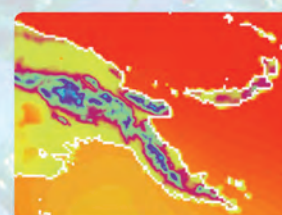
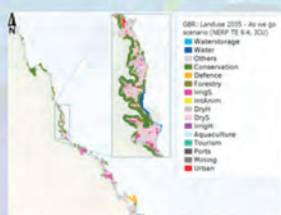
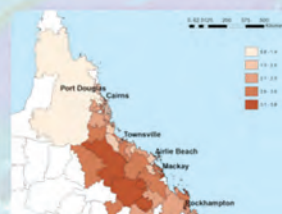


Highlights of the National Environmental Research Program Tropical Ecosystems (NERP TE) Hub datasets eAtlas Metadata Catalogue 2011-2014

Gael Lafond and Eric Lawrey



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Gael Lafond¹ and Eric Lawrey¹

¹ Australian Institute of Marine Science (AIMS)



Supported by the Australian Government's
National Environmental Science Programme

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<http://www.nesptropical.edu.au>

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ACRONYMS

AIMS	Australian Institute of Marine Science
AIS	Automatic Identification System
AMSA	Australian Maritime Safety Authority
AODN	Australian Ocean Data Network
BMNG	Blue Marble Next Generation
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSV	Comma Separated Values file (usually generated from Excel)
CTD	Conductivity, Temperature, and Depth
DBH	Diameter Breast Height
DEM	Digital Elevation Model
DERM	Department of Natural Resources and Mines
DOE	Department of the Environment
DSITIA	Queensland Department of Science, Information Technology, Innovation and the Arts
EHP	Department of Environment and Heritage Protection
EPBC	Environment Protection and Biodiversity Conservation
GBR	Great Barrier Reef
GBRMPA	Great Barrier Reef Marine Park Authority
GBRWhA	Great Barrier Reef World Heritage Area
GIS	Geographical Information System
JCU	James Cook University
MODIS	Moderate Resolution Imaging Spectroradiometer
NASA	National Aeronautics and Space Administration (United States)
NCA	National Capital Authority
NEII	Natural Earth II
NERP	National Environmental Research Program
NERP TE	NERP Tropical Ecosystems Hub
NetCDF	Network Common Data Form
NRM	Natural Resource Management
PNG	Papua New Guinea
QLUMP	Queensland Land Use Mapping Program
SCI	Structural Complexity Index
SST	Sea Surface Temperature
TIMS	Thermal Ionisation Mass Spectrometry
UCSD	University of California, San Diego (United States)
UQ	University of Queensland

ABBREVIATIONS

sp. / spp...... species

uni. university

vs. versus

ACKNOWLEDGEMENTS

This metadata catalogue would not have been possible without the invaluable support and help of all the data providers. We would like to extend our sincere thanks to all of them.

We would also like to express our gratitude towards the NERP TE Hub project leaders for their kind co-operation which made this project possible.

1.0 INTRODUCTION

Having access to the best available scientific data and knowledge is vital for evidence based environmental management. Much of science is based on building on the foundation of prior work of others and in environmental research the data collected now will have significant historic value in the future as the climate is changing. It is therefore vital that we ensure that data developed by the NERP projects is preserved for the future and made readily available for reuse by management and researchers.

Making well documented data widely accessible has the following benefits:

- Vital source of information for planning and informed decisions by environmental managers
- Increased productivity of science and management through easier reuse
- Facilitation and support of research reliant on many data sources
- Increasing the value obtained from data that is expensive to gather
- Opportunity for an informed public

The primary role of the eAtlas is to support researchers with the documentation, curation and publication of their research data and to ensure that this data is accessible and reusable now and into the future. The eAtlas provides and develops the systems necessary for making the research data discoverable via the web. It also maintains a curated data repository to ensure the long term preservation of the data and a platform for visualising spatial data to allow the data to be used directly for planning by researchers and managers without the need for specialised GIS software.

It is also a requirement from the Department of the Environment to make all National Environmental Research Program (NERP) outputs publicly and freely accessible and available to government, end-users and the general public (Department of the Environment [DOE], 2014).

Data submitted to the eAtlas team was provided using a form available from the eAtlas website (<http://eatlas.org.au/resources/data-submission-form>). The eAtlas team reviewed the submission (<http://eatlas.org.au/resources/faqs#publication-requirements>), prepared the data and generated previews which are currently accessible through the AtlasMapper (<http://maps.eatlas.org.au/>).

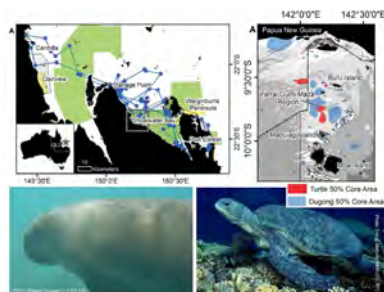
The form was provided as a Word document to simplify the process. The alternative solution would have been an online form, which would have required accounts to be created and maintained. Users would have needed to remember their credentials and would have expected to understand the website workflow. The adopted solution of the Word document required more manual manipulations, but was more in-line with the process which most scientists are already used to.

A similar process was used to submit metadata records to the eAtlas. A simplified version of the metadata record (Lawrey, 2013), available as a Word document, was used to provide the required information for the creation of the record. Once completed, it was submitted to the eAtlas team, who added it to the database, after reviewing it and converting it into a standard ISO 19139 record.

Every NERP project was required to publish data accompanied with a metadata record. The eAtlas has collected 49 records from the NERP projects. Those records are all listed in this report and are publicly available from the eAtlas website (<http://eatlas.org.au/data>). They are also harvested by Research Data Australia and the AODN.

2.0 METADATA CATALOGUE

2.1 Satellite Tracking of Dugongs and Green Turtles in Torres Strait and Shoalwater Bay (NERP TE 1.2, 2.1, JCU)



Christian Gredzens (JCU), Mark Hamann (JCU), Helene Marsh (JCU), Mariana Fuentes (JCU) and Colin Limpus (EHP)

This dataset consists of the home ranges and satellite tracks taken from eleven dugongs and ten green turtles.

<http://eatlas.org.au/data/uuid/73f2acfd-1cb7-48a5-a3e4-bad38939e4e9>

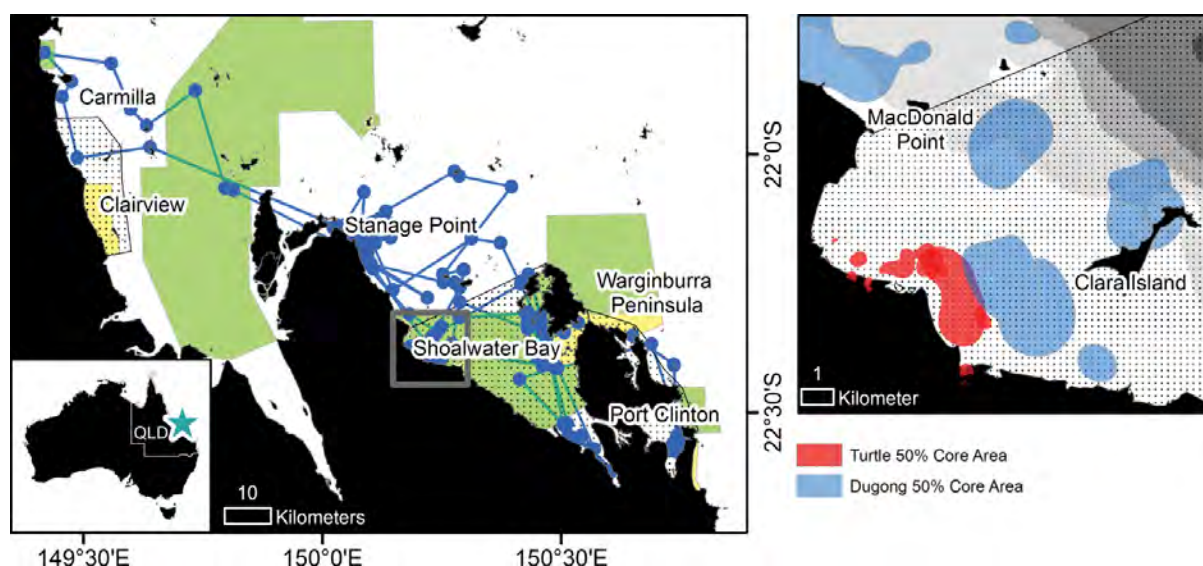


Figure 1: Turtle and dugong distribution in Shoalwater Bay (Gredzens et al., 2014).

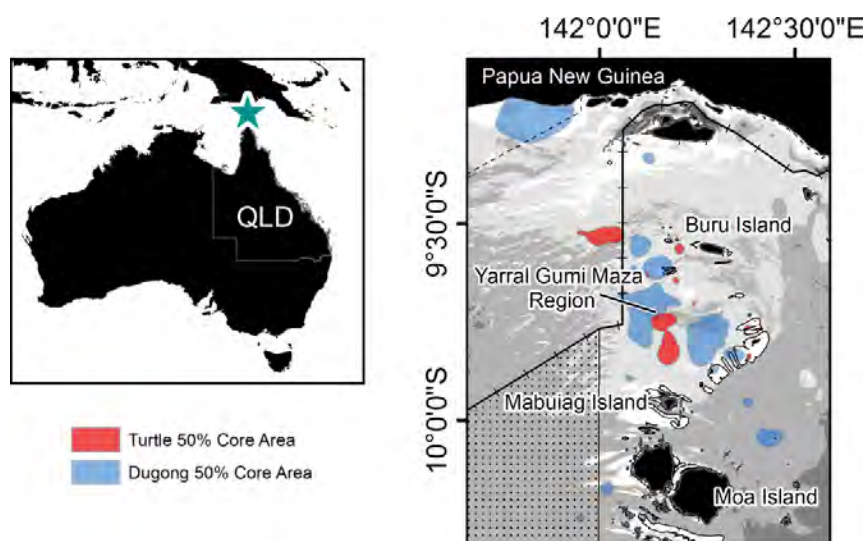
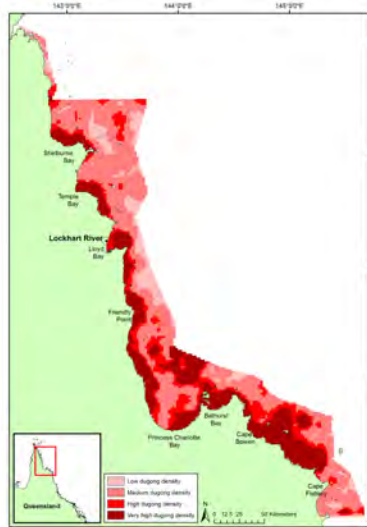


Figure 2: Turtle and dugong distribution in Torres Strait (Gredzens et al., 2014).

2.2 Marine wildlife management in the Northern Great Barrier Reef World Heritage Area - Spatial models of dugong distribution and relative density of aerial surveys from 1990 - 2013 (NERP TE 1.2, JCU)



Mark Hamann (JCU), Helene Marsh (JCU) and Alana Grech (Macquarie Uni.)

This dataset shows a raster spatial model of the distribution and relative density of dugongs (*Dugong dugong*) in the northern Great Barrier Reef region based on an aggregate of 24 years (1990 - 2013) of systematic aerial surveys.

<http://eatlas.org.au/data/uuid/e2c6a628-f6cd-4789-917a-963577af8f95>

2.3 Spatial variability of initial U-Th in modern *Porites* from the inshore region of the Great Barrier Reef (NERP TE 1.3, UQ)



Tara R. Clark (UQ), Jian-xin Zhao (UQ), Yue-xing Feng (UQ), Terry J. Done (AIMS), Stacy Jupiter (Wildlife Conservation Society), Janice Lough (AIMS) and John M. Pandolfi (UQ)

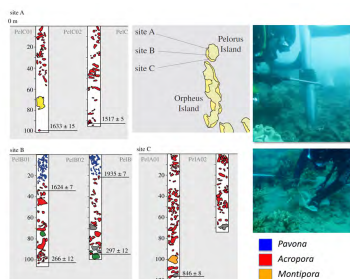
This dataset consists of 43 thermal ionisation mass spectrometry (TIMS) U-Th dates from living *Porites* spp. of known ages collected from the far northern, central and southern inshore regions of the Great Barrier Reef (GBR) which were used to spatially constrain initial $^{230}\text{Th}/^{232}\text{Th}$ ($^{230}\text{Th}/^{232}\text{Th}_0$) variability.

Such information is essential in providing accurate chronologies used to pinpoint changes in coral community structure and the timing of mortality events in recent time (e.g. since European settlement of northern Australia in the 1850's).

<http://eatlas.org.au/data/uuid/242aef9d-8a9a-4b65-8d94-7f2c5b19affa>

2.4 U-series data for the Pelorus Island from Roff et al (2013)

Palaeoecological evidence of a historical collapse of corals at Pelorus Island, inshore Great Barrier Reef, following European settlement. (NERP TE 1.3, UQ)



George Roff (UQ), Tara R. Clark (UQ), Claire E. Reymond (ZMT), Jian-xin Zhao (UQ), Yue-xing Feng (UQ), Laurence McCook (GBRMPA), Terry J. Done (AIMS) and John M. Pandolfi (UQ)

This dataset is the U-series data for Pelorus Island as described in Roff et al (2013) Palaeoecological evidence of a historical collapse of corals at Pelorus Island, inshore Great Barrier Reef, following European settlement. Proceedings of the Royal Society Series B 10.1098/rspb.2012.2100

<http://eatlas.org.au/data/uuid/17dfb308-188c-4da5-816b-6ea0d9e115d8>

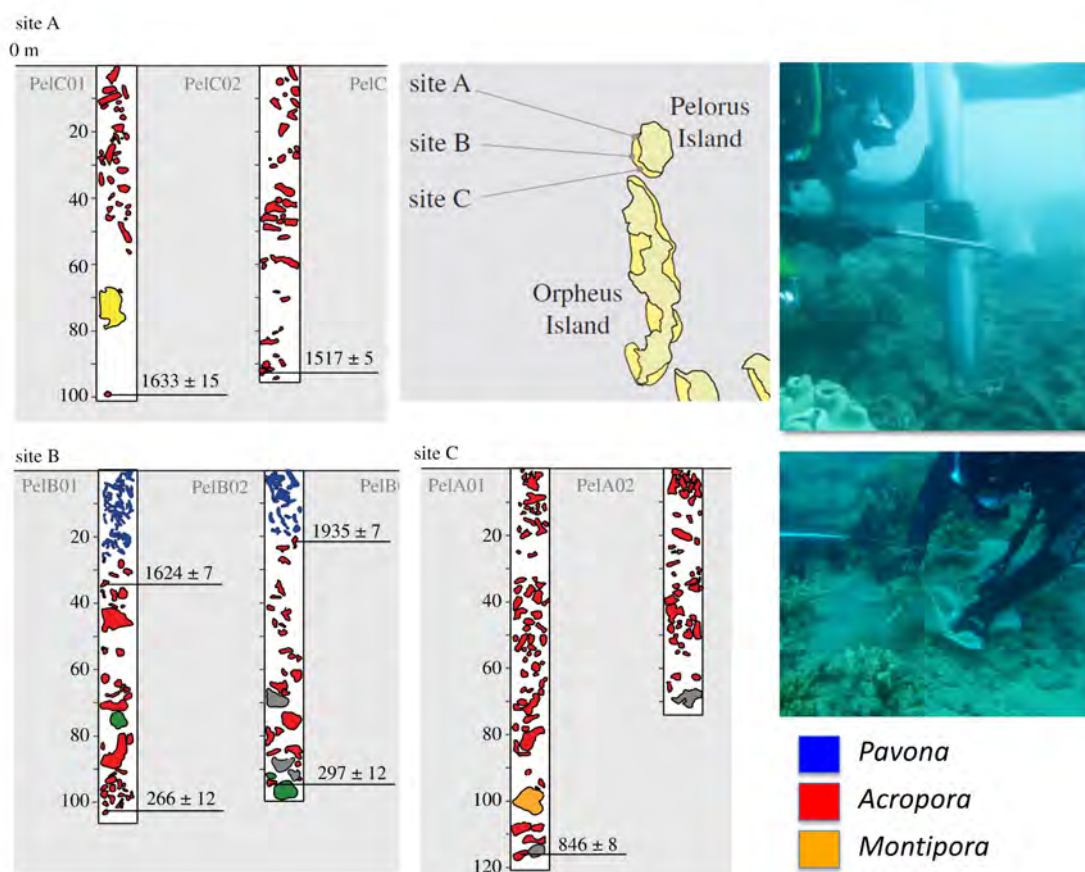
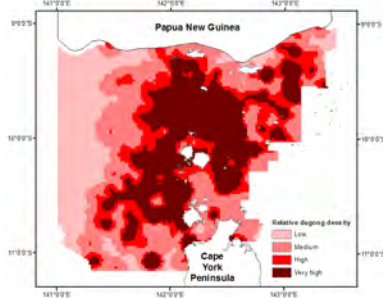


Figure 3: Coral coring in Pelorus Island (Roff et al., 2012).

2.5 Marine turtles and dugongs of the Torres Strait - Spatial models of dugong and turtle distribution and relative density of aerial surveys from 1987 - 2013 (NERP TE 2.1, JCU)

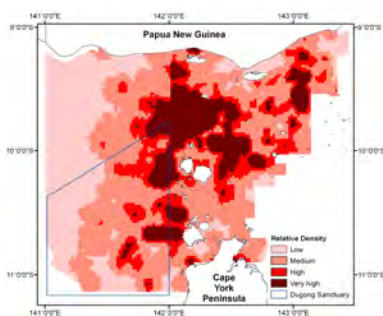


Helene Marsh (JCU), Mark Hamann (JCU) and Alana Grech (Macquarie Uni.)

This dataset shows (1) a raster spatial model of the distribution and relative density of dugongs (*Dugong dugong*) in the Torres Strait region based on an aggregate of 27 years (1987 - 2013) of systematic aerial surveys; and (2) a raster spatial model of the distribution and relative density of marine turtles (green turtles, *Chelonia mydas*) in the Torres Strait based on an aerial survey conducted in 2013.

<http://eatlas.org.au/data/uuid/939cb936-68b9-4d9f-925e-f5ce12a3bf34>

2.6 Torres Strait Dugong distribution and relative density - Spatial model of aerial surveys from 1987 - 2011 (NERP TE 2.1, JCU)

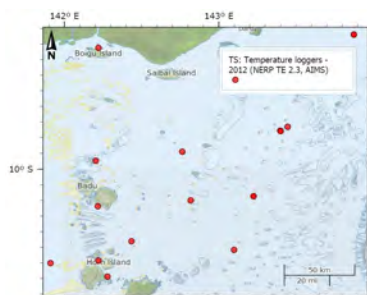


Alana Grech (JCU), James Sheppard (San Diego Zoo Institute for Conservation Research) and Helene Marsh (JCU)

This dataset shows a raster spatial model of the distribution and relative density of dugongs (*Dugong dugong*) in the Torres Strait region based on an aggregate of 24 years (1987 - 2011) of systematic aerial surveys.

<http://eatlas.org.au/data/uuid/70e21d20-cc5e-4d1d-9d2b-7b08f4b061a2>

2.7 Torres Strait Temperature Logger site locations (NERP TE 2.3, AIMS)

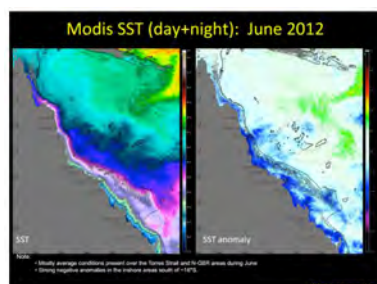


Scott Bainbridge (AIMS)

As part of the NERP TE project 2.3 temperature loggers were deployed at 15 sites across Torres Strait to measure the sea temperature. The loggers regularly measure the sea water temperature and record it in their memory. Every year or so the loggers are swapped with new loggers and the recorded data is extracted and recorded in the AIMS Real Time Data Systems database as part of the Australia wide Sea Temperature Observing System.

<http://eatlas.org.au/data/uuid/0ac5955a-912e-469d-b0ee-ad110f1a052d>

2.8 NERP Torres Strait/GBR environmental conditions reports, including SST, coral bleaching risk, Chlorophyll-a and ocean currents 2011 - 2014 (NERP TE 2.3, UQ)



Ana Redondo-Rodriguez (UQ) and Scarla Weeks (UQ)

The Biophysical Oceanography Group produces monthly oceanographic reports for the eastern Australian coast, including the Torres Strait, which summarise key environmental variables such as sea surface temperature (SST) and chlorophyll concentration. These variables are important indicators for coral reef ecosystems and other biological processes.

<http://eatlas.org.au/data/uuid/12fdf335-f950-401c-a6c5-f0537df5ca85>

2.9 Real Time Ocean Monitoring Stations - meteorological and ocean data from Madge Reef (Thursday Island) Masig (Yorke) Island from 2012 onwards (NERP TE 2.3, AIMS)



Scott Bainbridge (AIMS)

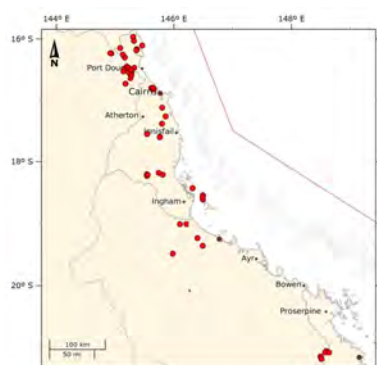
The data consists of ten minute readings of above water meteorological parameters (wind speed, wind direction, barometric pressure, air temperature and humidity) from a Vaisala WTX520 instrument, above water light as Photosynthetically Active Radiation (PAR) from a Li-COR Li-192 sensor and below water parameters including Salinity using a Sea-Bird SBE37 CTD and temperature via a Sea-

Bird SBE39 temperature sensor. Data are from two sites, one at Madge Reef near Thursday Island (-10.595125° | 142.220572°) and one at Masig (Yorke) Island (-9.758293° | 143.397584°).

The data feeds into Bayesian models of coral bleaching and has the goal of identifying conditions that may lead to coral bleaching in the region.

<http://eatlas.org.au/data/uuid/c6219bd6-f419-48e5-903f-2439baa2192d>

2.10 Vertebrate survey data for ecotonal and peripheral rainforest areas of north Queensland (NERP TE 3.3, Hoskin, JCU)

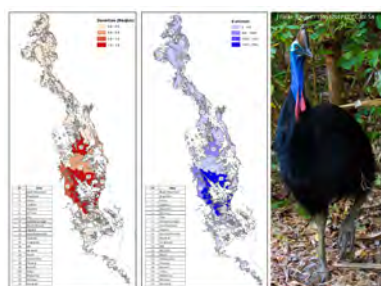


Conrad Hoskin (JCU)

This dataset consists of 546 records of vertebrate species across various sites in the rainforests and adjacent habitats of the Wet Tropics and the Eungella region. Surveys particularly targeted threatened frogs and focussed on ecotonal and peripheral rainforest areas. Each record consists of the date, species, locality name, latitude and longitude, habitat, and observer.

<http://eatlas.org.au/data/uuid/5e626bfe-c357-4635-b256-dde0cc9e1de0>

2.11 Distribution of cassowary (*Casuarius casuarius*) density and abundance in the Wet Tropics of Australia 2014 - 2014 (NERP TE 3.4 CSIRO)



David Westcott (CSIRO) and Adam McKeown (CSIRO)

This dataset contains the estimated distribution and abundance of cassowaries across the Wet Tropics Region and the sub-regions used in these estimates. The key areas for cassowary conservation are those with the highest densities and abundance.

<http://eatlas.org.au/data/uuid/0c26dc2e-2a64-4e9c-ad10-cdbf8ed7d758>

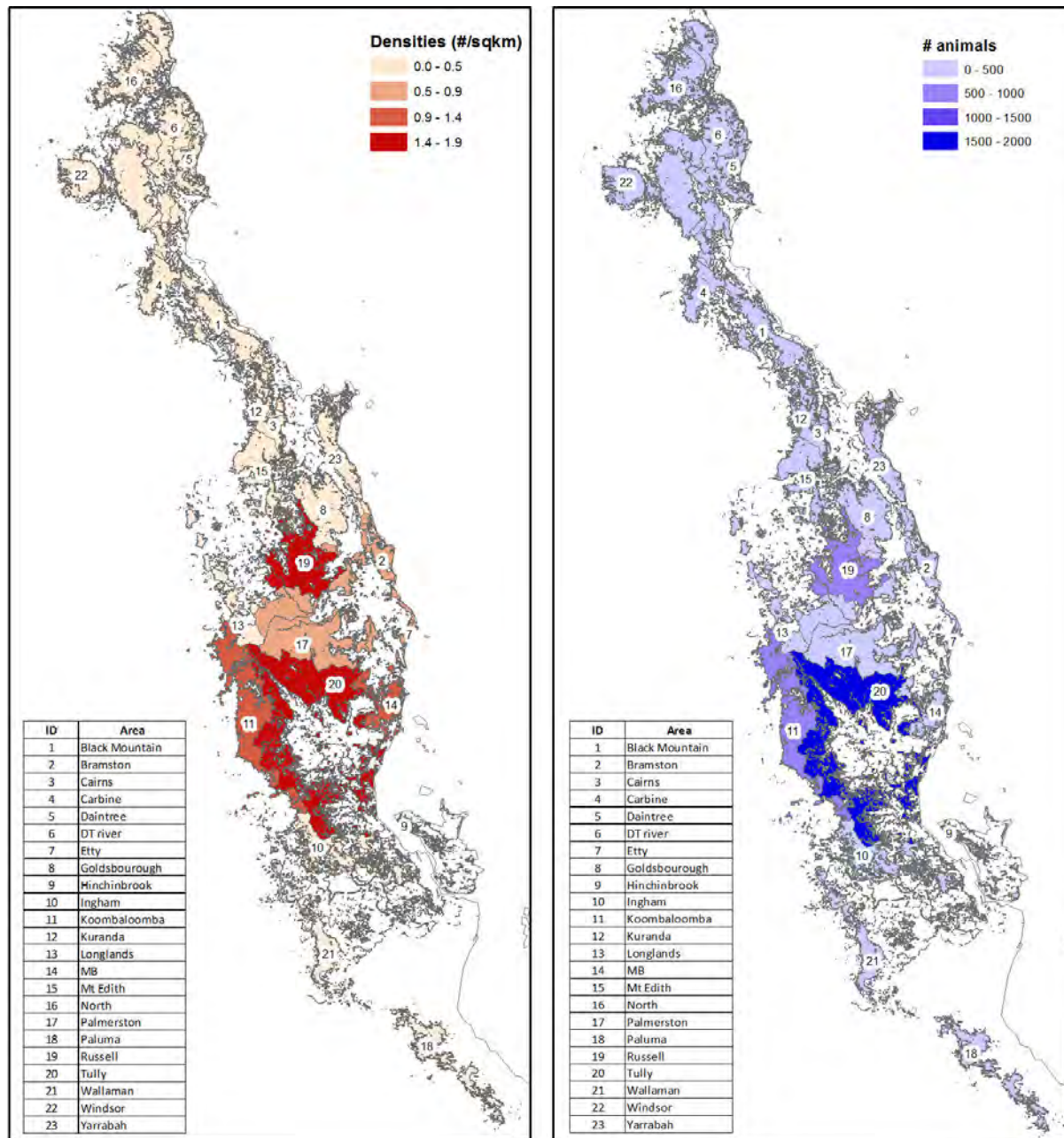


Figure 4: Cassowaries' distribution across the Wet Tropics and sub regions (Westcott et al., 2014).

2.12 Acute toxicity of photosystem II herbicides to tropical seagrass 2013. (NERP TE 4.2, AIMS and JCU)



Andrew Negri (AIMS)

This dataset shows the measured response of the photosystems of seagrasses to herbicides in experiments conducted in 2012-2013. The data is provided as a multi-sheet spreadsheet.

<http://eatlas.org.au/data/uuid/e1f65eed-5d30-413c-b70c-af85d776d25b>

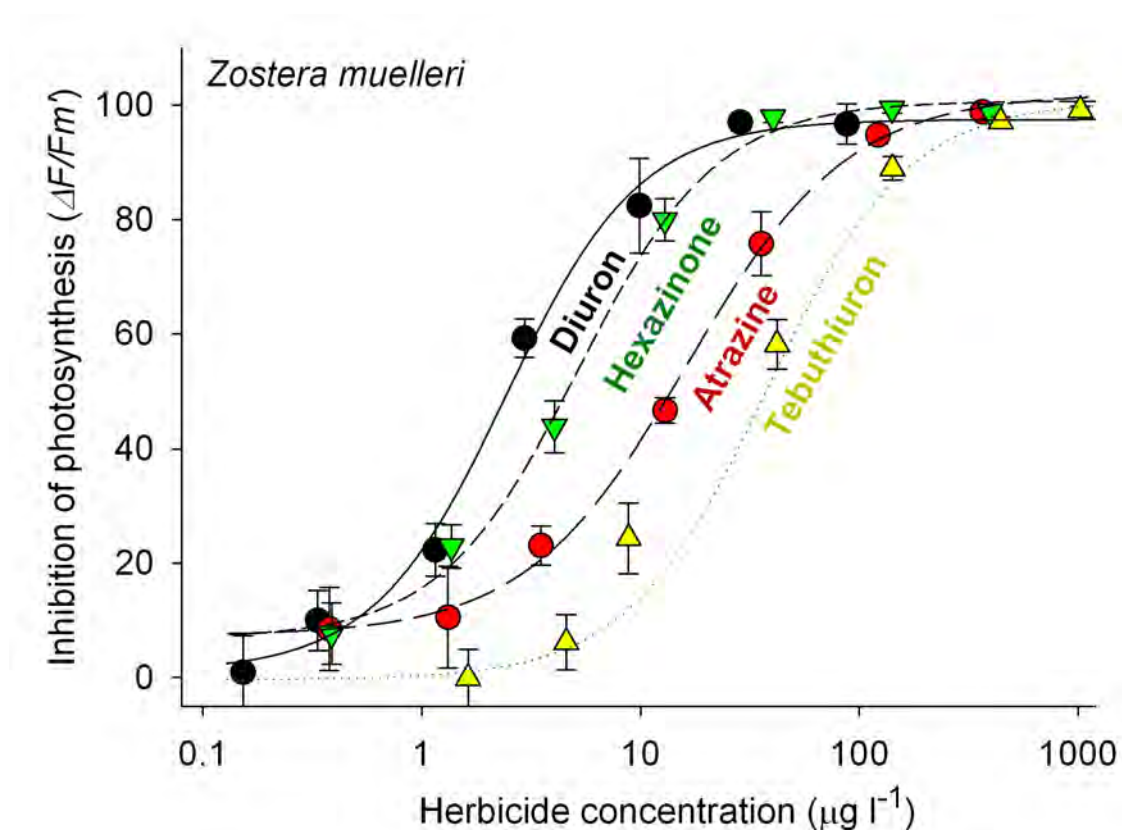


Figure 5: Toxicity of four herbicides to the seagrass *Zostera muelleri* following a 72 hour exposure (Flores et al., 2013).

2.13 Persistence of glyphosate in seawater. Glyphosate concentrations recorded over time in standard flask experiment 2013. (NERP TE 4.2, AIMS and UQ)

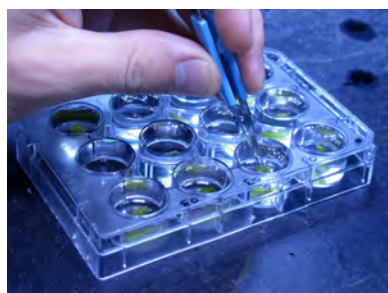


Andrew Negri (AIMS)

This dataset shows the concentrations of the herbicide glyphosate remaining over time in a simulation flask persistence experiment conducted in 2013.

<http://eatlas.org.au/data/uuid/3b718fb8-3e32-4564-a776-f9e36a8194dc>

2.14 Validation of miniature bioassay for assessing herbicide toxicity to seagrass (NERP TE 4.2, AIMS and JCU)



Andrew Negri (AIMS)

This dataset shows the measured response of the photosystems of seagrasses to herbicides in experiments conducted in 2014. The purpose of the experiments were to develop and validate a miniature toxicity assay using isolated seagrass leaves in 12-well plate.

<http://eatlas.org.au/data/uuid/e1749d34-98b1-4abd-9eae-5af654735571>

2.15 Persistence of herbicides in seawater. Herbicide concentrations recorded over time in standard flask experiment 2013. (NERP TE 4.2, AIMS and UQ)

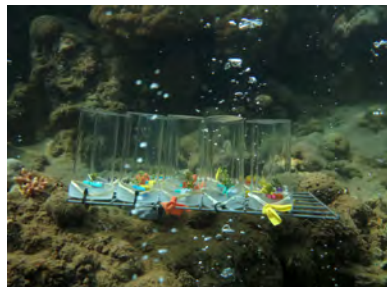


Andrew Negri (AIMS)

This dataset shows the concentrations of multiple herbicides remaining over time in a simulation flask persistence experiment conducted in 2013.

<http://eatlas.org.au/data/uuid/73bd7e38-95e1-4616-b9c0-8f9aa6752172>

2.16 Effects of ocean acidification ($\text{pH}_{\text{total}} \sim 7.8$) on calcification, photosynthesis, carbon and nitrogen contents and carbon isotopic signatures on *Halimeda opuntia* grown at tropical carbon dioxide seeps (NERP TE 5.2, AIMS)



Nikolas Vogel (AIMS)

This dataset consists of one csv data file from field derived experiments at tropical carbon dioxide seeps in Papua New Guinea, measuring the response parameters: calcification, photosynthesis, carbon and nitrogen contents and carbon isotopic signatures on *Halimeda opuntia* grown under ocean acidification conditions.

<http://eatlas.org.au/data/uuid/e95796dd-08dd-4a0c-b81c-230bf244c56a>

2.17 Photosynthetic and growth responses in three tropical seagrass species to pCO_2 enrichment (440, 700, 890, 1204 μatm) (NERP TE 5.2, AIMS)

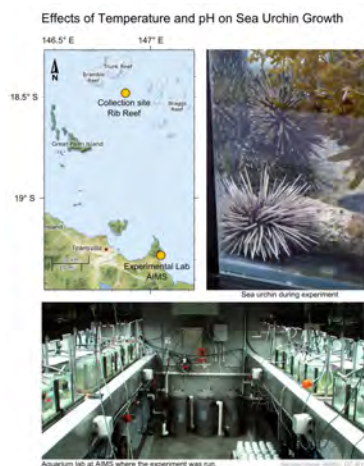


Yan Xiang Ow (AIMS), Catherine Collier (JCU), Sven Uthicke (AIMS)

This dataset consists of one data file (spreadsheet) from a 2 week aquarium experiment manipulating pH (pCO_2) changes and measuring photosynthetic and growth responses of three tropical seagrass species (*Cymodocea serrulata*, *Halodule uninervis* and *Thalassia hemprichii*).

<http://eatlas.org.au/data/uuid/0fd70612-a07a-492a-bacf-8e0b7951da4d>

2.18 Interactive effects of near-future temperature increase (28/31°C) and ocean acidification (7.8/8.1 pH) on physiology and gonad development in adult Pacific sea urchin, *Echinometra* sp. A (NERP TE 5.2, AIMS)



Sven Uthicke (AIMS)

This experiment grew adult *Echinometra* sp. A sea urchins under four temperature and pH treatments 28 / 7.9, 28 / 8.1, 31 / 7.9, 31 / 8.1 (degrees C, pH) to investigate the interactive effects of warming and acidification on their physiology. These treatments were chosen to match those that may be experienced in the near-future (2100) due to climate change. Each treatment was replicated across 3 aquaria, each with 6 individuals for a total of 72 sea urchins.

<http://eatlas.org.au/data/uuid/917c772b-974b-4c71-a4a1-8481596eb1a5>

2.19 Seagrass proliferation precedes mortality during hypo-salinity events: a stress-induced morphometric response (NERP TE 5.3, JCU)

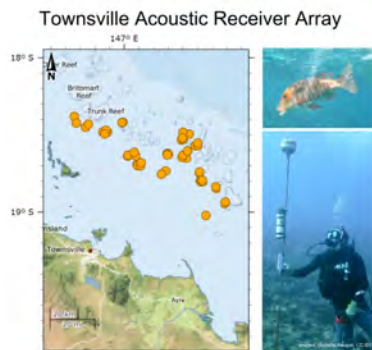


Catherine Collier (JCU), Cecilia Villacorta-Rath (JCU), Kor-jent van Dijk (Uni. Adelaide), Miwa Takahashi (JCU) and Michelle Waycott (Uni. Adelaide)

This dataset consists of one data file from a 10 week aquarium experiment manipulating salinity and measuring density, reproduction and growth responses of three tropical Indo-Pacific seagrass species (*Zostera mueller*, *Halodule uninervis* and *Halophila ovalis*).

<http://eatlas.org.au/data/uuid/f482b21f-f276-48da-a253-7215f0d811ca>

2.20 Detections from Townsville reefs acoustic receiver array for marine animal tracking with acoustic tags (NERP TE 6.1, AIMS)



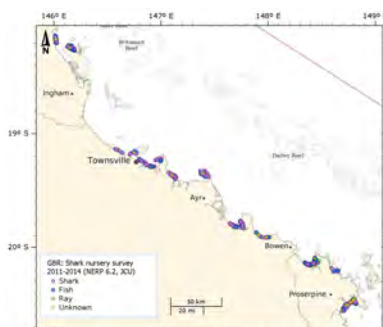
Michelle Heupel (AIMS)

There are 3 datasets:

1. Acoustic array - this dataset includes a description of the acoustic array deployed on reefs offshore from Townsville. The array was in place from August 2011 to December 2014.
2. Individuals tagged - this dataset includes a description of the individuals fitted with acoustic transmitters for tracking on an acoustic array deployed on reefs offshore from Townsville.
3. Detection - this dataset includes detections of individuals fitted with acoustic transmitters. All detection data were collected within the Townsville reefs region, detection data come from individuals captured in the region or individuals that swam into this region from other study sites.

<http://eatlas.org.au/data/uuid/47f71b15-8442-41d8-9357-4a09ee073ba1>

2.21 Central Great Barrier Reef shark nursery area survey (NERP TE 6.2, JCU)



Colin Simpfendorfer (JCU), Michelle Heupel (AIMS) and Andrew Tobin (JCU)

This dataset contains the catch data from seasonal gillnet and longline surveys of shark nursery areas in the Central Section of the Great Barrier Reef Marine Park (2011-2014).

<http://eatlas.org.au/data/uuid/505a5e46-f385-4e58-82db-ccab1fc31427>

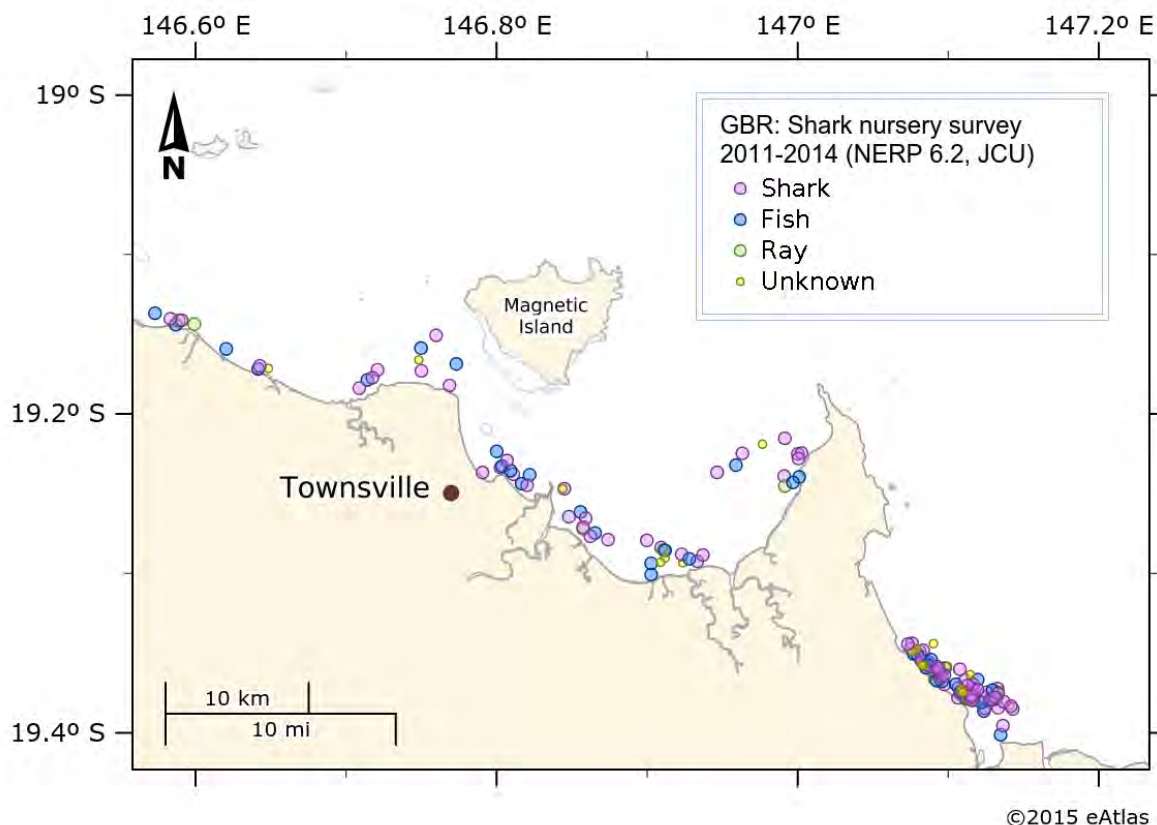
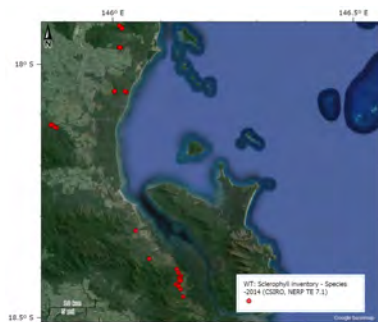


Figure 6: Collected catch data for the Townsville region (by eAtlas - AIMS).

2.22 Wet Tropics rainforest invaded lowland sclerophyll forest inventory, May-July 2014 (NERP TE 7.1, CSIRO)

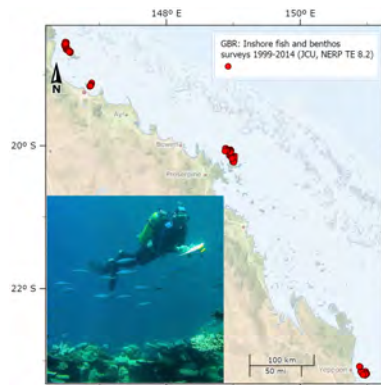


Daniel Metcalfe (CSIRO) and Andrew Ford (CSIRO)

This dataset consists of 31 monitoring sites in the Tully-Ingham area. Sites have various levels of rainforest invasion. Each site has a vegetation strata species list and counts of each species in each strata. Trees with stems > 10cm Diameter Breast Height (DBH) are identified and their DBH and height are measured. Date of survey May-July 2014.

<http://eatlas.org.au/data/uuid/1bd5d34f-5729-4c16-ab6e-9038a8f6fbd1>

2.23 Benthic cover and fish density on fringing reefs of inshore island groups of the GBR, 1999 - 2014 (NERP 8.2, JCU)

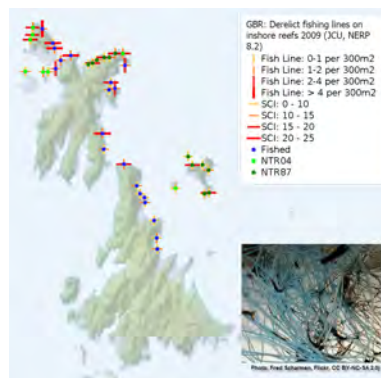


David Williamson (JCU), Garry Russ (JCU), Richard Evans (Department of Parks and Wildlife), Daniela Ceccarelli (JCU), Bette Willis (JCU) and Joleah Lamb (Cornell Uni.)

This dataset consists of site and zone means of the percent cover of major benthic categories and the density of fish functional groups on fringing coral reefs of the Keppel, Whitsunday and Palm Island groups, as a result of monitoring surveys carried out between 1999 and 2014.

<http://eatlas.org.au/data/uuid/18916872-b710-41b8-becd-0fda1611f413>

2.24 Derelict fishing line on fringing reefs of inshore groups of the GBR, 2007 - 2009 (NERP 8.2, JCU)



David Williamson (JCU) and Garry Russ (JCU)

This dataset consists of site means of the density of derelict fishing line, the percent cover of major benthic categories on fringing coral reefs of the Keppel, Whitsunday and Palm Island groups, and the accumulation rate of fishing line at ten sites in the Palm Islands between 2007 and 2009.

<http://eatlas.org.au/data/uuid/1445b34e-f6ff-4a0f-96d4-e885ce697614>

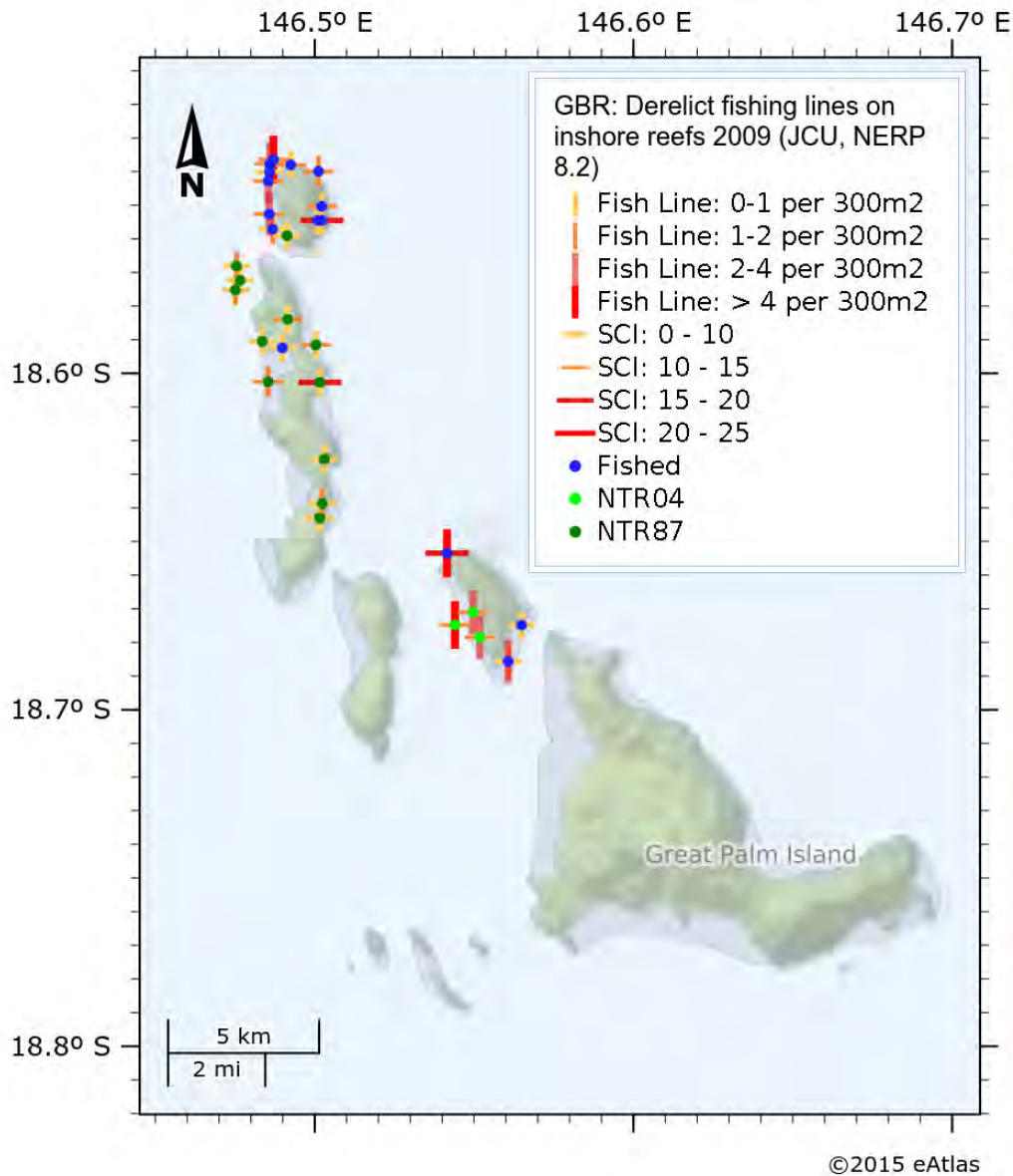


Figure 7: Derelict fishing lines found in Palm Island between 2007 and 2009 (by eAtlas - AIMS).

2.25 Microsatellite multiplexes for parentage analysis and species discrimination in coral trout (NERP TE 8.3, JCU)



Hugo Harrison (JCU), David Williamson (JCU) and Geoffrey Jones (JCU)

This dataset demonstrates the suitability of microsatellite markers to discriminate between species of coral trout (*Plectropomus* spp.) and identify parent-offspring relationships in natural populations.

<http://eatlas.org.au/data/uuid/991a4ebb-43b1-429f-bc06-4c21cb464066>

2.26 Biological records for National Park islands in the Southern Great Barrier Reef (NERP TE 9.3, JCU)



Amelia Wenger (JCU) and Bob Pressey (JCU)

The database contains native and alien species records for National Park islands in the southern Great Barrier Reef. Attributes for each record include information on abundance, life history traits, habitat requirements, limitations of source, and relevant species information from government bodies including EPBC and NCA listings. Basic interaction information among species (alien vs. native) is also recorded. This dataset also has basic information about the islands such as area, location, and regional ecosystem types present on the island.

<http://eatlas.org.au/data/uuid/74f6e33f-9347-4446-9185-488bcd7be964>

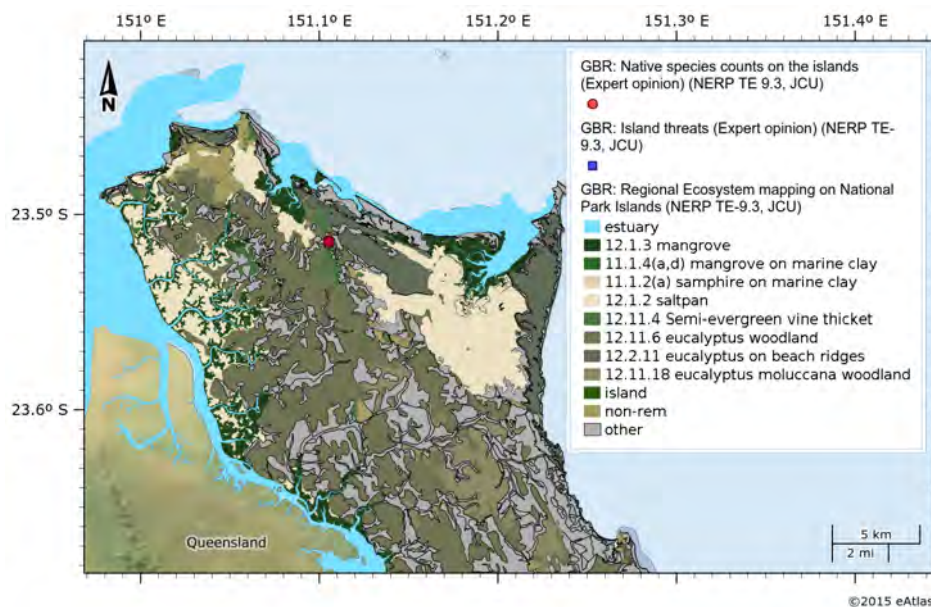
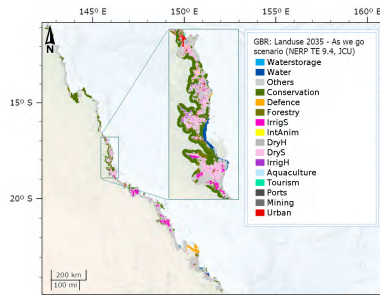


Figure 8: Ecosystem mapping of Curtis Island (by eAtlas - AIMS).

2.27 Spatial scenarios of future land use to 2035 for the GBR coastal zone (NERP TE 9.4, JCU)



Amélie Augé (JCU) and Bob Pressey (JCU)

This dataset consists of different possible land use configurations along the Great Barrier Reef coastal zone for the future (year 2035) under eight different scenarios (plausible futures). Scenarios are not predictions and do not intend to show what the coastal zone will look like (this is impossible as the future of coastal development is highly uncertain, even on a short term basis, let alone 25 years). Instead, scenarios are used to depict some plausible futures under certain circumstances so that managers can understand the system better and the various ways the future might unfold. Scenarios are built to broaden the extremities of possibilities in order to assert the main differences. The scenarios are then used to conduct impact assessments and this helps managers better understand the connections between land spatial planning and the effects on the values of the GBR World Heritage Area. The results can also be incorporated in the process for spatial planning of coastal development.

<http://eatlas.org.au/data/uuid/9da930aa-1b72-45a6-9bff-03f57b028370>

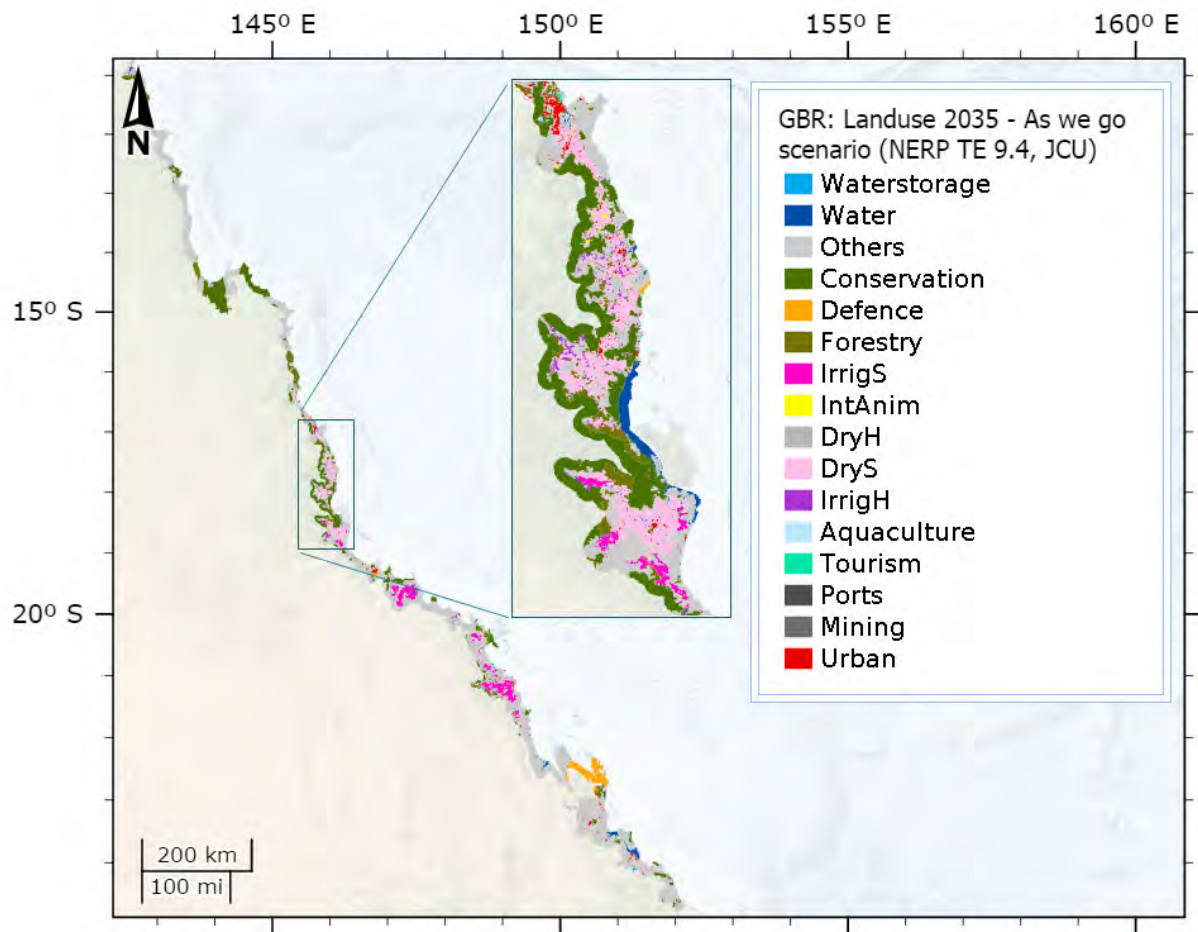
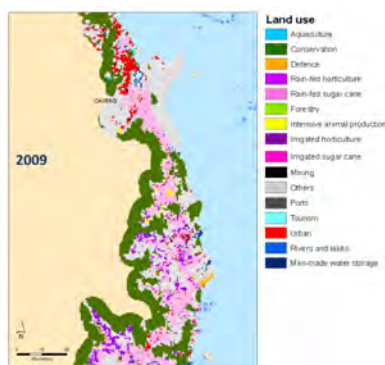


Figure 9: Predicted landuse for 2035 based on the "As we go scenario" (by eAtlas - AIMS).

2.28 Bio-physical predictors of coastal land use change between 1999 and 2009 in the Great Barrier Reef coastal zone (NERP TE 9.4, JCU)



Amélie Augé (JCU) and Bob Pressey (JCU)

This dataset consist of inputs and intermediate results from the coastal scenario modelling. It is an analysis of the bio-physical factors that best explain the changes in QLUMP land use change between 1999 and 2009 along the Queensland coastal region for the classifications used in the future coastal modelling.

<http://eatlas.org.au/data/uuid/1d0c4d84-ba83-4a8e-be6f-b792cc552a5b>

2.29 GBR Coastal Management (Land use, management, economic, planning, biodiversity) metadata catalogue (NERP TE 9.4, JCU)

Dataset ID	Dataset Name	Dataset Description	Dataset Type	Dataset Status
1	High Coast Sugar Mills 2012	Business, accounting, 2012, sugar use	Thematic	Active
2	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
3	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
4	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
5	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
6	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
7	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
8	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
9	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
10	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
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15	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
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43	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
44	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
45	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
46	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
47	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
48	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
49	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active
50	Coastal Development Database 2012	Business, accounting, 2012, sugar use	Thematic	Active

Amélie Augé (JCU) and Bob Pressey (JCU)

This dataset corresponds to a database of datasets that are relevant for the development of coastal development scenarios and impact assessments GBR. It corresponds to a list of all the datasets that were sourced as part of project 9.4. It contains basic information about each dataset along with the license that each dataset was obtained under and where the data can be sourced. This database is an excellent starting point for any others looking at obtaining data relevant for coastal management.

<http://eatlas.org.au/data/uuid/4873eb39-c41e-431b-a2b7-159f02961fd2>

2.30 Tourism and sugar mills in the Great Barrier Reef coastal zone (NERP TE 9.4, JCU)

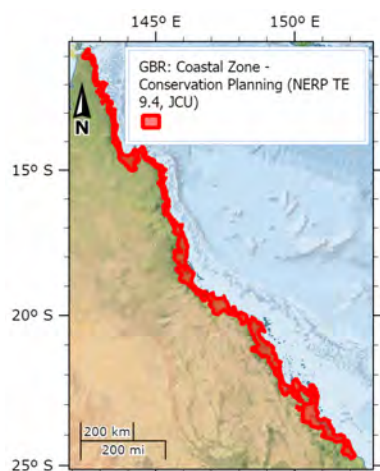


Amélie Augé (JCU) and Bob Pressey (JCU)

This dataset corresponds to the polygon digitisation of tourism sites and sugar mills. The locations of the tourism sites were obtained from a commercial database of tourism operators (Australian Tourism Data Warehouse). The location of sugar mills was obtained from information gathered on the internet and point locations were created for each mill. These datasets were developed to fill in missing source datasets for the scenario modelling used for the coastal development modelling. The tourism dataset was incorporated to the 2009 QLUMP to provide inclusion of tourism land use in this dataset. The sugar mill dataset was developed to provide the distances from sugar land use to mill and determine the restrictions for future expansion.

<http://eatlas.org.au/data/uuid/bfc4e6ee-25db-410e-8590-63762f901829>

2.31 Extent of the Great Barrier Reef coastal zone for investigating coastal management and its impacts on marine life in the context of conservation planning (NERP TE 9.4, JCU)



Amélie Augé (JCU) and Bob Pressey (JCU)

This dataset contains the extent of the coastal zone for the Great Barrier Reef. This extent was identified as the most suitable area to be investigated on land and at sea as part of a conservation planning project looking at coastal development along the GBR coast.

<http://eatlas.org.au/data/uuid/f49c5d09-3c50-4d0c-b779-f2dd3642bfcf>

2.32 Activities and Preferences of Visitors (Tourists) to the GBRWHA - 2012 to 2013 survey period (NERP TE 10.2, JCU and The Cairns Institute)

Tourism Survey

LOCATION: Date: GBRWHA TOURISM - AI

The Great Barrier Reef World Heritage Area (GBRWHA) is much more than just a reef; it includes islands, bays, beaches, estuaries and mangroves, and it extends for more than 3500km along the coast of Queensland (see the map below). For the purpose of this survey, the towns and beaches within 200km of the coast should be considered as being 'near the GBRWHA'.

- Where do you usually live? ☐ Australia, which postcode? ☐ Overseas, which country?
- How often have you been to the coast near the GBRWHA?
 - ☐ This is my first visit
 - ☐ 1-5 times
 - ☐ 6-10 times
 - ☐ More than 10 times
 - ☐ I do not remember
 - ☐ I do not remember
- In total, how long do you plan to spend away from your home (in days)?
 - ☐ Half a day or less
 - ☐ 1-4 days
 - ☐ 5-14 days
 - ☐ 15-29 days
 - ☐ 30 days or more
- On the map, shade the area(s) you have visited or plan to visit (GBRWHA, 200km).
 - How many nights have you spent (or plan to spend) near the GBRWHA? nights
 - How many nights have you spent (or plan to spend) away from the GBRWHA? nights
- Place a number '1' next to the best place in the GBRWHA that you have been to (or plan to visit) and write the name of the place below.
 - GBRWHA:
 - Place:
- Are there any places in the GBRWHA you have not yet visited but are really looking forward to visiting?
- In total, about how often did you do each of the following (GBRWHA, 200km)? Tick one box in each row. If you have not finished your trip, please tell us how often you THINK you will end up doing them.

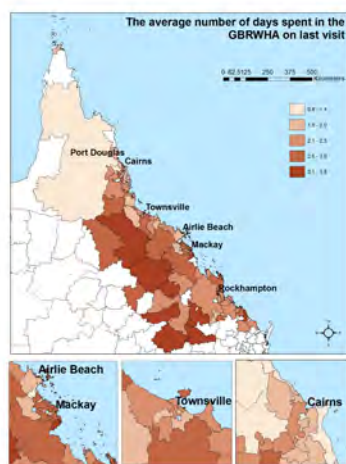
	Never	Once	Twice	3 times	4 times	5 times	More than 5 times
Spend time on the mainland beaches	☐	☐	☐	☐	☐	☐	☐
Spend time on the islands	☐	☐	☐	☐	☐	☐	☐
Spend time on offshore reefs	☐	☐	☐	☐	☐	☐	☐
Snorkel or scuba dive	☐	☐	☐	☐	☐	☐	☐
Go out on a private motor boat or jet ski	☐	☐	☐	☐	☐	☐	☐
Go out on a boat in the bay/estuary	☐	☐	☐	☐	☐	☐	☐
Pay for a boat trip or island visit	☐	☐	☐	☐	☐	☐	☐
Go sailing, kayaking, windsurfing, etc.	☐	☐	☐	☐	☐	☐	☐
Go fishing, spear-fishing, or crabbing	☐	☐	☐	☐	☐	☐	☐

Natalie Stoeckl (JCU and The Cairns Institute), Hana Sakata (JCU), Marina Farr (JCU), Michelle Esparon (JCU) and Silva Larson (JCU and The Cairns Institute)

This dataset represents the aggregate of face to face surveys of 2743 visitors to the Great Barrier Reef World Heritage Area (GBRWHA) conducted in quarterly periods from June 2012 to June 2013. This survey was to explore how tourists feel towards and perceive Great Barrier Reef World Heritage Area, as well as their willingness to pay to protect the reef and their satisfaction with current and future developments in and around the GBRWHA. Due to privacy constraints this dataset does not correspond to the raw survey results, but instead is an aggregate of views of tourists from different origins. The format of the data is an Excel spreadsheet.

<http://eatlas.org.au/data/uuid/5d5158f3-c63d-42c8-89fb-36ec7073b25d>

2.33 Activities and Preferences of Residents of the GBRWHA (NERP TE 10.2, JCU and The Cairns Institute)

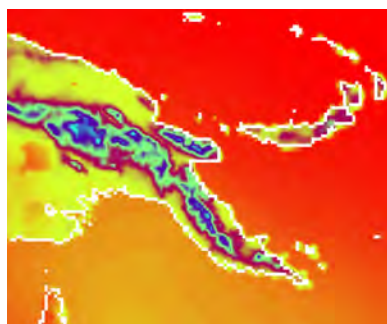


Natalie Stoeckl (JCU and The Cairns Institute) and Diane Jarvis (JCU)

This data set in excel sheet format presents results of the mail survey of 1565 residents of the GBRWHA. The dataset is accompanied by a set of 58 maps that illustrate key findings.

<http://eatlas.org.au/data/uuid/c64c924a-61e9-472f-a336-3cc0aa8271a9>

2.34 Downscaled Climate Projections for the Torres Strait Region: 8 km results for 2055 and 2090 (NERP TE 11.1, CSIRO)

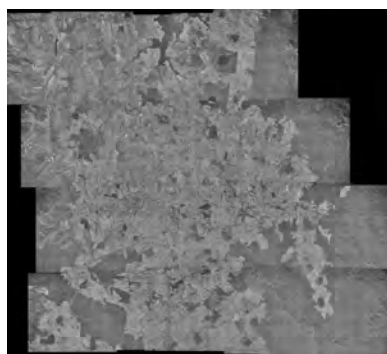


Jack Katzfey (CSIRO) and Wayne Rochester (CSIRO)

This dataset consists of rasters representing downscaled climate change scenarios (8 km resolution) for the Torres Strait and Papua New Guinea regions for 1990, 2055, 2090. This includes estimated mean surface relative humidity (%), wind speed, rainfall rate (mm per day) and surface temperature (degrees Celsius) estimated from simulated conditions for 1980-1999, 2046-2065 and 2080-2099 time periods. Also included is the relative change of each attribute with respect to 1990.

<http://eatlas.org.au/data/uuid/f6bb837a-7613-428b-a349-630ef54d3c5d>

2.35 Aerial photo mosaic of Atherton Tablelands in June 1978 (NERP TE 12.2, Griffith, source: DERM)



Carla Catterall (GU), Kylie Freebody (Atherton Tablelands Geographical Information Services) and Luke Shoo (UQ)

This dataset is a photo mosaic of historic aerial imagery of the southern Atherton Tablelands from 16th June 1978.

<http://eatlas.org.au/data/uuid/ce9d3908-9e7f-487d-9b58-bab5f2dfaff7>

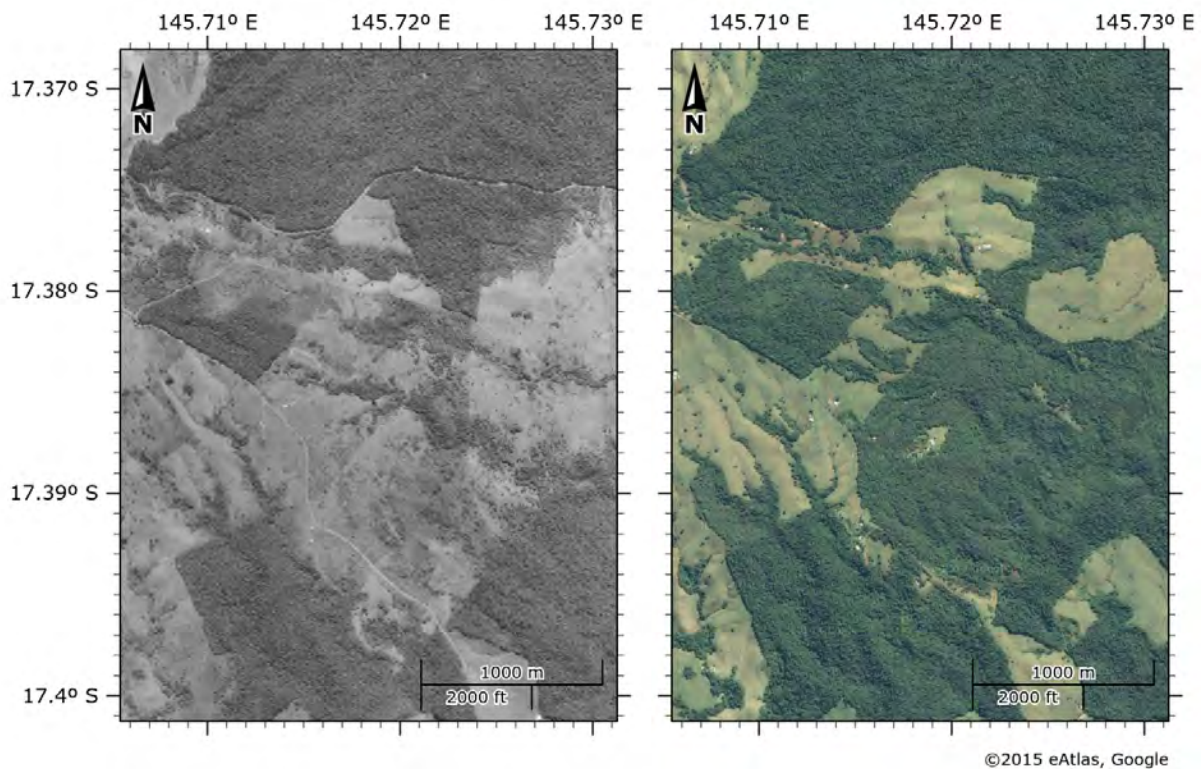
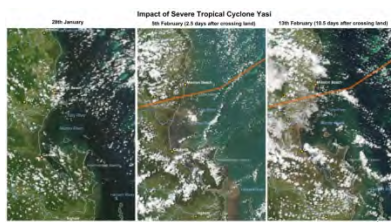


Figure 10: Aerial photography of Atherton in 1978 versus today. The imagery shows zones of deforestation and reforestation (by eAtlas - AIMS, Google).

2.36 Before and after cyclone Yasi MODIS satellite imagery (NERP TE 13.1, eAtlas, AIMS, source: NASA)



Eric Lawrey (AIMS)

This collection is a record of MODIS satellite imagery before, during and after severe cyclone Yasi in February 2011. This image series highlights the damage the cyclone makes to the rainforest areas around mission beach and the turbulence created off shore by the cyclone on the 5th February (2.5 days after the cyclone). It corresponds to the images and maps from the "Cyclone Yasi satellite image maps - before and after" article in the eAtlas.

<http://eatlas.org.au/data/uuid/5ee1b965-a4ad-41ca-8cce-aa1dfbe69c82>

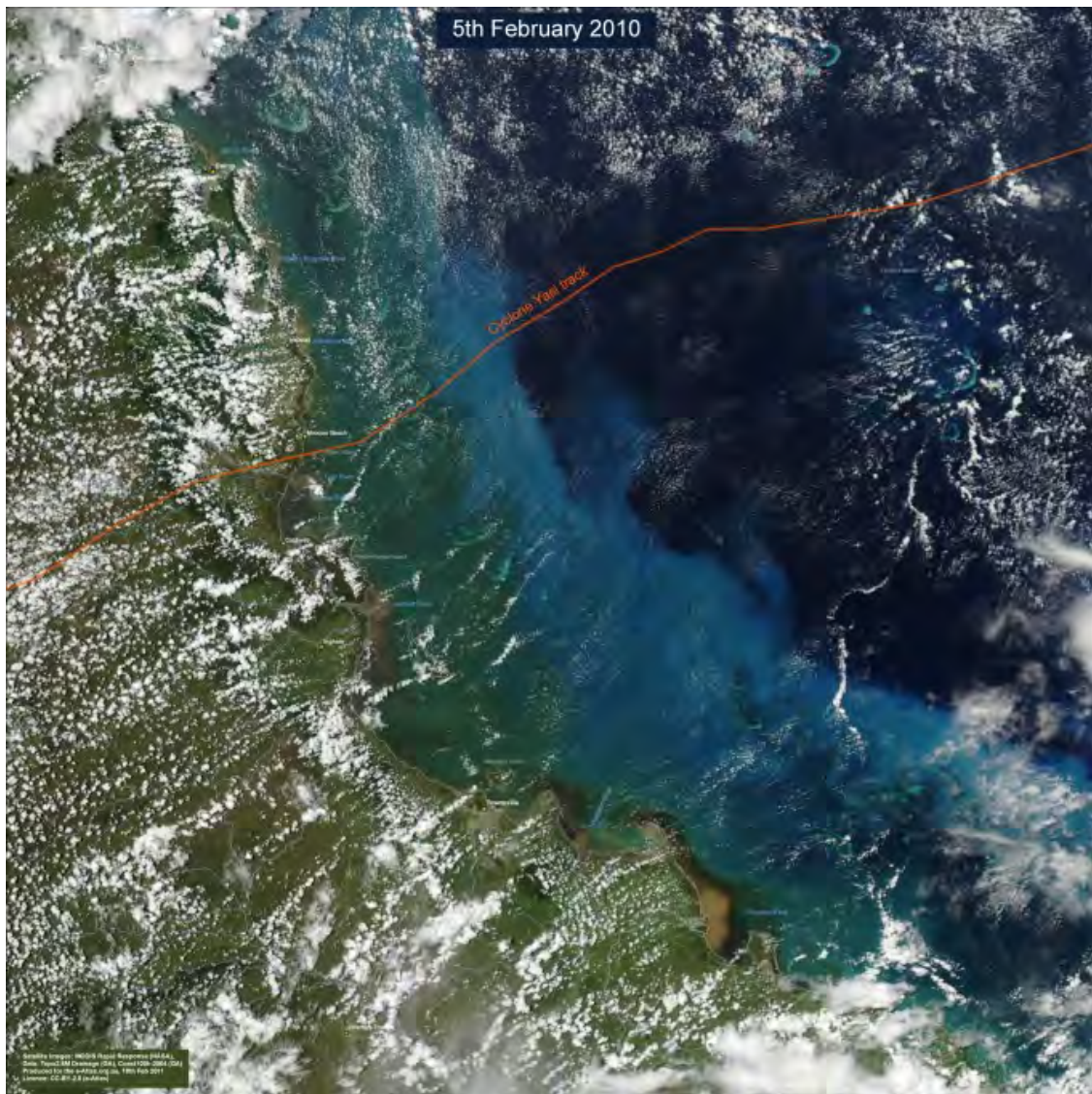
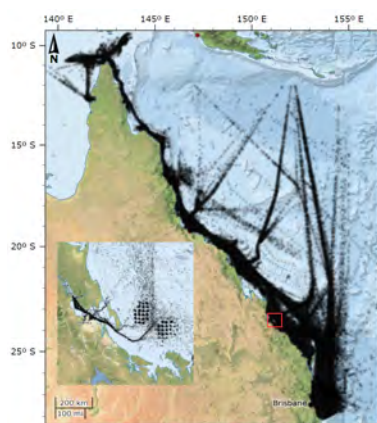


Figure 11: 2.5 days after Cyclone Yasi crossed the coast. Note the huge disturbance in the Coral Sea and Great Barrier Reef, the flood plumes and the coastal tree damage between Tully and Cardwell (by eAtlas - AIMS, NASA MODIS Imagery).

2.37 Queensland Ship Vessel Tracking (AIS) May - Aug 2013 (NERP TE 13.1 eAtlas, source: AMSA)



Eric Lawrey (AIMS)

This dataset consists of 107 days of vessel tracking using the Automatic Identification System (AIS) at 1 hour intervals extracted for the Queensland region from the Spatial@AMSA Historic Vessel Tracking website (AMSA 2013). It has been converted to Shapefile format and contains just under 1 million points.

<http://eatlas.org.au/data/uuid/5dc65f37-13c8-4a15-a69b-9a046e30a31d>

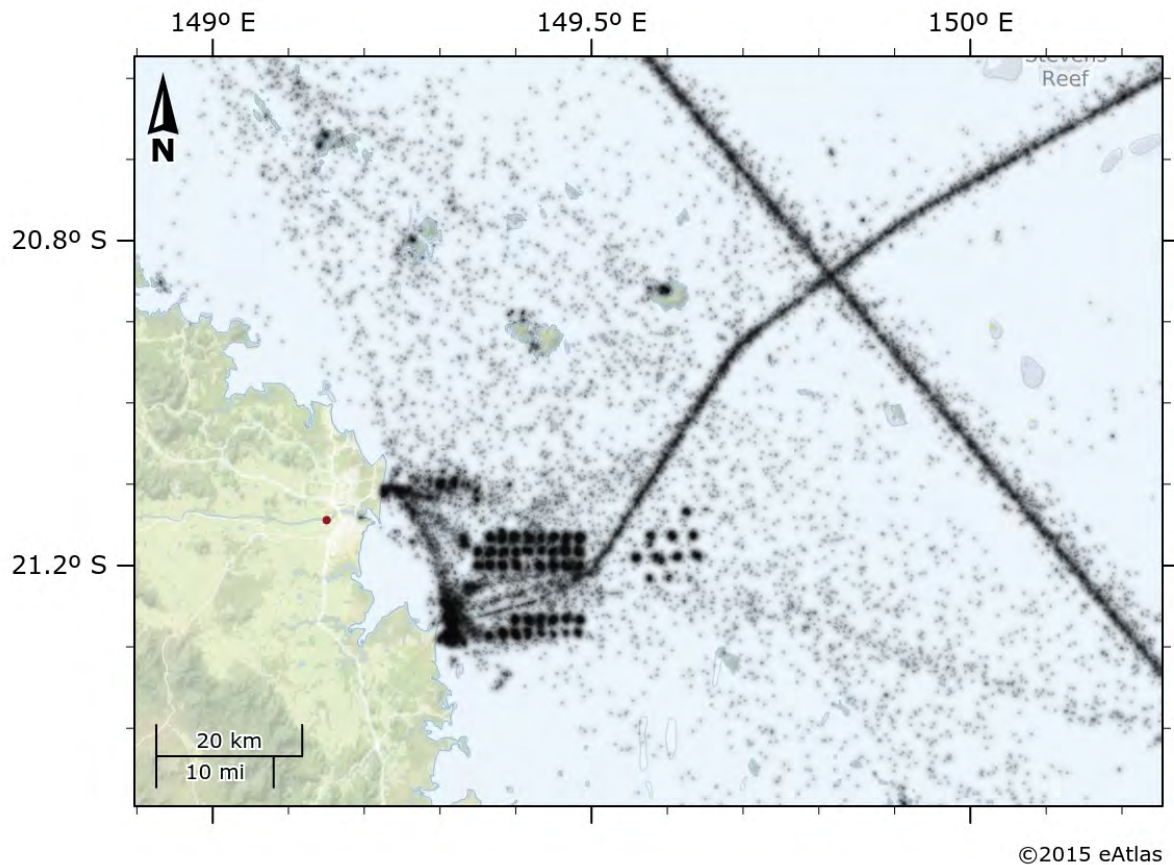
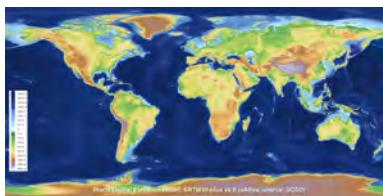


Figure 12: Ship tracks near Mackay (by eAtlas - AIMS).

2.38 Global Bathymetry and Elevation Digital Elevation Model: SRTM30_PLUS v8 (30 arc sec, 1 km) reformatted as single GeoTiff (NERP TE 13.1 e-Atlas, source: UCSD)



David T. Sandwell, Joseph J. Becker, and Walter H. F. Smith. (University of California)

This dataset corresponds to a reformatting of the SRTM30_PLUS digital elevation dataset from 33 NetCDF files into a single GeoTiff for use in GIS applications. No other modifications to the data were done. The rest of this metadata describes the original SRTM30_PLUS dataset itself.

<http://eatlas.org.au/data/uuid/80301676-97fb-4bdf-b06c-e961e5c0cb0b>

2.39 eAtlas World Baselayer Version 1 (NERP TE 13.1, AIMS)

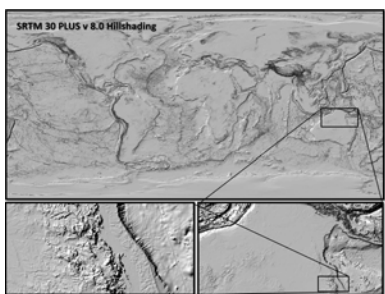


Eric Lawrey (AIMS)

The eAtlas baselayer is a collection of datasets from third parties styled and combined together to produce a world wide map layer with reasonable detail across the Great Barrier Reef suitable as a baselayer in web mapping applications.

<http://eatlas.org.au/data/uuid/869d75cf-3a06-4154-8705-2b7f782827d8>

2.40 Global hillshading from SRTM30_PLUS v8.0 (NERP TE 13.1 eAtlas, source: UCSD)



Eric Lawrey (AIMS)

This dataset consists reprocessing and reformatting the SRTM30 PLUS v8.0 Digital Elevation Model (DEM) dataset developed by Scripps Institute Of Oceanography, University of California San Diego (UCSD) to produce a single raster covering the globe in GeoTiff format and create a full and low resolution hillshading from this DEM. The aim of this derived dataset is to reformat the data to allow easy use with GIS applications.

<http://eatlas.org.au/data/uuid/239c5d24-f141-4cba-8311-aa43b46ef701>

2.41 Bright Blue Marble Next Gen Imagery 2004 (NERP TE 13.1 eAtlas, source: NASA)

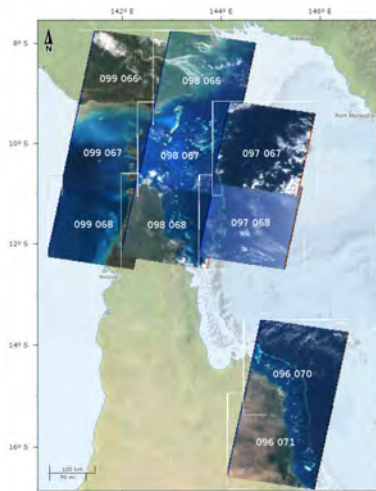


Eric Lawrey (AIMS)

This layer shows a 500m resolution image of the world derived from the Blue Marble Next Generation April 2004 image (86400x43200 pixels).

<http://eatlas.org.au/data/uuid/b53a9309-96b3-48af-8cdb-bb37047d8c9a>

2.42 Landsat 5 Satellite Imagery for selected areas of Great Barrier Reef and Torres Strait (NERP TE 13.1, eAtlas AIMS, source: NASA)



Eric Lawrey (AIMS)

This dataset contains Landsat 5 imagery for selected areas of Queensland, currently Torres Strait and around Lizard Island and Cape Tribulation.

<http://eatlas.org.au/data/uuid/bc667743-3f77-4533-82a7-5b45c317dd89>

2.43 Bright Earth e-Atlas Basemap (NERP TE 13.1 e-Atlas, AIMS)

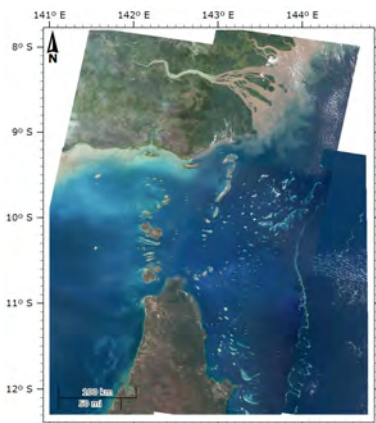


Eric Lawrey (AIMS)

The Bright Earth e-Atlas Basemap dataset collection is a satellite-derived global map of the world at a 1:1M scale for most of the world and 1:200k scale for Australia. This map was inspired by Natural Earth II (NEII) and NASA's Blue Marble Next Generation (BMNG) imagery.

<http://eatlas.org.au/data/uuid/ac57aa5a-233b-4c2c-bd52-1fb40a31f639>

2.44 Torres Strait clear sky, clear water Landsat 5 composite (NERP TE 13.1 e-Atlas, AIMS, source: NASA)



Eric Lawrey (AIMS)

This dataset is a composite of Landsat 5 imagery to produce a cloud free, clear water seamless image of the Torres Strait region. This image includes some of Cape York and PNG, in particular the Fly river. This composite shows clear imagery for marine areas, in particular reefs, larger islands and sand bars.

<http://eatlas.org.au/data/uuid/71c8380e-4cdc-4544-98b6-8a5c328930ad>

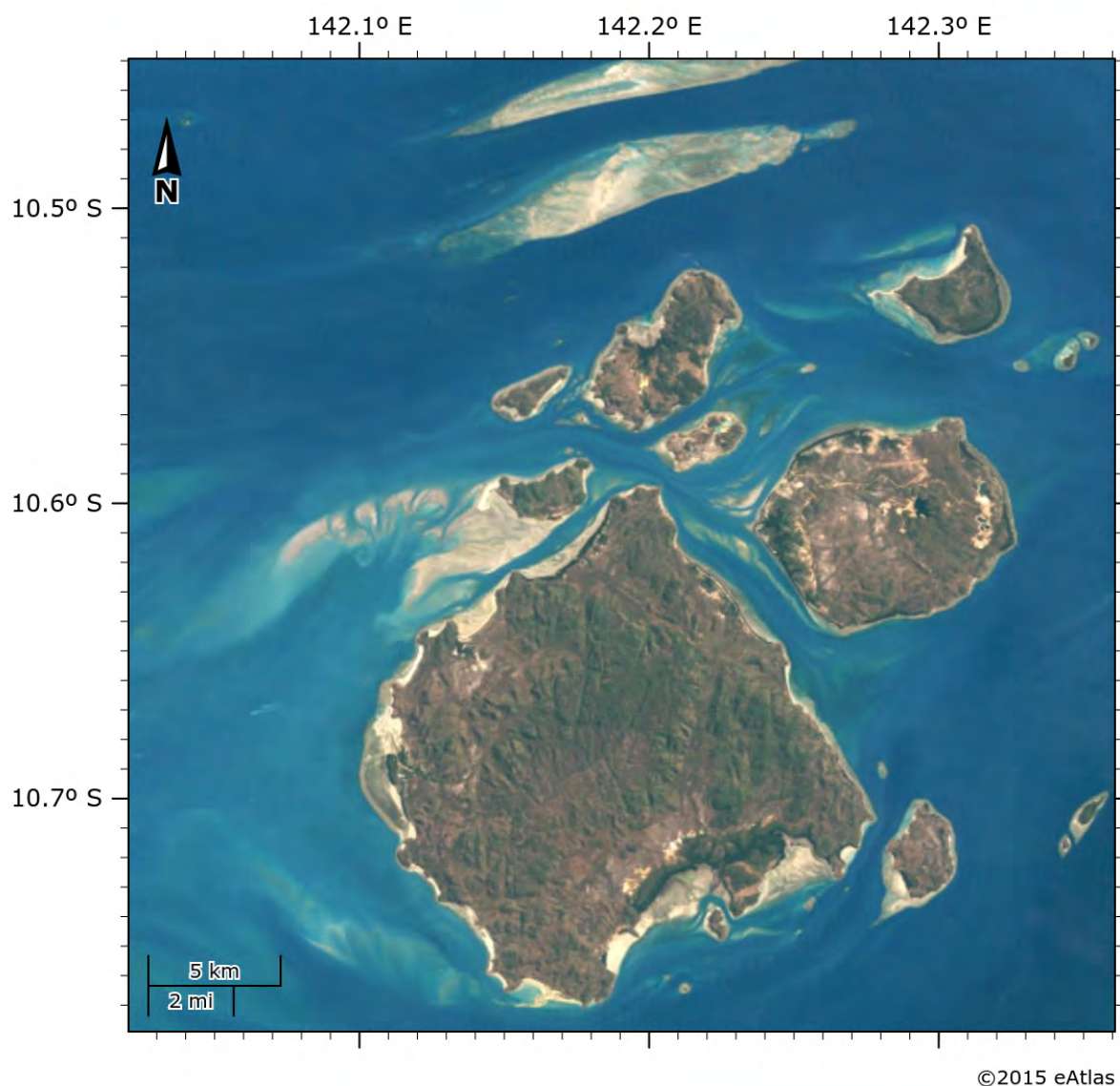


Figure 13: Torres Strait - Prince of Wales Island, Horn Island, Friday Island, Zuna and Kiriri (by eAtlas - AIMS).

2.45 Australian OpenStreetMap Major Roads December 2011 (NERP TE 13.1 eAtlas, source: CloudMade)

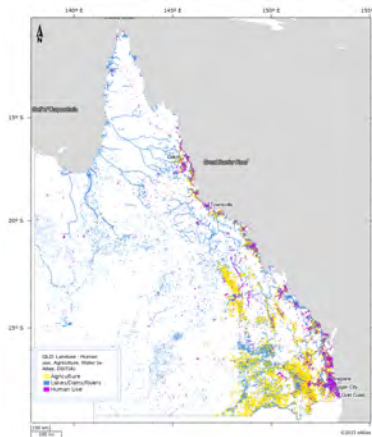


Eric Lawrey (AIMS)

This dataset contains the major roads for Australia, extracted from the OpenStreetMap project on December 2011 by CloudMade.

<http://eatlas.org.au/data/uuid/df464abf-59be-41cc-a271-d17035582c4c>

2.46 Queensland Landuse (QLUMP) - Bright Earth Classification 1999-2012 (NERP TE 13.1 eAtlas, source: DSITIA)



Eric Lawrey (AIMS)

This dataset is subset and aggregation of the current Queensland land use dataset (1999 - 2012) by Queensland Land Use Mapping Program (QLUMP) produced by the Queensland Government. The land use data was classified and aggregated into areas that represent Human Use, Agriculture and Water areas such as lakes and rivers.

<http://eatlas.org.au/data/uuid/83b01748-7fe5-418b-aa8d-b972ea62dab6>

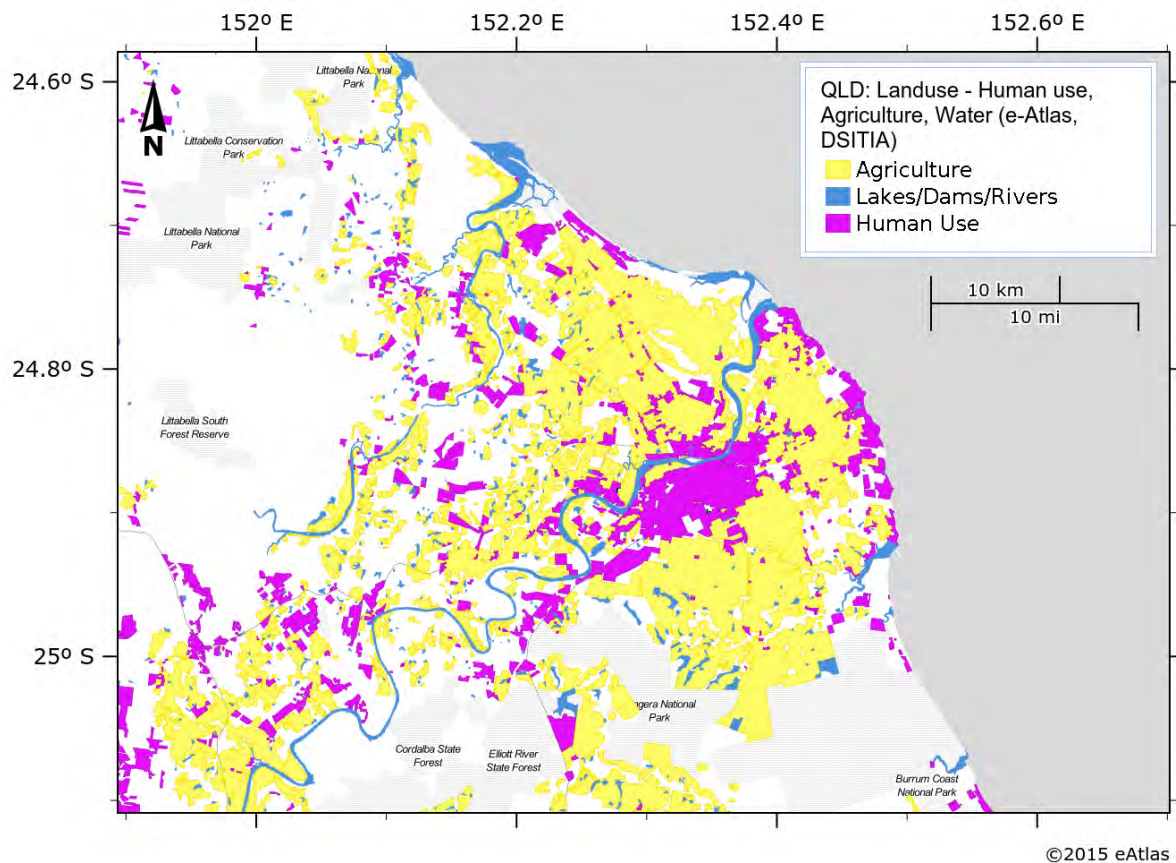
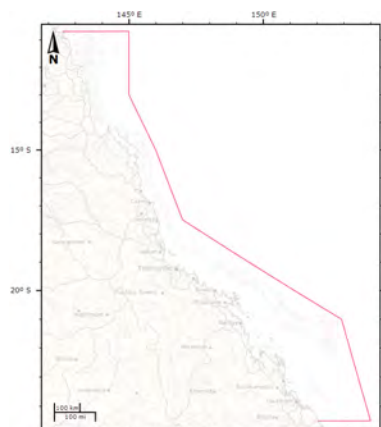


Figure 14: Bundaberg land use (by eAtlas - AIMS).

2.47 Great Barrier Reef Marine Park Boundary - Ocean Bounds (NERP TE 13.1 e-Atlas, source: GBRMPA)

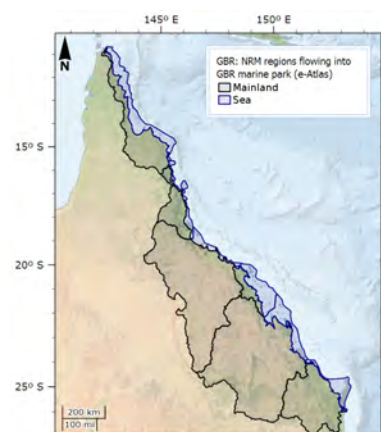


Eric Lawrey (AIMS)

This dataset shows the ocean side boundary of the Great Barrier Reef Marine Park, excluding the inner boundary along the Queensland coastline.

<http://eatlas.org.au/data/uuid/2987b7c3-c575-499c-a896-c17c46da0c39>

2.48 Natural Resource Management (NRM) areas flowing into the Great Barrier Reef Marine Park 2012 (NERP TE 13.1 e-Atlas AIMS, source: Dept. Env.)



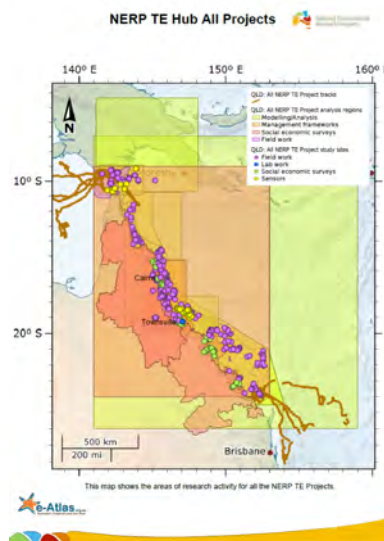
Eric Lawrey (AIMS)

This dataset corresponds to the Natural Resource Management (NRM) Regions corresponding to river catchments neighbouring the Great Barrier Reef Marine Park. The original aim of this dataset was to show river basins that flow into the Great Barrier Reef (GBR) Marine Park, grouping them by their NRM region. The NRM region boundaries already mostly correspond to a grouping of river basin boundaries and so this regrouping of river basins was unnecessary. The NRM regions did however need some adjustments as they extend out to sea and the Cape York NRM region covers river basins on the east and west coast of Cape York and thus contains river basins that do not flow into the GBR. For this reason the Cape York NRM region was split along the Great Dividing range to remove the western catchments so that only eastern catchments were kept. In addition to this the NRM region polygons were split into the mainland and sea areas to allow this dataset to be used for easy map creation. Because of these changes the polygons in this dataset do not correspond to the NRM boundaries, but are based on the NRM boundaries.

<http://eatlas.org.au/data/uuid/053f0b32-47cc-4a3f-8325-b37feb33c0e3>

2.49 NERP TE Project Maps - Areas of research activity, tracks and sites (NERP TE 13.1, AIMS)

Eric Lawrey (AIMS)



This dataset describes the areas of research activities for the 38 National Environmental Research Program Tropical Ecosystem (NERP TE) Hub projects. It represents the areas that have field work being conducted, where measurements have been taken and where modelling or analysis is being done.

<http://eatlas.org.au/data/uuid/5f8f58a6-9ba4-4c47-bf69-6c909849fbd2>

REFERENCES

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APPENDIX 1: WORD FORM USED TO CAPTURE DATASET DOCUMENTATION

This section describes and includes the Word form that was used to gather the metadata from NERP TE research providers. Since the eAtlas was started in 2008 we have tried a range of techniques for gathering metadata from researchers. Most of these attempts (online forms, Word forms matching the ISO19115 standard exactly) have largely been failures; however the current approach of using a simplified Word form with lots of examples worked quite well for gathering metadata.

The aim of the form was to gather all the information needed to produce a detailed ISO19115/19139 MCP metadata record without exposing the researchers to the stringent requirements of the ISO standard.

The form was simplified compared to the standard by not asking for information that could be gathered directly from the data itself. This included the spatial and temporal extent. If this information was not supplied in the data then it was requested from the researchers and incorporated into the data or the metadata.

The metadata ISO19115 abstract field was split into a series of questions, in the Word form, to help guide the researchers to cover all the key questions that should be addressed in a well written metadata record. This allowed them to produce high quality documentation without any training. Using a Word form to gather the information was chosen, as opposed to an online form with a login, as this is a tool that researchers are skilled in. It also allows easy sharing and delegation of the documentation development by teams as the forms are easy to email.

Once submitted to the eAtlas an editorial quality control process was applied to the datasets to ensure that a consistently high level of metadata quality was maintained. This involved reviewing and improving the dataset documentation based on additional information in associated reports and publications. It also involved a review of the submitted data for errors and inconsistencies as well as visualization of the dataset if it was spatial. This process of working with the data helped to identify many of the questions that needed to be documented in order for the data to be readily reusable.

Dataset reporting form

All datasets submitted to the eAtlas for publication need to complete the *eAtlas dataset report form*. It captures the key information needed to document the dataset and should address the basic questions of who, what, when, where and why.

To submit a data:

1. For each dataset create a *Dataset Report* documenting the context around the data, the methods used in its creation and the limitations of the data.
2. If you only have a couple of data or GIS files proceed to the submission step. If you have **lots** of **GIS layers** (> about 5) then also fill in the *eAtlas Multiple Layer Upload Template* spreadsheet. This adds titles and descriptions for each map layer and allows us to automatically process and upload all the layers. Please use the preferred formats of GeoTiff and Shapefile
3. Submit to the eAtlas (e-atlas@aims.gov.au) using email, Dropbox or [CloudStor+](#) or something similar. If the data is from a NERP TE project include the RRRC in email.

Once this form and its corresponding data have been submitted they will be reviewed by the eAtlas team for completeness. If the submission does not meet the minimum level of quality it will be returned to the author with a set of questions that need to be addressed prior to publication. After all issues are resolved in collaboration with the authors the dataset will be published on the eAtlas.

Notes and Tips:

Most research projects will have multiple datasets. Please complete one form per dataset.

If the dataset is large (> 80 MB) then please use a method other than email to transfer the data. Some other methods include Dropbox, [CloudStor+](#), mailed USB key, etc. If your dataset is already available from an existing service or your dataset is very large (> 100GB) please answer question 10 about hosting the data external to the eAtlas.

If an existing report, paper or metadata has already been written for this dataset then please supply a copy or a link to it. You still however need to complete and submit sections of this form not covered by the existing dataset report.

Packaging a dataset for publication

Before you start developing the dataset reports for your research project it is important to really think about the collection of data that has been developed as part of your project and what can be packaged and published as datasets.

Each dataset should have a clear purpose and use; it should be able to be packaged and communicated with others. You should be able to imagine someone else downloading your dataset package, unpacking the data, reading the dataset report and being able to use the data in their own work.

Typically most projects will generate multiple datasets, each needing their own dataset report.

To cite this form: Lawrey Eric (2014). *eAtlas Dataset reporting form, version 1.3*, [CC-BY 3.0 AU](#) [license]. Available from <http://eatlas.org.au/resources/data-submission-form>

For publication, data should be:

- In a form that can be readily used by others (spreadsheet, database, GIS files, etc.).
- Neat and tidy with no extraneous incomplete fields or cells or sheets. It should have no cryptic undocumented codes.
- Documented enough so that others can understand where the data came from, what methods were used in its creation and what limitations there are with the data.
- Structured, ideally, in a manner that can be easily manipulated by a computer program.
- Spatial if possible. Site locations should be provided, preferably in decimal longitude and latitude.

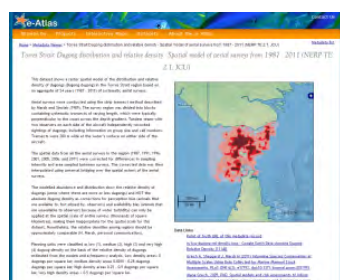
The eAtlas can accept a wide range of dataset formats however the following are the preferred formats:

- CSV, Excel, Access
- Shapefile (polygons, lines, points)
- GeoTiff (2 dimensional gridded data) or ASCII Grid or NetCDF (3 or more dimensional gridded data)

A collection of data files that are half completed are **not suitable** for publication. They should be cleaned up and completed prior to submission.

Example datasets

This form uses the following four example datasets to illustrate how to answer each of the questions. Each dataset published through the eAtlas will be given a citation similar to those shown below.



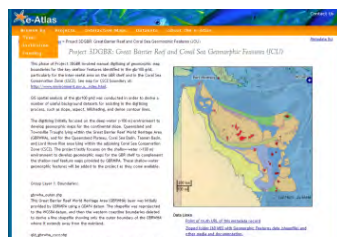
Grech Alana, Sheppard James and Marsh Helene. (2011). Dataset: *Torres Strait Dugong distribution and relative density - Spatial model of aerial surveys from 1987 - 2011 (NERP TE 2.1, JCU)* [Dataset]. eAtlas Repository.
<http://eatlas.org.au/data/uuid/70e21d20-cc5e-4d1d-9d2b-7b08f4b061a2>



Catterall Carla, Freebody Kylie and Shoo Luke. (2012). *Aerial photo mosaic of Atherton Tablelands in June 1978 (NERP TE 12.2, Griffith, source: DERM)* [Dataset]. eAtlas Repository.
<http://eatlas.org.au/data/uuid/ce9d3908-9e7f-487d-9b58-bab5f2dfaff7>



Lawrey Eric. (2013). *Queensland Ship Vessel Tracking (AIS) May - Aug 2013 (NERP TE 13.1 eAtlas, source: AMSA)* [Dataset]. eAtlas Repository.
<http://eatlas.org.au/data/uuid/5dc65f37-13c8-4a15-a69b-9a046e30a31d>



Beaman, Rob. (2012). Project 3DGBR: Great Barrier Reef and Coral Sea Geomorphic Features (JCU) [Dataset]. eAtlas Repository. <http://eatlas.org.au/data/uuid/25685ba5-6583-494f-974d-cce2f3429b78>

Citation

1. Dataset title (mandatory)

The title should be a short descriptive name of the dataset (4 - 16 words). If relevant include the period that the data was collected. At the end of the name include the project and institution that created the dataset. If the dataset is largely derived from an existing dataset then include "source:" in the name, followed by the acronym of the institute of the creator of the original dataset.

Example 1:

Torres Strait Dugong distribution and relative density - Spatial model of aerial surveys from 1987 - 2011 (NERP TE 2.1, JCU)

Example 2:

Aerial photo mosaic of Atherton Tablelands in June 1978 (NERP TE 12.2, Griffith, source: DERM)

Example 3:

Queensland Ship Vessel Tracking (AIS) May - Aug 2013 (NERP TE 13.1 eAtlas, source: AMSA)

2. Dataset Authors (*mandatory*)

Names and contact information for those that should be included in the citation for this dataset. Provide Last name, first name, title and contact information.

Please list the principal investigators first followed by co-investigators. The order given will be used in the citation. The principal investigator is the person who is primarily responsible for the creation of this dataset.

Also indicate who should be the point of contact for the dataset. You can also supply credits to others that are not part of the citation.

Example:

Smith, John, Mr (principal investigator and point of contact)
Coral Reef Studies ARC Centre of Excellence, James Cook University
07 4781 5222
Townsville, Queensland, Australia
john.smith@jcu.edu.au

Doe, Jane, Dr
Australian Institute of Marine Science
07 4753 4897
Townsville, Queensland, Australia
j.doe@aims.gov.au

Additional credit: Cooper, Peter (GBRMPA), AIMS Long Term Monitoring Team

Dataset documentation

3. Summary of what this dataset describes and where it is relevant? (mandatory)

A short introduction paragraph providing a summary of what this dataset captures and where (as a text description) is it relevant to. Typically: 40 - 100 words.

Example 1: (Torres Strait Dugong distribution and relative density)

This dataset shows a raster spatial model of the distribution and relative density of dugongs (Dugong dugong) in the Torres Strait region based on an aggregate of 24 years (1987 - 2011) of systematic aerial surveys.

Example 2: (Aerial photo mosaic of Atherton Tablelands)

This dataset is a photo mosaic of historic aerial imagery of the southern Atherton Tablelands from 16th June 1978.

It includes the towns of Atherton, Malanda, Yungaburra and Tolga. It has a southern boundary just north of Millaa Millaa, a northern boundary of Lake Tinaroo, an eastern boundary of a quarter of Wooroonooran National Park and a western boundary of Atherton.

Example 3: (Queensland Ship Vessel Tracking)

This dataset consists of 107 days of 1 hour Automatic Identification System (AIS) vessel tracking extracted for the Queensland region from the Spatial@AMSA Historic Vessel Tracking website [1]. It has been converted to Shapefile format. It contains just under 1 million points.



4. Background information, purpose and lineage (optional)

Describe any important background knowledge that is needed to understand the dataset. It should also include any important lineage information about the original source of the data, if this dataset is derived from another source. This might also include the purpose of why the dataset was made and brief descriptions of key concepts that an expert to the field may not know about. Typically: 0 - 300 words.

Example 1: (Torres Strait Dugong distribution and relative density)

N/A

Example 2: (Aerial photo mosaic of Atherton Tablelands)

This photo mosaic was compiled to assist in the location of rainforest regrowth areas for the NERP-TE project 12.2, Harnessing natural regeneration for cost-effective rainforest restoration (Griffith University, University of Queensland).

Photo mosaic produced by Atherton Tablelands Geographical Information Services (ATGIS), April 2012
1978 aerial photography imagery; digital data provided by Department of Environment and Resource Management, Queensland

Photography Name: DERM-8063 Bartle Frere 78 Program Aerial Photography

Digital data provided by DERM as scans of hard copy photos

Aerial photography ownership; Department of Environment and Resource Management (Queensland).

Aerial photography data is "© State of Queensland (Department of Environment and Resource Management) [2012]".

Date of aerial photography; 16/6/1978

Aerial photography resolution; 400 dpi jpeg

Aerial photography scale; 1:49800

Example 3: (Queensland Ship Vessel Tracking)

This extract was made for looking at shipping density along the GBR and the Torres Strait.

Vessel tracking data is used to support coastal traffic management, search and rescue response and to meet requirements for safety and protection of the maritime environment. A valuable data set for marine use studies.

The Automatic Identification System (AIS) is an automatic tracking system used on ships and by vessel traffic services (VTS) for identifying and locating vessels by electronically exchanging data with other nearby ships, AIS base stations, and satellites. Each vessel regularly transmits its position ranging from 3 minutes for anchored or moored vessels, to 2 seconds for fast moving or manoeuvring vessels.

...

Class B transceivers provide limited functionality and is intended for non-SOLAS vessels. It is not mandated by the International Maritime Organization (IMO) and has been developed for non-SOLAS commercial and recreational vessels.

5. Methods (mandatory)

Describe the methods that were used to gather and process this dataset. This is typically the largest section of the dataset documentation. If there is an existing published open access paper detailing the methods behind the data collection then make a reference to this paper. Typically: 200 - 500 words.

Example 1: (Torres Strait Dugong distribution and relative density)

Aerial surveys were conducted using the strip transect method described by Marsh and Sinclair (1989). The survey region was divided into blocks containing systematic transects of varying length, which were typically perpendicular to the coast across the depth gradient. Tandem teams with two observers on each side of the aircraft independently recorded sightings of dugongs, including information on group size and calf numbers. Transects were 200 m wide at the water's surface on either side of the aircraft.

The spatial data from all the aerial surveys in the region (1987, 1991, 1996, 2001, 2005, 2006, and 2011) were corrected for differences in sampling intensity and area sampled between surveys. The corrected data was then interpolated using universal kriging over the spatial extent of the aerial surveys.

Planning units were classified as low (1), medium (2), high (3) and very high (4) dugong density on the basis of the relative density of dugongs estimated from the models and a frequency analysis. Low density areas: 0 dugongs per square km; medium density areas 0.0015 - 0.25 dugongs per square km; high density areas 0.25 - 0.5 dugongs per square km; very high density areas > 0.5 dugongs per square km.

Example 2: (Aerial photo mosaic of Atherton Tablelands)

This photo mosaic was produced by Atherton Tablelands Geographical Information Services (ATGIS), April 2012, from digital data provided by Department of Environment and Resource Management (DERM), Queensland.

Note: this description is a bit brief and should outline some of the process used to create the dataset.

Example 3: (Queensland Ship Vessel Tracking)

The original data was downloaded through the Spatial@AMSA Historic Vessel Tracking Request website (<https://www.operations.amsa.gov.au/Spatial/DataServices/CraftTrackingRequest>). Due to limitations in the maximum size of the download, the data was requested in 3 day lots, using CSV download format and "Select by State" of QLD.

...

The data was copied to the new column using the field calculator and the original field deleted. This process reduced the database file of the shapefile from 1.4 GB to 170 MB.

6. Limitations of the data (optional)

This should describe unexpected or unintuitive aspects of the data that might result in a misinterpretation of the data.

Example 1: (Torres Strait Dugong distribution and relative density)

The modelled abundance and distribution show the relative density of dugongs (areas where there are more or less dugongs) and NOT the absolute dugong density as corrections for perception bias (animals that are available to, but missed by, observers) and availability bias (animals that are unavailable to observers because of water turbidity) can only be applied at the spatial scale of entire surveys (thousands of square kilometres), making them inappropriate for the spatial scale for this dataset. Nonetheless, the relative densities among regions should be approximately comparable (H. Marsh, personal communication).

Example 2: (Aerial photo mosaic of Atherton Tablelands)

N/A

Example 3: (Queensland Ship Vessel Tracking)

Note that due to a limitation of the shapefile format the high resolution time stamps of vessels did not come out in the shapefile. This information is however available in the CSV version.

This dataset only contains information available from the Historic Vessel Tracking Spatial@AMSA website and only contains the ships course, speed, heading, ship name and if it is piloted. It does not contain information about the ship's length, breadth, cargo or status.

The eAtlas has not confirmed what types of vessels this dataset contains however it probably contains most AIS Class A and some Class B vessels.

7. Format of the data (mandatory)

What is the format of the data? If the dataset is a table with fields please define these. What are the units? If the dataset is complex, such as a database with multiple tables, then create and supply a separate document describing the database tables and their fields. If the dataset has multiple parts then describe each part here. Typically: 30 - 500 words.

Example 1: (Torres Strait Dugong distribution and relative density)

The spatial model is 134x118 pixels with a pixel size of 2kmx2km and a spatial reference of WGS84 UTM Zone 54S. The original dataset is stored in ESRI GRID format (60 KB), which was converted to a GeoTiff for use in the eAtlas (26 kB). Both datasets are available under a creative commons attribution license.

Example 2: (Aerial photo mosaic of Atherton Tablelands)

The photo mosaic is 13792x12623 pixels with a pixel size of 2.75mx2.75m and has a spatial reference of MGA55 (EPSG:28355). The original mosaic is stored in ECW format (18 MB). A GeoTiff version of the mosaic was created for the eAtlas (440 MB).

Example 3: (Queensland Ship Vessel Tracking)

CSV file (80 MB):

Not a lot is known about the fields of this dataset as they come from AMSA undocumented. Values in brackets are typical values.

- CourseDegrees: (0, 331.3, 184)
- CraftType: (Vessel)
- FixTime: (9/05/2013 21:13)

...

Shapefile (178 MB):

These are the same values as for the CSV but renamed to fit limitations of shapefiles: CouseDegr, Heading, Latitude, Longitude, Speed, NameB, IsPiloted, FixTimeB, Reporting.

Example 4: (Project 3DGBR: Great Barrier Reef and Coral Sea Geomorphic Features)

Note: This dataset consisted of a collection of shapefiles. Each one is described here.

coralsea_cay.shp

Cay is a sand island elevated above Australian Height Datum (AHD), and located on offshore coral reefs and seamounts. Cays were mapped initially using a shapefile provided by Geoscience Australia for this project, and then their boundaries checked or remapped using Landsat imagery as background source data to help delineate the white sand areas against the surrounding ocean.

coralsea_dryreef.shp

Dryreef is rock/coral lying at or near the sea surface that may constitute a hazard to surface navigation. Dryreefs were mapped initially using a shapefile provided by Geoscience Australia for this project, which identified those reef areas lying above approximately Lowest Astronomic Tide (LAT). Landsat imagery was used as background source data to check or remap their boundaries.

...

8. Data Dictionary (optional)

Does this dataset contain tables with attributes such as a CSV file, an Excel spreadsheet, shapefiles or database? If so please provide a description of the attributes so they can be understood by others. Each should have the name of the attribute, a description and units (if applicable). If you have multiple files then create put the filename then the data dictionary.

Example 1:

- Plant rep: Plant replicate (3 plants used in each potted and hydroponic tank).
- Leaf rep: leaf replicate (21 leaves used for solvent control and 9 leaves used per treatment).
- deltaF/Fm': effective quantum (light adapted) yield measured by a Pulse Amplitude Modulated (PAM) fluorometer.
- Fv/Fm: maximum quantum (dark adapted) yield measured by a Pulse Amplitude Modulated (PAM) fluorometer.
- Solvent control: no herbicide but contains less than 0.03% v/v ethanol carrier as per the treatments.
- Time (hr): duration of exposure in hours (24 h was the duration of the herbicide exposure).
- PAR: Photosynthetically active radiation (light intensity) in $\mu\text{mol photons m}^{-2}\text{s}^{-1}$ (μE).

9. References (optional)

Are there any references to material that would assist someone in understanding this dataset? In particular are there papers that directly describe the development of the dataset or the research behind the data. Note that all NERP TE datasets will be linked directly to their project pages.

10. Declaration (*mandatory*)

I certify that I am the owner or creator of the submitted dataset and understand that the submitted dataset will be released publically under a [creative commons attribution 3.0 Australian license](#) (contingent on restrictions applied in Question 12).

Example:

Project: NERP TE Project 3.4 - Monitoring of key vertebrate species

Submitted: David Westcott, Date: 28/01/2013

Project:			
Submitted by:		Date:	



Advanced options: Hosting, Publication and Licensing

This section contains questions that most projects do not need to consider. Please complete these if relevant.

11. Dataset hosting (optional)

Most projects can skip this question as the data will be made publically available via the eAtlas.

Some projects already have existing institutional dataset repository, where the dataset already has an existing established database or where the datasets are very large (>100 GB). These datasets should be hosted in an enduring institutional data repository that provides public access to the data. If this is not possible then an extract of the data covering at least the period covered by NERP TE funding (June 2011 - Dec 2014) should be provided to the eAtlas for public availability. If the dataset is too large to be made publically available then a set of summary datasets should be developed to act as a preview for the full dataset.

These projects still need to supply details of these dataset so that the eAtlas is aware of all NERP TE datasets.

Is this dataset already hosted in an institutional repository?		
If yes:	What is the name of the repository and a URL to where the data is available from?	
	Has a preview dataset or extract been supplied to the eAtlas?	

12. Restrictions on raw data (optional)

Describe any restrictions on the supply of the raw data. Are there any privacy reasons or sensitive environmental reasons why the original raw data cannot be published? Is the dataset very complex where there is a good chance of misinterpretation of the data? If so please describe the reason for the restriction. In these cases a public form of the data should be developed and made available, such as a spatial summary of the data, or a rounding of the spatial coordinates (introduced error) to protect the exact location of sites. This description should make it clear what aggregation or protection measure has been added to the public form of the data.

If the dataset cannot be made available for download, but can be made available as a visualisation then outline under what conditions the data will be available and what steps should be taken should someone wish to obtain the data.

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13. Delayed data publication (optional)

Is this dataset currently under an embargo due to a pending publication as part of a journal article? If so please indicate when this dataset can be made public. Embargoed datasets will have their metadata published as soon as they are ready but access to the data will be restricted until the embargo date. The embargo can only be active for up to 12 months. Under the NERP TE data management guidelines all datasets must be made publically available, ideally prior to Dec 2014.

Is there a reason for delayed publication of this dataset?	
If so why and what date can it be published?	

14. Additional licensing information (optional)

Data submitted to the eAtlas is made available publically under a creative commons open access license. This allows others to freely use the data and create derivative works, but they must attribute the original data source. If this dataset has been created from other datasets that need additional attribution to be included in the data documentation then please provide that here.

Example:

This mosaic work is a digital product based on the "Digital Aerial Photography Area CD, 8063 Bartle Frere 1978 Program" by the Department of Environment and Resource Management (DERM) under a Single Supply License.

Derivative products and copies of this work must display this acknowledgement:

"Based on or contains data provided by the State of Queensland (Department of Environment and resource Management) [2012]. In consideration of the state permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws."

You must also include meta-data with the product(s) and include as a minimum the metadata provided with this supplied data.

