITATION/S	DPIW (2008). CFEV Assessment of the North West Bay River Catchment. Water Assessment Aquatic Ecology Report Series (Internal Ref No. WA08/48). Water Assessment Branch, Department of Primary Industries and Water, Hobart.
DESCRIPTION	The environmental values of the North West Bay River catchment, in south-eastern Tasmania, were derived from an interrogation of the Conservation of Freshwater Ecosystem Values (CFEV) Program database and a summary of these values is presented in this report. A description of the North West Bay catchment is included, and values are described for the following ecosystems: rivers, wetlands, saltmarshes and estuaries.
CUSTODIAN	Water and Marine Resources Division, Department of Primary Industries, Parks, Water and Environment

ID	G17
NAME	Change in introduced species distributions and habitat condition in the D'Entrecasteaux Channel
CITATION/S	Hamilton, C. (2011). Change in introduced species distributions and habitat condition in the D'Entrecasteaux Channel 1999-2011. Report For Kingborough Council. University of Tasmania.
DESCRIPTION	A university undergraduate report conducted to synthesise all current available information and review any changes in known introduced species in the D'Entrecasteaux Channel from 1999-2011. Changes in species composition and distribution, management of introduced species and community awareness were addressed. These were focal points identified for ongoing work in the 2000 Strategic Management and Strategic Action Plan developed based on the results of the 1999 State of the D'Entrecasteaux Channel Report. Since 1999 numerous studies have focused on introduced species in the Channel, however this study is the first attempt since 1999 to collate information relating to introduced marine species in the D'Entrecasteaux Channel.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania

ID	G18
NAME	Channel Weed Management Strategy 2008-2013
CITATION/S	Schrammeyer, E. (2008). Channel Weed Management Strategy 2008-2013. Report prepared for Kingborough Council. Tasmanian Land and Water Professionals Pty Ltd.
DESCRIPTION	<p>Objectives:</p> <ul style="list-style-type: none"> • Resources: To identify, secure, share, manage and efficiently use weed • Manage resources across government, community and industry in the Kingborough municipality • Biosecurity: To prevent new weeds becoming established and minimise the spread of existing, emerging and sleeper weeds. • Prioritisation and integration: To define weed management priorities and address them in an integrated manner. • Coordination and cooperation: To conduct weed management in a strategic, coordinated and cooperative manner. • Education, training and awareness: To improve weed awareness, weed identification and management skills and knowledge amongst all land managers. • Policy support and regulation: To encourage support of, and improve compliance with, the <i>Weed Management Act 1999</i> throughout government, community and industry by implementing adequate weed management procedures and actions. • Research and development: To increase knowledge and understanding of weed threats and effective techniques for their management. • Monitoring and evaluation: To regularly monitor, evaluate and follow-up weed mapping and management activities. <p>It provides lists and GIS maps for declared weeds in the Kingborough Municipality. Maps exclude Bruny Island.</p>
CUSTODIAN	Kingborough Council

ID	G19
NAME	Climate change cascades: shifts in oceanography, species' ranges and subtidal community dynamics
CITATION/S	Johnson, C.R., Banks, S.C., Barrett, N.S., Cazassus, F., Dunstan, P.K. Edgar, G.J., Frusher, S.D., Gardner, C., Haddon, M., Helidoniotis, F., Hill, K.L., Holbrook, N.J., Hosie, G.W., Last, P.R., Ling, S.D., Melbourne-Thomas, J., and K. Miller, Pecl, G.T., Richardson, A.J., Ridgway, K.R., Rintoul, S.R., Ritz, D.A., Ross, J., Sanderson, J.C., Shepherd, S.A., Slotwinski, A., Swadling, K.M. and Tawd, N. (2011). Climate change cascades: shifts in oceanography, species' ranges and subtidal marine community dynamics in eastern Tasmania. <i>Journal of Experimental Marine Biology and Ecology</i> 400: 17-32.
DESCRIPTION	Several lines of evidence show that ocean warming off the east coast of Tasmania is the result of intensification of the East Australian Current (EAC). Increases in the strength, duration and frequency of southward incursions of warm, nutrient poor EAC water transports heat and biota to eastern Tasmania. This shift in large-scale oceanography is reflected by changes in the structure of nearshore zooplankton communities and other elements of the pelagic system. The study reports evidence that the direct effects of changing physical conditions have precipitated cascading effects of ecological change in benthic (rocky reef) and pelagic systems. However, some patterns correlated with temperature have plausible alternative explanations unrelated to thermal gradients in time or space. The article identifies knowledge gaps that need to be addressed to adequately understand, anticipate and adapt to future climate-driven changes in marine systems in the region. It relates to the broader east coast of Tasmania with some, limited, reference to the D'Entrecasteaux Channel/Huon region.
CUSTODIAN	Institute of Marine and Antarctic Studies, University of Tasmania

ID	G20
NAME	Climate-driven range expansion of <i>Noctiluca scintillans</i> into the Southern Ocean
CITATION/S	McLeod, D.J., Hallegraeff, G.M., Hosie, G.W. and Richardson, A.J. (2012). Climate-driven range expansion of the red-tide dinoflagellate <i>Noctiluca scintillans</i> into the Southern Ocean. <i>Journal of Plankton Research</i> 34(4): 332-337.
DESCRIPTION	This paper describes a climate-driven range expansion of the red-tide dinoflagellate <i>Noctiluca scintillans</i> into the Southern Ocean. Sea surface height data showed that a warm-core eddy moving southwards from Tasmania was the potential vector for the transport of <i>Noctiluca</i> . While the focus is on the Southern Ocean, it mentions that previously the most southerly noted occurrence of this species was the Huon Estuary and D'Entrecasteaux Channel, as described further in study ID: 15.
CUSTODIAN	CSIRO Marine and Atmospheric Research

ID	G21
NAME	Coningham Nature Recreation Area: Management Statement 2009
CITATION/S	DPIPWE (2009). Coningham Nature Recreation Area. Management Statement 2009. Department of Primary Industries, Parks, Water and Environment, Tasmania.

DESCRIPTION	The Coningham Nature Recreation Area (NRA) is reserved principally for the protection of its vegetation as well as listed threatened species, aboriginal heritage and to provide opportunities for a range of recreational pursuits. This draft reserve management statement is aimed at improving conservation outcomes and recreation opportunities for the Coningham NRA. It describes the reserve and its values (e.g. geoheritage, coastal geomorphic landforms, vegetation values, and priority habitat values) and provides strategies to protect the unique natural diversity and rich cultural values.
CUSTODIAN	Parks and Wildlife Service, Department of Primary Industries, Parks, Water and Environment, Tasmania.

ID	G22
NAME	Contaminated sites databases, Environment Protection Authority
CITATION/S	Unpublished data
DESCRIPTION	<p>Contaminated sites and potentially contaminating activities can be identified using searches of several databases managed by the Environment Protection Authority (EPA). Databases include:</p> <ul style="list-style-type: none"> • Contaminated Sites database - registered contaminated sites • New Environmental Licensing and Monitoring System (NELMS) - 'potentially contaminating activities' • Environmentally Relevant Land Use Register (ERLUR) - historical information on specific land uses or potentially contaminating activities. • TASRAM - a risk based database of all the known landfills in Tasmania, including open and closed tips <p>These databases are likely to only contain a subset of contaminated sites and related activities within the region.</p>
CUSTODIAN	Environment Protection Authority, Department of Primary Industries, Parks, Water and Environment

ID	G23
NAME	Contaminated sites spatial dataset, Kingborough Council
CITATION/S	Unpublished data
DESCRIPTION	Kingborough Council has developed a GIS layer of contaminated sites within the municipality. The layer is not complete and many additional sites are yet to be added. Kingborough Council has indicated that the current data inventory study area will be the highest priority for outstanding site data entry in order to inform the State of the D'Entrecasteaux Channel/lower Huon Estuary project.
CUSTODIAN	Kingborough Council

ID	G24
NAME	D'Entrecasteaux Channel Marine Farming Development Plan
CITATION/S	DPIWE (2002). D'Entrecasteaux Channel Marine Farming Development Plan February 2002. Prepared by the Food, Agriculture & Fisheries Division, Department of Primary Industries, Water and Environment, Tasmania.
DESCRIPTION	A plan for the D'Entrecasteaux Channel describing Marine Farming Zones and management controls. For individual zones, the plan describes location, zone area, maximum leasable area, categories of fish and any management controls

	specific to the zone. Management controls are also described in relation to the D'Entrecasteaux Channel Marine Farming Development Plan area generally, such as environmental controls regarding carrying capacity and monitoring, chemical controls and waste controls. Note that two approved amendment documents have been released since preparation of the 2002 MFDP document.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania.

ID	G25
NAME	Daily weather observations
CITATION/S	BOM (2012). Daily weather observations. Bureau of Meteorology. Available at: http://www.bom.gov.au/tas/observations/map.shtml .
DESCRIPTION	Data on minimum and maximum temperature, rainfall and other climate characteristics are recorded daily at four locations within or immediately adjacent to the study area: Dover, Geeveston, Bull Bay (north Bruny Island), and Cape Bruny (south Bruny Island). Data for the most recent 14 months are publicly available.
CUSTODIAN	Bureau of Meteorology

ID	G26
NAME	D'Entrecasteaux Channel hydrographic chart
CITATION/S	Royal Australian Navy (2008). D'Entrecasteaux Channel, Australia, Tasmania, Hydrographic Service R.A.N., Chart AUS 173. Hydrographic charts of Australian, Papua New Guinean and Antarctic Waters Series. Royal Australian Navy Hydrographic Service, Commonwealth of Australia.
DESCRIPTION	A hydrographic chart specific to the D'Entrecasteaux Channel, and incorporating the Huon Estuary. It includes relief shown by soundings, bathymetric isolines and tints, hachures and spot heights. Scale is 1:75,000 with Little Oyster Cove at Scale 1:10,000 as an inset.
CUSTODIAN	Royal Australian Navy Hydrographic Service, Commonwealth of Australia

ID	G27
NAME	Digital Geology of Tasmania
CITATION/S	MRT (undated). 1:25,000 Scale Digital Geology of Tasmania. Available at: http://www.mrt.tas.gov.au/
DESCRIPTION	This 1:25,000 spatial data set maps the geology of Tasmania, incorporating the D'Entrecasteaux Channel/Huon Estuary region and other parts of Tasmania. The data are derived from geological reports, 1:25,000, 1:50,000 and 1:63,360 scale mapping, new field mapping and interpretation of aerial photography and airborne geophysical data. It has been compiled to fit the Land Information System Tasmania (LIST) digital topographic base. The data set currently covers around 40% of Tasmania and the capture of new data is ongoing. It is possible that mapping data for the D'Entrecasteaux Channel/Huon Estuary region predate 2000 but they are considered to represent current knowledge of the geology of the area.
CUSTODIAN	Mineral Resources Tasmania, Department of Infrastructure, Energy and Resources, Tasmania

ID	G28
NAME	Environmental management goals for Tasmanian waters
CITATION/S	<p>DPIWE (2003). Environmental management goals for Tasmanian waters: catchments in the Kingborough Municipal area (excluding the Derwent Estuary catchment) and D'Entrecasteaux Channel, Department of Primary Industries, Water and Environment.</p> <p>DPIWE (2003). Environmental management goals for Tasmanian surface waters: Huon Valley catchments, Department of Primary Industries, Water and Environment.</p>
DESCRIPTION	<p>These documents describe Protected Environmental Values (PEVs) for the Kingborough/D'Entrecasteaux Channel and Huon catchments - i.e. the water quality values and uses which are formally protected in these catchments. Examples of PEVs include:</p> <ul style="list-style-type: none"> • Protection of Aquatic Ecosystems • Recreational Water Quality and • Aesthetics • Raw Water for Drinking Water Supply • Agricultural Water Use • Industrial Water Supply <p>A general description of each catchment is also provided.</p>
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G29
NAME	Environmental risk assessment of shellfish farming in Tasmania
CITATION/S	Crawford, C. (2001). Environmental risk assessment of shellfish farming in Tasmania, Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.
DESCRIPTION	Includes reference to shellfish farming activities in the D'Entrecasteaux Channel; discusses broadly the environmental impacts and benefits of shellfish farming
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania

ID	G30
NAME	Fishing guide for the D'Entrecasteaux Channel and Bruny Island
CITATION/S	DPIPWE (2010). Fishing the D'Entrecasteaux Channel and Bruny Island, Department of Primary Industries, Parks, Water and Environment, Tasmania.
DESCRIPTION	Fishing information map and advice handout for the D'Entrecasteaux Channel and Bruny Island, outlining restrictions and indicating best locations for different types of fishing.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania.

ID	G31
NAME	Global toxicology, ecophysiology and population relationships of <i>Gymnodinium catenatum</i>
CITATION/S	Hallegraeff, G.M., Blackburn, S.I., Doblin, M.A. and Bolch, C.J.S. (2012). Global toxicology, ecophysiology and population relationships of the chainforming PST dinoflagellate <i>Gymnodinium catenatum</i> . Harmful Algae 14: 130-143.
DESCRIPTION	This is a review updating knowledge on the toxicology, ecophysiology and global population structure of the toxic dinoflagellate <i>Gymnodinium catenatum</i> . Whilst being set in a global context, it includes a Tasmanian 'bloom dynamics' case history which is based largely on information compiled in the Huon Estuary. This case history describes the relationship of bloom events to shellfish toxicity, temperature, and nutrients and also comments on predicted changes to blooms based on climate change scenarios.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania

ID	G32
NAME	Huon Estuary fish farm load scenarios
CITATION/S	Parslow, J. (2000). Huon Estuary fish farm load scenarios. Final Report. CSIRO Marine Research, Hobart.
DESCRIPTION	As part of the Huon Estuary Study (Study ID: 2), a simple model of transport, nutrient cycling and algal blooms was developed for the Huon Estuary. The Huon Aquaculture Company commissioned CSIRO to use the model to investigate a number of alternative load scenarios for its Huon Estuary salmon farming sites. This report presents and discusses model results for these scenarios.
CUSTODIAN	Huon Aquaculture Company and CSIRO Marine and Atmospheric Research

ID	G33
NAME	Huon River and Port Esperance Marine Farming Development Plan
CITATION/S	DPIWE (2002). Huon River and Port Esperance Marine Farming Development Plan February 2002. Prepared by the Food, Agriculture & Fisheries Division, Department of Primary Industries, Water and Environment, Tasmania.
DESCRIPTION	A plan for the Huon River and Port Esperance describing Marine Farming Zones and management controls. For individual zones, the plan describes location, zone area, maximum leasable area, categories of fish and any management controls specific to the zone. Management controls are also described in relation to the Huon River and Port Esperance Marine Farming Development Plan (MFDP) area generally, such as environmental controls regarding carrying capacity and monitoring, chemical controls and waste controls. Note that two approved amendment documents have been released since preparation of the 2002 MFDP document.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania.

ID	G34
NAME	Huon Trail Tasmania, tourist attractions database
CITATION/S	Australian Tourism Data Warehouse (2012). Huon Trail Tasmania, tourist attractions database. Australian Tourism Data Warehouse. Available at: http://www.huontrail.org.au/html/atsearch.php .

DESCRIPTION	Tourism Tasmania has divided Tasmania into 11 touring routes (or 'self-drive trails') that allow visitors to get a taste of a small region in a short time. The Huon Trail includes the Huon Valley, the D'Entrecasteaux Channel, Bruny Island and the Far South. This database provides a list of tourist attractions on the Huon Trail and information on each.
CUSTODIAN	Australian Tourism Data Warehouse and individual listed tourism businesses.

ID	G35
NAME	Huon Valley Land Use and Development Strategy
CITATION/S	GHD (2007). Huon Valley Land Use and Development Strategy. Report prepared by GHD for Huon Valley Council.
DESCRIPTION	A Land Use and Development Strategy aimed at setting strategic directions for future land use, prepared as part of developing a new Planning Scheme for the Huon Valley. The report includes separate chapters on natural resource management, heritage, infrastructure, transport, tourism, settlements etc, and includes land tenure and other maps. The strategy summarises relevant information on environmental management issues across the three Huon Valley Municipality planning schemes: the Huon Planning Scheme, Esperance Planning Scheme, and Port Cygnet Planning Scheme. An appendix to the report includes Heritage Listed Places within the Huon Municipality from these schemes as well as those listed by the Tasmanian Heritage Council (now Heritage Tasmania) but not listed on the above schemes.
CUSTODIAN	Huon Valley Council

ID	G36
NAME	Huon Valley Weed Management Strategy 2007-2012
CITATION/S	Strain, C. (2007). Huon Valley Weed Management Strategy 2007-2012. Report prepared for Huon Valley Council.
DESCRIPTION	<p>The Huon Valley Weed Management Strategy was developed in response to threats posed by existing and potential weeds, and in recognition that the most practical and effective way to manage a number of these is a coordinated and cooperative effort. Huon Valley weed issues include education and awareness, the coordination of on-ground activities, partnership development and the management of weeds spread along corridors.</p> <p>This strategy consolidates the weed management issues of the Huon Valley, and sets clear, achievable goals and objectives, underpinned by practical and strategic actions. It targets weeds impacting on both natural and modified environments. The strategy aims to increase efficiency and effectiveness of weed management actions by increasing the coordination of weed management, engaging a greater cross-section of the community in active weed management and focusing on prevention and on-ground action.</p> <p>It lists and maps weeds in the Huon Valley Municipality.</p>
CUSTODIAN	Huon Valley Council

ID	G37
NAME	Kingborough Council spatial data sets for recreational facilities
CITATION/S	Unpublished data
DESCRIPTION	Kingborough Council has created spatial data sets for recreational facilities, including parks and play equipment locations, sporting areas, footpaths, and tracks and trails within the municipality.
CUSTODIAN	Kingborough Council

ID	G38
NAME	Kingborough Council spatial data sets for stormwater infrastructure
CITATION/S	Unpublished data
DESCRIPTION	Kingborough Council maintains several spatial data sets documenting stormwater infrastructure. One identifies the location of all stormwater mains, whilst another identifies the location of point type features, such as manholes, headwalls/outfalls, and gross pollutant traps. Stormwater outlets discharging directly to waterways are not clearly distinguished; assistance from Kingborough Council will therefore be needed to interpret these data sets and where possible add additional information currently missing for stormwater outlets.
CUSTODIAN	Kingborough Council

ID	G39
NAME	Kingborough Planning Scheme 2000
CITATION/S	Kingborough Council (2000). Kingborough Planning Scheme 2000 (incorporating amendments to 7/5/2012): a performance based planning system. Kingborough Council.
DESCRIPTION	<p>The Kingborough Planning Scheme 2000 is aimed at achieving sustainable use and development of resources in the planning scheme area. It identifies and maps a range of zones within the Kingborough Municipality on the basis of broadly similar sets of natural, economic and community values. The zones include:</p> <ul style="list-style-type: none"> • Industrial • Business and civic • Environmental management • Residential • Primary Industries • Recreation <p>For each zone, the scheme indicates the objective, desired future character statements and strategies, a table of use classes, standards for use or development and schedules that apply. Schedules requiring assessment relate to environmental management, heritage and wide range of other management issues. A Heritage Register is included within a Heritage Schedule and incorporates sites considered to be of National, State and local significance (hence there will be overlap with certain other registers, e.g. Tasmanian Heritage Register).</p>
CUSTODIAN	Kingborough Council

ID	G40
NAME	Land Capability Survey of the D'Entrecasteaux
CITATION/S	Derose, R.C. (2001). D'Entrecasteaux Report. Land Capability Survey of Tasmania. Department of Primary Industries, Water and Environment, Tasmania.
DESCRIPTION	This map describes and classifies the land resources occurring on privately owned and leased Crown land within the D'Entrecasteaux region. The land is described and assigned land capability classes according to the system defined in the Tasmanian Land Capability Handbook. The land capability assessment categorises land units according to their ability to produce agricultural goods without impairment to their long term, sustainable, productive potential. The land capability survey was achieved through a combination of field assessments, aerial photo interpretation and computer modelling. Land use, climate, geology and landforms, soils and vegetation are discussed.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G41
NAME	Level 2 activities assessment documents, Environment Protection Authority
CITATION/S	EPA (2012). Approval process: guidance documents, assessments in progress and completed assessments. Environment Protection Authority, Department of Primary Industries, Parks, Water and Environment, Tasmania. Available at: http://epa.tas.gov.au/regulation/approvals-process .
DESCRIPTION	Proposed developments categorised as Level 2 activities (as defined in the <i>Environmental Management and Pollution Control Act 1994</i>) are required to prepare either an Environmental Effects Report (EER; smaller projects) or Development Proposal and Environmental Management Plan (DPEMP; larger projects) for assessment. These assessments and subsequent approved activities are regulated by the Environment Protection Authority (EPA). The EPA maintains a database of current and completed assessments; those occurring between 2008-current are available online, whilst requests can be made for earlier assessments. As part of DPEMPs, specialist environmental surveys may be required and several projects of this nature are included in the detailed scientific data sets of the current inventory (e.g. study IDs: 65, 66). The EPA assessments database is also a source of information on other recent activities within the D'Entrecasteaux Channel/lower Huon Estuary that may not have required environmental surveys but may still be of environmental significance (e.g. contributing commercial wastes to regional WWTPs).
CUSTODIAN	Environment Protection Authority, Department of Primary Industries, Parks, Water and Environment

ID	G42
NAME	Level 2 activities database, Environment Protection Authority
CITATION/S	Unpublished data
DESCRIPTION	Proposed developments categorised as Level 2 activities (as defined in the <i>Environmental Management and Pollution Control Act 1994</i>) are regulated by the Environment Protection Authority (EPA). The EPA maintains a database of current and former regulated activities within the Kingborough, Huon Valley and other municipalities. Output from this database provides a guide to the major industries of the region.

CUSTODIAN	Environment Protection Authority, Department of Primary Industries, Parks, Water and Environment
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ID	G43
NAME	Managing Threatened species and communities on Bruny Island
CITATION/S	Cochran, T. (2003). Managing Threatened species and communities on Bruny Island. Threatened Species Unit, Department of Primary Industries, Water and Environment, Tasmania.
DESCRIPTION	The aims of this document are: (a) to list the threatened plant and animal species that occur on Bruny Island, including basic information on their biology, habitat, threats, and management; (b) to list the various plant communities which occur on the island, the threatened species which are likely to occur within them, and the principal threatening processes facing each community; and (c) to provide information on these threatening processes and detail the various ways in which these threats can be managed. Incorporates maps of threatened species and communities and also provides lists of Tasmanian endemic flora and fauna found on the island.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G44
NAME	Marine facilities spatial data, Huon Valley Council
CITATION/S	Unpublished data
DESCRIPTION	Huon Valley Council has developed a GIS layer of public marine facilities, including boat ramps and jetties, within the municipality.
CUSTODIAN	Huon Valley Council

ID	G45
NAME	Marine facilities spatial data, Kingborough Council
CITATION/S	Unpublished data
DESCRIPTION	Kingborough Council has developed a GIS layer of public marine facilities, including boat ramps and jetties, within the municipality.
CUSTODIAN	Kingborough Council

ID	G46
NAME	Marine facilities, Marine and Safety Tasmania
CITATION/S	MAST (2012). Marine facilities. Marine and Safety Tasmania. Available at: http://www.mast.tas.gov.au/domino/mast/mastweb.nsf/ .
DESCRIPTION	Marine and Safety Tasmania (MAST) provide a database of public marine facilities, with data searches available by municipality. Facilities include boat ramps, jetties and breakwaters, and include both MAST-owned and other public facilities. Information provided for each facility includes name, type of facility, owner, access information and services available.
CUSTODIAN	Marine and Safety Tasmania

ID	G47
NAME	Marine Structures Assessment Project
CITATION/S	CLS (2008). Marine Structures Assessment Project. Kingborough Council and Huon Valley Council spatial data sets. Crown Land Services, Department of Primary Industries, Parks, Water and Environment.
DESCRIPTION	While GIS mapping layers and/or databases are available via Councils and Marine and Safety Tasmania for public marine facilities (e.g. jetties and boat ramps), information on private facilities has been less readily available. However, Crown Land Services conducted a Marine Structures Assessment Project (~ 2007) which aimed to document all private as well as some public facilities for each municipality, including Kingborough and the Huon Valley.
CUSTODIAN	Crown Land Services, Department of Primary Industries, Parks, Water and Environment

ID	G48
NAME	National Pollutant Inventory
CITATION/S	SEWPaC (2012). National Pollutant Inventory. Department of Sustainability, Environment, Water, Population and Communities. Available at: http://www.npi.gov.au/index.html .
DESCRIPTION	The National Pollutant Inventory (NPI) is a national database providing emission estimates for 93 toxic substances and the source and location of these emissions. A total of seven sites within the D'Entrecasteux Channel/lower Huon Estuary are listed in the NPI database as emitting toxic substances.
CUSTODIAN	Department of Sustainability, Environment, Water, Population and Communities

ID	G49
NAME	Nicholls Rivulet Rivercare Plan
CITATION/S	Baird, A. (2002). Nicholls Rivulet Rivercare Plan. A Natural Heritage Trust Project.
DESCRIPTION	A rivercare plan produced for the Nicholls Rivulet Bushcare Group, operating under the Port Cygnet Landcare and Watercare Group umbrella. The plan aims to assess the condition of the river from a geomorphic and vegetation perspective, and prioritise actions that can mitigate against identified threats.
CUSTODIAN	Huon Valley Council

ID	G50
NAME	NRM South Catchment summaries
CITATION/S	NRM South (2008). Derwent Estuary-Bruny Catchment Summary. Prepared by NRM South. NRM South (2008). Huon Catchment Summary. Prepared by NRM South.
DESCRIPTION	These catchment documents summarise information from expert workshops and sub-regional stakeholder workshops held in 2007. The aim was to capture knowledge from experts at a catchment scale across the region in a time efficient way. The catchment summaries typically describe the following aspects of each catchment. <ul style="list-style-type: none"> natural values

	<ul style="list-style-type: none"> • threats • Aboriginal values • status of NRM activity • key issues to improve NRM activity
CUSTODIAN	NRM South

ID	G51
NAME	Peter Murrell State Reserve and Conservation Area: Fire Management Plan 2006
CITATION/S	Parks and Wildlife Service (2006). Peter Murrell State Reserve and Conservation Area. Fire Management Plan 2006. Parks and Wildlife Service, Department of Tourism, Arts and the Environment, Tasmania.
DESCRIPTION	The Peter Murrell Reserves are adjoined Reserves located between the suburbs of Howden and Kingston/Blackmans Bay. The Reserves represent an important area in terms of natural and cultural heritage, recreational activities and educational values. The overarching purpose of this plan is to recommend actions and works that mitigate the risk of bushfire to life, property and the environment. The vegetation types in the Reserves are adapted to fire and implementing an appropriate fire regime is critical to maintaining species diversity, fuel loads and managing weed problems. The plan describes the geology and soils, vegetation, flora and fauna values, cultural and heritage values, and exotic plants and animals and diseases within the reserve (a reserve located within the 1 km of the coast near Howden).
CUSTODIAN	Parks and Wildlife Service, Department of Primary Industries, Parks, Water and Environment, Tasmania

ID	G52
NAME	Population change in Kingborough, 2001-2011
CITATION/S	Wilde, P. (2012). Population change in Kingborough, 2001-2011. Report to Kingborough Council.
DESCRIPTION	A report describing population statistics for the Kingborough Municipality, based on the two 'Statistical Local Areas' defined by the Australian Bureau of Statistics (ABS) for the municipality – i.e. 'North Kingborough' and the 'Channel and Bruny Area'. The North Kingborough Area extends as far south as the Oyster Cove Rivulet, and hence part of the population of the northern D'Entrecasteaux Channel area is included in the North Kingborough Area.
CUSTODIAN	Kingborough Council

ID	G53
NAME	Recreational boating survey results: 2010
CITATION/S	MAST (2010). Recreational boating survey results 2010. Marine and Safety Tasmania. Available at: http://www.mast.tas.gov.au/domino/mast/mastweb.nsf/ .
DESCRIPTION	Marine and Safety Tasmania (MAST) conduct surveys of recreational boat owners to collect information on where people are boating and what they are doing with their boating. The survey helps MAST with planning safety programs, determining priorities for facility upgrades, and identifying any patterns emerging in respect to usage. The survey results include data on %

	recreational boat owners visiting each of 16 waterway regions, of which the D'Entrecasteaux Channel (incorporating the Huon Estuary) is one. The 2010 report includes comparative statistics for 2002, 2007 and 2010, while separate complete reports for 2002 and 2007 are also available.
CUSTODIAN	Marine and Safety Tasmania

ID	G54
NAME	Regional population growth: estimated resident population for Statistical Local Areas in Tasmania
CITATION/S	ABS (2012). Regional population growth. Estimated resident population for Statistical Local Areas in Tasmania. Australian Bureau of Statistics.
DESCRIPTION	Population statistics for 'Statistical Local Areas' in Tasmania, including two in the Kingborough Municipality and one for the Huon Valley Municipality. All three of these areas partially overlap with the data inventory study area.
CUSTODIAN	Australian Bureau of Statistics

ID	G55
NAME	Risk assessment of impacts of climate change for key marine species in South Eastern Australia
CITATION/S	<p>Pecl, G.T., Ward, T., Doubleday, Z., Clarke, S., Day, J., Dixon, C., Frusher, S., Gibbs, P., Hobday, A., Hutchinson, N., Jennings, S., Jones, K., Li, X., Spooner, D. and Stoklosa, R. (2011). Risk assessment of impacts of climate change for key marine species in South Eastern Australia. Part 1: Fisheries and aquaculture risk assessment. Fisheries Research and Development Corporation, Project 2009/070.</p> <p>Pecl, G.T., Ward, T., Doubleday, Z., Clarke, S., Day, J., Dixon, C., Frusher, S., Gibbs, P., Hobday, A., Hutchinson, N., Jennings, S., Jones, K., Li, X., Spooner, D. and Stoklosa, R. (2011). Risk assessment of impacts of climate change for key marine species in South Eastern Australia. Part 2: Species profiles, Fisheries Research and Development Corporation, Project 2009/070.</p>
DESCRIPTION	<p>Objectives:</p> <ul style="list-style-type: none"> Identify the life history stages, habitats and aquaculture systems of key species that may be impacted by climate change Identify the physical and chemical parameters that may determine the potential impacts of climate change on key species Conduct a preliminary screening-level risk assessment of each key species to the potential impacts of climate change Highlight critical knowledge and data gaps, relevant to future assessments of climate change impacts on key species and development of adaptation strategies <p>This study relates to wide range of fisheries in South east Australia, but includes species that are fished or cultured in the D'Entrecasteaux Channel or Huon Estuary.</p>
CUSTODIAN	Institute of Marine and Antarctic Studies, University of Tasmania

ID	G56
NAME	Scalefish fishery management plan review
CITATION/S	DPIW (2008). Scalefish fishery management plan review: potential issues for review. Wild Fisheries Management Branch, Department of Primary Industries and Water, Tasmania.
DESCRIPTION	An issues paper developed to seek input as part of the review of the Tasmanian scalefish fishery management plan. It documents fisheries exclusions – e.g. the D’Entrecasteaux Channel where gillnetting and commercial scalefishing are prohibited.
CUSTODIAN	Water and Marine Resources Division, Department of Primary Industries, Parks, Water and Environment.

ID	G57
NAME	Scoping study into adaptation of the Tasmanian salmonid aquaculture industry to climate change
CITATION/S	Battaglene, S., Carter, C., Hobday, A., Lyne, V. and Nowak, B. (2008). Scoping study into adaptation of the Tasmanian salmonid aquaculture industry to potential impacts of climate change, National Agriculture and Climate Change Action Plan: Implementation Programme report, 84p.
DESCRIPTION	<p>In Tasmania, some areas supporting salmonid farming activities have average water temperatures approaching the upper thermal limits for salmon production. There is concern that ocean warming associated with climate change could result in the thermal limit being exceeded for a portion of the year in some Tasmanian regions. Additional impacts of climate change, such as availability of freshwater, extreme storm events and increases in jellyfish blooms, may also have consequences for the salmon industry.</p> <p>The objectives of the study were to:</p> <ul style="list-style-type: none"> • Identify and review key climate change information needs as they relate to the Tasmanian salmonid aquaculture industry • Scope the likely impacts of climate change as they relate to the Tasmanian salmonid aquaculture industry • Scope possible solutions for adaptation and identify viable industry development opportunities <p>The project is presented in three parts:</p> <ul style="list-style-type: none"> • A review of predictive models that can inform understanding of future environmental conditions • A review of the impacts of higher temperatures on salmonid health and nutrition • Adaptation strategies, attributes of new species, biosecurity and other challenges.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania/ CSIRO Marine and Atmospheric Research

ID	G58
NAME	Sea-level extremes in Tasmania
CITATION/S	DPIW (2008). Sea-level extremes in Tasmania. Summary and practical guide for planners and managers. Department of Primary Industries and Water, Tasmania.
	DPIW (2008). Climate change and coastal asset vulnerability: an audit of Tasmania's coastal assets potentially vulnerable to flooding and sea-level rise. Department of Primary Industries and Water, Tasmania.
DESCRIPTION	<p>Part of the 'Climate Change and Coastal Risk Management' Project. This project was established to improve the information available on extreme sea-levels in Tasmania. The first phase is to develop detailed information on the probabilities of storm surges combined with sea-level rise, known as exceedance statistics, for use in risk planning and management. Data on historical extreme sea-level events collected at Hobart and Burnie were extrapolated on the basis of data from the National Tidal Centre and linked study ID: 24, to produce exceedance probabilities for additional parts of Tasmania (exceedance here = high sea-level events which have a 1% chance of occurring once or more in any one year). No specific data are available for the D'Entrecasteaux Channel or Huon, but Hobart data are considered applicable to these areas.</p> <p>A second phase considered the coastal assets and values vulnerable to storm surge flooding at current and projected sea-levels. A desktop audit was undertaken on assets and values potentially at risk in the Tasmanian coastal zone. The desktop audit identifies sites (by a broad class of asset and by local government area – including Kingborough Council and Huon Valley Council) which appear vulnerable to erosion and flooding impacts.</p>
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G59
NAME	Sewage spills database, Southern Water
CITATION/S	Unpublished data
DESCRIPTION	A record of sewage spills is maintained by Southern Water. Given that management of sewage was council responsibility prior to 2009, spills prior to that time may not have been recorded consistently and hence it is unclear how comprehensive the records maintained by Southern water will be.
CUSTODIAN	Southern Water

ID	G60
NAME	Shipping Data, Tasports
CITATION/S	Unpublished data
DESCRIPTION	Tasports maintains a database of shipping information for vessels visiting Tasmanian ports. This relates only to large commercial vessels requiring pilotage services, and does not include fishing vessels or other small local commercial vessels. Vessel routes are categorised according to zones, with a specific zone allocated to D'Entrecasteaux Channel which will hence enable a database search for this waterway.
CUSTODIAN	Tasports

ID	G61
NAME	South Bruny National Park and Nature Reserves Management Plan
CITATION/S	DPIWE (2000). South Bruny National Park, Waterfall Creek State Reserve, Green Island Nature Reserve. Management Plan. Department of Primary Industries, Water and Environment, Tasmania.
DESCRIPTION	The Green Island Nature Reserve is located in the D'Entrecasteaux channel, whilst the South Bruny National Park includes the south west section of Bruny Island that also has its coastline within the Channel. The management plan provides for conservation of the values of the Park and the Reserves. The plan describes the geodiversity, natural landscape, water quality, flora, fauna, aboriginal and historic heritage, introduced pests and various management issues for the Park and Reserves.
CUSTODIAN	Parks and Wildlife Service, Department of Primary Industries, Parks, Water and Environment, Tasmania

ID	G62
NAME	Southern Tasmanian Regional Land Use Strategy, 2010-2035
CITATION/S	Southern Tasmanian Councils Authority (2011). Southern Tasmanian Regional Land Use Strategy, 2010-2035. Southern Tasmanian Councils Authority.
DESCRIPTION	A broad policy document aimed at facilitating and managing change, growth, and development within Southern Tasmania over the next 25 years. It provides land use policies and strategies for the region, and incorporates 14 background reports relating to issues as diverse as tourism, natural values, climate, infrastructure, transport, and industrial activity. It incorporates the D'Entrecasteaux Channel and Huon regions although does not report on them specifically. Some of background reports contain maps that highlight specific values or issues in these regions e.g. special values identified through the Conservation of Freshwater Ecosystem Values (CFEV) Program, and Remnant Vegetation on Private Land.
CUSTODIAN	Southern Tasmanian Councils Authority

ID	G63
NAME	Southern Tasmanian Weed Strategy
CITATION/S	Schrammeyer, E. (2005). Southern Tasmanian Weed Strategy. NRM South, Hobart.
DESCRIPTION	<p>Objectives:</p> <ul style="list-style-type: none"> • provide a framework for decision making in the region; • recommend actions to implement regionally relevant WeedPlan Revised Edition directions. • identify priorities for investment. • tackle regional priorities that are consistent with national and state priorities. • provide a framework for consistency in subregional strategies. • provide opportunities for partnerships and relationships that encourage coordinated weed management. <p>Weeds of National Significance and others listed in the <i>Tasmanian Weed Management Act 1999</i> are recorded for the Huon Valley and Kingborough municipalities, and other municipalities in southern Tasmania.</p>

CUSTODIAN	NRM South
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ID	G64
NAME	Species Profile and Threats Database
CITATION/S	SEWPaC (2012). Species Profile and Threats Database. Commonwealth Department of Sustainability, Environment, Water, Population, and Communities. Available at: http://www.environment.gov.au/cgi-bin/sprat/public/sprat.pl .
DESCRIPTION	A database providing information about species and ecological communities listed under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i> . This includes threatened and listed migratory, marine and cetacean species which are found in the D'Entrecasteaux Channel/lower Huon Estuary.
CUSTODIAN	Commonwealth Department of Sustainability, Environment, Water, Population, and Communities

ID	G65
NAME	Spills and incidents database, Environment Protection Authority
CITATION/S	Unpublished data
DESCRIPTION	Oil, sewage and other spills can be identified using searches of a Spills and Incidents database managed by the Environment Protection Authority (EPA). This database is likely to contain only a subset of spills occurring, focussing on large spill incidents.
CUSTODIAN	Environment Protection Authority, Department of Primary Industries, Parks, Water and Environment

ID	G66
NAME	State of the Environment Tasmania 2009
CITATION/S	TPC (2009). State of the Environment Tasmania 2009. Tasmanian Planning Commission. Available at: http://soer.justice.tas.gov.au/2009/
DESCRIPTION	This State of the Environment (SoE) report presents information on conditions, pressures and responses regarding four major environmental themes — Air, Water, Natural Values, People and Places. Information is supported by environmental indicators compiled using data from a variety of sources and reporting for the period 2003 to 2008. It considers changes since the earlier, second SoE Report in 2003. Many of the data sources referred to within are listed separately within the current data inventory, however some data sets were compiled internally in state government to meet the needs of the SoE report and hence this report may also act as a direct information source. The report was state-wide, incorporating the D'Entrecasteaux Channel and Huon regions.
CUSTODIAN	Tasmanian Planning Commission

ID	G67
NAME	State road spatial data set
CITATION/S	DIER (2010). State road spatial data set. Department of Infrastructure, Energy and Resources.

DESCRIPTION	Department of Infrastructure, Energy and Resources maintains a spatial data set of state managed roads, including state roads and link end and start points. An additional electronic map is available illustrating road categories.
CUSTODIAN	Department of Infrastructure, Energy and Resources

ID	G68
NAME	Survey of recreational fishing in Tasmanian: 2007-2008
CITATION/S	Lyle, J.M., Tracey, S.R., Stark, K.E. and Wotherspoon, S. (2009). 2007-2008 Survey of recreational fishing in Tasmanian. A Fishwise Project. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.
DESCRIPTION	A report summarising recreational fishery data collected using phone surveys of recreational fishers. A summary is given by region of participation rates, demographic attributes of participants, estimated days of fishing effort, methods used, fish species caught (numbers, species, total tonnes), and rates of release, with both freshwater and saltwater fishing included. The D'Entrecasteaux Channel (incorporating the Huon Estuary) was one of the reporting regions. Data are compared with those from an earlier survey in 2000-2001.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania

ID	G69
NAME	Tasmania infrastructure report card 2010: water
CITATION/S	Engineers Australia (2010). Tasmania infrastructure report card 2010: water. Engineers Australia.
DESCRIPTION	This is a report card rating the performance of water sector infrastructure in Tasmania, including potable water, wastewater, stormwater and irrigation. Whilst it addresses water infrastructure at a statewide level, it does include some limited information relevant to the D'Entrecasteaux Channel/lower Huon Estuary region. For example, it lists major potable water projects including sewerage upgrades in the Huon, and reports available statistics on length of maintained stormwater systems within certain municipalities including Kingborough.
CUSTODIAN	Engineers Australia

ID	G70
NAME	Tasmanian Aboriginal Site Index
CITATION/S	AHT (2012). Tasmanian Aboriginal Site Index (TASI). Aboriginal Heritage Tasmania.
DESCRIPTION	Aboriginal Heritage Tasmania maintains the Tasmanian Aboriginal Site Index (TASI), which is a permanent record of identified Aboriginal heritage places that supports management, research, public interests and accountability. There were approximately 10,900 identified Aboriginal heritage sites in the TASI at June 2009, up from approximately 9,700 in June 2004. A search for the current data inventory study area performed by Aboriginal Heritage Tasmania has revealed around 600 known Aboriginal sites recorded on the TASI.
CUSTODIAN	Aboriginal Heritage Tasmania

ID	G71
NAME	Tasmanian Coastal Inundation Mapping Project
CITATION/S	Mount, R., Lacey, M. and Hunter, J. (2011). Tasmanian Coastal Inundation Mapping Project Report Version 2. Report to the Tasmanian Planning Commission by the Blue Wren Group, School of Geography and Environmental Studies, University of Tasmania and the Antarctic Climate and Ecosystems Cooperative Research Centre.
DESCRIPTION	This work seeks to identify susceptibility of the Tasmanian coast to inundation by the sea due to a) the potential impact of permanent sea level rise alone, and b) due to storm events, including allowances for sea level rise. The “permanent sea level rise” approach makes use of a simple geographic modelling method that includes a limited set of the contributing factors to inundation of the shoreline. The “storm tide event plus sea level rise” approach makes use of a more sophisticated method to determine estimates of the exceedance probabilities at the coast and then a geographic modelling method was used to project these estimates onto the land surface. There were five data sets used as major input data sources for the study, including the LiDAR digital elevation model (DEM) developed as part of Tasmanian Climate Futures (the Climate Futures LiDAR Data set is new high resolution digital elevation information used to generate topographic maps along the Tasmanian coast with 25 centimetre contours up to 10 metres above sea level). The DEM is limited to about a third of Tasmania including most of the populated areas. Note that the Huon Estuary was included in the study and parts of the D’Entrecasteaux Channel - LiDAR survey data were not available for a significant portion of the Channel.
CUSTODIAN	Tasmanian Planning Commission

ID	G72
NAME	Tasmanian Heritage Register
CITATION/S	Heritage Tasmania (2012). Tasmanian Heritage Register. Heritage Tasmania, Department of Primary Industries, Parks, Water and Environment. Available at: http://www.heritage.tas.gov.au/
DESCRIPTION	The Tasmanian Heritage Register is a register of places that are recognised as being of historic cultural heritage significance to the whole of Tasmania. These places are important to Tasmania and Tasmanians because of their contribution to our culture and society. They are also important as part of the cultural fabric that is a part of our tourism industry, our state's identity and brand. The Register is maintained by the Heritage Council under the <i>Historic Cultural Heritage Act 1995</i> .
CUSTODIAN	Heritage Tasmania, Department of Primary Industries, Parks, Water and Environment.

ID	G73
NAME	Tasmanian Natural Values Atlas
CITATION/S	DPIPWE (2012). Natural Values Atlas. Department of Primary Industries, Parks, Water and Environment. Available at: https://www.naturalvaluesatlas.tas.gov.au/

DESCRIPTION	A Tasmanian government GIS database of sightings of threatened and other native flora and fauna species, weeds, and also incorporating TASVEG communities, threatened communities, and geodiversity sites that are listed in the Tasmanian Geoconservation Database.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G74
NAME	Tasmanian recreational rock lobster and abalone fisheries: 2008-09 fishing season
CITATION/S	Lyle, J.M. and Tracey, S.R. (2010). Tasmanian recreational rock lobster and abalone fisheries: 2008-09 fishing season. A Fishwise Project. Tasmanian Aquaculture and Fisheries Institute, University of Tasmania.
DESCRIPTION	A report summarising recreational fishery data collected using phone surveys of rock lobster and abalone licence holders. A summary is given by region of the number of licence holders, estimated days of fishing effort, total estimated catch (number and total tonnes), and periods of most intense fishing activity for rock lobster and abalone (and fishing method in the case of rock lobsters). Comparisons are made with earlier mid-2000s data. The D'Entrecasteaux Channel/Huon Estuary are included in the 'south-east' region, however some data are presented for individual sub-regions of the south-east, of which the D'Entrecasteaux Channel/Huon Estuary is one.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania

ID	G75
NAME	Tasmanian Reserve Estate spatial layer
CITATION/S	DPIPWE (2011). Tasmanian Reserve Estate spatial layer. Department of Primary Industries, Parks, Water and Environment, Tasmania.
DESCRIPTION	The Tasmanian Reserve Estate data set is a digital map of the Reserve System for Tasmania. It represents land reserved to be managed for biodiversity conservation under Tasmania's Regional Forest Agreement (RFA) and other instruments. The data covers all known Formal, Informal and Private Tasmanian Reserve Estate in Tasmania.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania

ID	G76
NAME	Tasmanian Slipways Management Framework
CITATION/S	DPIWE (2002). Tasmanian Slipways Management Framework: issues and options paper. Department of Primary Industries, Water and Environment, Tasmania.
DESCRIPTION	<p>The Tasmanian State Government performed a twelve-month Tasmanian Slipways Management Framework Project to develop a framework to more effectively manage the State's slipways and boat repair and maintenance facilities. The project aimed to:</p> <ul style="list-style-type: none"> • Ensure that operations at slipways do not result in harm to Tasmania's valuable coastal marine and estuarine environment; • Develop an approach to regulating slipways and vessel repair and maintenance facilities that is consistent across the State and appropriate to the level of environmental risk they pose;

	<ul style="list-style-type: none"> • Provide direction and certainty for owners, users and regulators of slipways in Tasmania; and • Ensure that Tasmania is in step with other Australian States and Territories for the environmental management of boat repair and maintenance facilities and in-water hull cleaning. <p>The paper includes a map of slipway facilities, incorporating the D'Entrecasteaux Channel and Huon Estuary.</p>
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment, Tasmania

ID	G77
NAME	Tasmanian Visitor Survey data
CITATION/S	Tourism Tasmania (2012). Tasmanian Visitor Survey data. Tourism Tasmania. Available via the WebReporter website at: http://webreporter.asteroid.com.au/webreporter/ttreports/ .
DESCRIPTION	The Tasmanian Visitor Survey is an exit survey designed to provide a profile of the characteristics, travel behaviour and expenditure of international and domestic visitors to Tasmania. It is based on a sample of more than 9,000 visitors per year, and is acknowledged as the most reliable source of statistical data about visitors to Tasmania. Summary data are available online for April 2008/March 2009 through to April 2011/March 2012, with % change between April 2010/March 2011 and April 2011/March 2012 indicated. It provides profile data for the Huon Trail (and other tourism trails), including total numbers of visitors and total nights spent. It also has data for specific locations visited, including for example Dover, Bruny Island, and Woodbridge. Data for these locations includes numbers of visitors who pass through, visited or stayed overnight.
CUSTODIAN	Tourism Tasmania

ID	G78
NAME	TASVEG updates, Kingborough municipality
CITATION/S	Kingborough Council (2006-2007). TASVEG updates for the Kingborough municipality. Kingborough threatened species habitat and priority plant communities project. Kingborough Council.
DESCRIPTION	This data set is a polygon representation of priority vegetation communities within the Kingborough Council area of Tasmania. Priority plant communities targeted were those listed as threatened under the <i>Nature Conservation Act</i> 2002, recognised as threatened in the South East Bioregion of Tasmania or communities that are threatened fauna habitat. Each polygon represents a single vegetation community; mapping units conform to TASVEG 1.0 specifications. Vegetation communities were identified to a 1ha resolution or to 0.25ha where a threatened vegetation community was suspected. This data set is part of the Kingborough Threatened Species Habitat and Priority Plant Communities Project. The purpose of the project is to provide a more accurate priority vegetation community map to facilitate more informed strategic planning, land use planning and management in Kingborough, in particular reducing threatened fauna habitat and priority vegetation community fragmentation. It is not currently clear whether the updated Kingborough TASVEG data will be incorporated in the next scheduled

	statewide TASVEG (DPIPWE) release.
CUSTODIAN	Kingborough Council

ID	G79
NAME	TASVEG updates, Huon Valley municipality
CITATION/S	Unpublished data
DESCRIPTION	TASVEG updates have also been performed for the Huon Valley municipality, and these data are held by Huon Valley Council. These data are currently being integrated with the State managed TASVEG data set (DPIPWE), with the intention that they will be included in the next State TASVEG release version. No additional details on the data set have been provided at this time.
CUSTODIAN	Huon Valley Council

ID	G80
NAME	TASVEG Version 2.0
CITATION/S	DPIPWE (2009). TASVEG Version 2_0_Released Feb 2009. Tasmanian Vegetation Monitoring and Mapping Program, Resource Management and Conservation Division. Department of Primary Industries, Parks, Water and Environment.
DESCRIPTION	TASVEG is the spatial data set produced by the Tasmanian Vegetation Monitoring and Mapping Program (TVMMP) to document the State's vegetation communities. TASVEG is maintained at a scale of 1:25,000 and currently contains 165 mapping units in total, including 154 different vegetation communities. TASVEG incorporates and extends previous mapping programs such as Regional Forest Agreement (RFA) forest mapping and World Heritage Area (WHA) vegetation mapping to produce a single reference data set that can be used for a broad range of management and reporting applications. Kingborough and Huon Valley municipalities are included in addition to other areas of Tasmania. Note that individual municipalities, including both Kingborough and the Huon Valley, have been involved in further development and refinement of the TASVEG mapping for their municipalities, with this work not included in the current State TASVEG release (see separate data set entries below).
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G81
NAME	The South-east Regional Marine Plan indigenous assessment
CITATION/S	National Oceans Office (2002). Sea Country – an Indigenous perspective. The South-east Regional Marine Plan, Assessment Reports, National Oceans Office.
DESCRIPTION	An assessment report for the Commonwealth South-east Marine Region, which describes indigenous values. Makes comment regarding the heritage of aboriginal communities in the Huon and D'Entrecasteaux Channel area.
CUSTODIAN	Commonwealth Department of Sustainability, Environment, Water, Population, and Communities

ID	G82
NAME	The Tail of Two Rivers in Tasmania: The Derwent and Huon Estuaries
CITATION/S	Butler, E.C.V. (2005). The Tail of Two Rivers in Tasmania: The Derwent and Huon Estuaries. In: Hutzinger, O., Barceló, D. and Kostianoy, A. (Eds.) The Handbook of Environmental Chemistry, Vol. 5, Part H., Springer-Verlag Berlin Heidelberg.
DESCRIPTION	A critical examination of the available physico-chemical data for the Huon Estuary (and Derwent Estuary) and its context in regard to catchment and regional environment; the possibility of the Huon Estuary providing an operational baseline for management of the more polluted Derwent Estuary is discussed. Draws on data from the Huon Estuary Study (study ID: 2) but also on a range of additional sources.
CUSTODIAN	CSIRO Marine and Atmospheric Research

ID	G83
NAME	Vulnerability of Tasmania's natural environment to climate change: an overview
CITATION/S	DPIPWE (2010). Vulnerability of Tasmania's natural environment to climate change: an overview. Resource Management and Conservation Division, Department of Primary Industries, Parks, Water and Environment, Tasmania.
DESCRIPTION	Represents the first assessment of the potential impacts of climate change on Tasmania's natural values. It is aimed at guiding the formulation of policy and management responses for adaptation approaches that will enhance the resilience of Tasmania's natural systems. It is a state wide report with some, limited, reference to D'Entrecasteaux Channel/Huon region.
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

ID	G84
NAME	Water quality in the Warra Long-Term Ecological Research study area 1998–2006
CITATION/S	Roberts, S. (2009). Water quality in the Warra Long-Term Ecological Research study area 1998–2006. Technical report 193, Cooperative Research Centre for Forestry & Division of Forest Research and Development, Forestry Tasmania.
DESCRIPTION	In 1998, Forestry Tasmania started measuring water quality in a number of streams in the Warra Long-Term Ecological Research (LTER) study area. The Warra LTER site was established in 1995 as part of an international network of sites for multidisciplinary, long-term, site-based research at a range of scales, to help decision-making to ensure sustainable forest management. Water quality studies are one component of the spectrum of Warra LTER projects, and water quality (turbidity, electrical conductivity/salinity, and pH) has been monitored at 15 sites in the Warra LTER study area on a fortnightly or monthly basis since 1998. Reported findings have been compiled for 1998-2006, however this program is ongoing. The study area is located within the Huon Catchment but well inland of the coast and not within the current data inventory study area. It has been noted here due to the broad temporal scale of the data and location upstream of the Huon Estuary, but has not been included in the detailed descriptions of data sets.
CUSTODIAN	Forestry Tasmania

ID	G85
NAME	Water quality of rivers in the Huon Catchment
CITATION/S	Bobbi, C. (1998). Water quality of rivers in the Huon Catchment. Department of Primary Industry and Fisheries, Tasmania.
DESCRIPTION	<p>A study of the water quality of rivers in the Huon catchment was undertaken between October 1996 and November 1997. The study was carried out as part of a commitment to the Huon Valley Council's 'Healthy Rivers and Catchments' project and a study by the CSIRO of the Huon estuary. This work also forms part of an ongoing commitment State Government to gather and disseminate information about the condition and quality of waterways around the State and will also contribute to the production of future Tasmanian 'State of Environment' reports. Data was collected on a monthly basis at five sites in the lower catchment to determine the average conditions of key rivers. Nutrient export loads were calculated for the Huon catchment upstream of Judbury and the Kermandie catchment.</p> <p>Notes in relation to the current D'Entrecasteaux Channel and lower Huon Estuary project: all five sites sampled were freshwater (i.e. above tidal limits), although several may occur with 1 km of the coastline and hence be within the study area for the current report. Data were reported prior to 1999 and hence have not been included in the scientific section of the current report documenting post-1999 data sets. However the Working Group for the project identified that the Bobbi (1998) report provides a rare example of quantification of catchment inputs in the region. It is also notable that findings from the study were not included in the previous 1999 State of the D'Entrecasteaux Channel report. It is therefore included here as a general information source with regards to catchment inputs.</p>
CUSTODIAN	Department of Primary Industries, Parks, Water and Environment

4.4 *Scientific studies underway*

In addition to scientific studies documented above in Section 4.2, there are a number of scientific studies that are underway and have specific relevance to the D'Entrecasteaux Channel and lower Huon Estuary. Note that these studies have been identified on the basis of feedback from the project Working Group, however it is noted that additional honours studies and other projects may potentially be underway but not documented here.

NAME	Surveys of rare marine species
DESCRIPTION	Work has been initiated to survey rare species and investigate how to survey effectively for them, as well as describe their co-occurring species within communities including potential threatening introduced pests. Methods are based on similar work already undertaken in the Derwent Estuary. Some survey work has occurred in the D'Entrecasteaux channel, however not all depth categories were searched at each site, and intertidal searches have not yet been undertaken. The project ideally needs a postgraduate student to complete the work.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT	Neville Barrett

NAME	INFORMD Stage 2 (links to study ID: 69): Risk-based tools supporting consultation, planning and adaptive management for aquaculture and other multiple-uses of the coastal waters of southern Tasmania. (FRDC Project)
DESCRIPTION	This project is due to start in late 2012. The initial component will involve an evaluation of environmental values (as defined by community, government and industry) associated with salmon aquaculture in south-east Tasmania, particularly the Huon Estuary and D'Entrecasteaux Channel, and the relationship of these to current monitoring requirements.
CUSTODIAN	CSIRO Marine and Atmospheric Research; Institute for Marine and Antarctic Studies, University of Tasmania; Tasmanian Salmonid Growers Association.
CONTACT	Catriona Macleod (Institute for Marine and Antarctic Studies, University of Tasmania)

NAME	Assessment of the environmental impacts and sediment remediation potential associated with copper contamination from antifouling paint and associated recommendations for management. (FRDC Atlantic Salmon Aquaculture Subprogram)
DESCRIPTION	This project started in 2011, and is due for completion in 2013.
CUSTODIAN	CSIRO Marine and Atmospheric Research; Institute for Marine and Antarctic Studies, University of Tasmania; Tasmanian Salmonid Growers Association.
CONTACT	Catriona Macleod (Institute for Marine and Antarctic Studies, University of Tasmania)

NAME	Clarifying the relationship between salmon farm nutrient loads and changes in macroalgal community structure/ distribution. (FRDC Atlantic Salmon Aquaculture Subprogram)
DESCRIPTION	This project started in 2012, with two PhD students (Luis Henriquez and Scott Hadley) working on this project; one is empirically testing the effects of changing nutrient dynamics on macroalgae in reef systems, and the other is modelling the potential for macroalgal uptake of excess nutrient in the D'Entrecasteaux system (looking at three macroalgal growth models: economic culture, nutrient mitigation and algal growth for conservation purposes).
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT	Catriona Macleod (Institute for Marine and Antarctic Studies, University of Tasmania)

NAME	Evaluation of approaches to improve sediment remediation (rate and function) under salmonid fish cages. (FRDC Atlantic Salmon Aquaculture Subprogram)
DESCRIPTION	This project started in 2011 and is due for completion during 2012. It has investigated alternate options for farm based sediment remediation.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania; Tasmanian Salmonid Growers Association.
CONTACT	Catriona Macleod (Institute for Marine and Antarctic Studies, University of Tasmania)

NAME	Multiple lines of evidence to identify key trophic accumulation pathways of Mercury in estuarine foodwebs.
DESCRIPTION	Several grants have been obtained to support this PhD research being undertaken by Hugh Jones. The project started in 2009, evolved into PhD in 2010 and is due for completion in mid 2013. The study will specifically look at mechanisms for mercury uptake in flathead, and covers many important areas of environmental management and biogeochemistry to clarify bioaccumulation processes.
CUSTODIAN	Institute for Marine and Antarctic Studies, University of Tasmania
CONTACT	Catriona Macleod (Institute for Marine and Antarctic Studies, University of Tasmania)

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