

Databases

Information and Data Centre Program

Why use a database?

A database will be of use if you wish to share, store, describe, organize, discover, integrate, access or re-use your research data.

With a database you can achieve:

- ♦ A logical structure for data, with minimal redundancy / repetition
- ♦ The capture of relationships between data elements
- ♦ Consistency of content
- ♦ A record of the quality, stage of analysis and context of the data
- ♦ Controlled access to your data
- ♦ Management and query of spatial information, media, XML and other data types
- ♦ A stable or dynamic repository for feeding data to web interfaces and other applications such as models, statistical packages

How does Oracle assist in data management?

Oracle is an important tool for the management of CMAR research data holdings. It is the basis of systems for:

- ♦ Data descriptions and metadata
- ♦ Supplying data or metadata into national or global nodes and portals
- ♦ Archiving and managing a single "point of truth" for a dataset

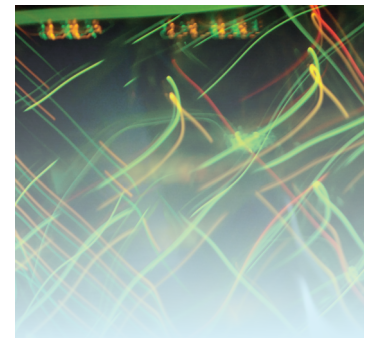
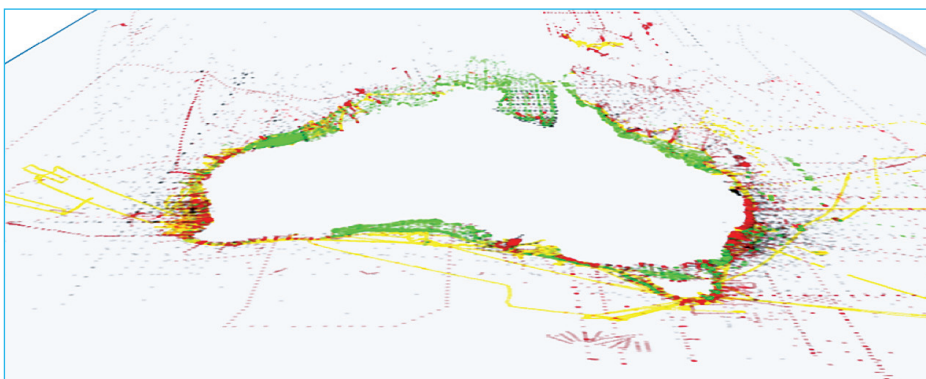
- ♦ Catalogue services for file systems (e.g. image or video libraries)
- ♦ Data transformation into products for presentation and mapping
- ♦ Web services for map and feature layers
- ♦ Data security: readily add or remove user access to your data

How can the CMAR IDC Program help you?

The Data Centre supports these data management options with infrastructure and specialist skills.

- ♦ Your DB administrator will take care of the management of Oracle installations, backups, upgrades, storage structures, tools, performance, security and access, servers, allocations, monitoring, migration, user help
- ♦ Data Centre application developers with expertise in data modelling and programming can consult and assist with tools for end users, who can engage then with interfaces rather than directly with the data (see Data Centre fact sheet: *Web Interfaces for data entry and exploration*)

Data currently available via the CMAR "Data Trawler"



Management of the research data collections

Within CSIRO, CMAR is recognised as having a better track record for the management of the research data collections than most other divisions. Over the past decade we have worked to develop information systems which organise raw data into accurate, available, usable and persistent datasets and which comprise tools and procedures to describe, work with and disseminate the data. Databases have featured prominently in this process.

Oracle in CMAR

- ♦ 9 Oracle databases
- ♦ 1000 user and project accounts
- ♦ 60,000 database tables
- ♦ 6 billion data records

Tell us about data from your project.

Connect to your database with:

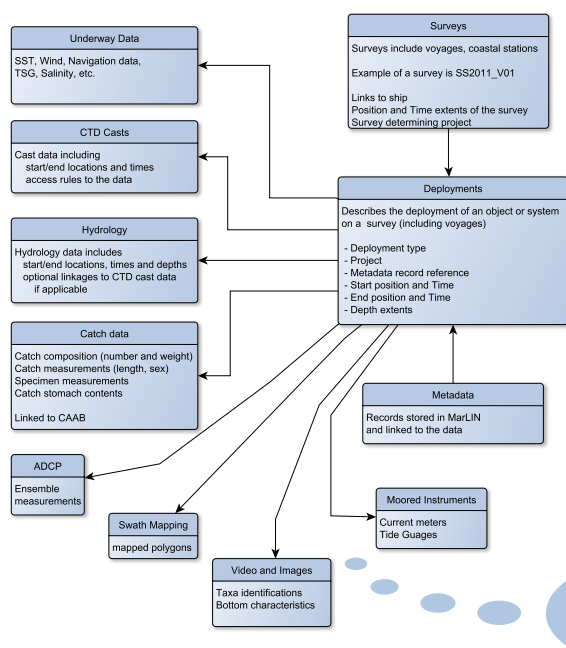
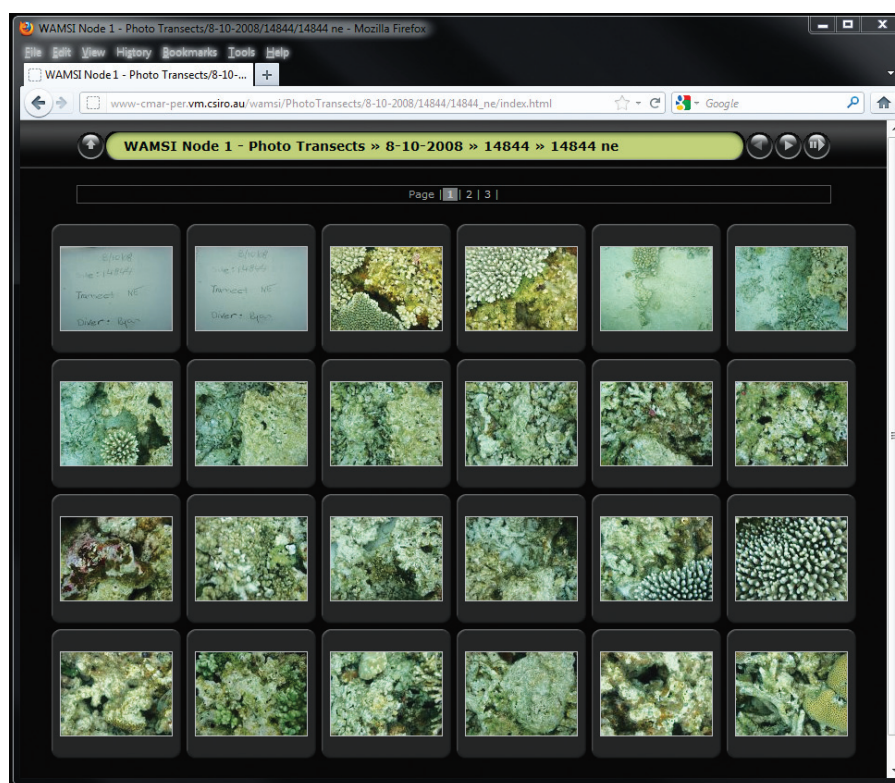
- ♦ Java/C++
- ♦ Perl/PHP
- ♦ GeoServer
- ♦ MS Office tools
- ♦ ArcInfo/MapInfo
- ♦ R/MATLAB
- ♦ LabVIEW, etc.

CMAR database repositories

Some existing CMAR Divisional and project data repositories are:

- ♦ CAAB
- ♦ MarLIN
- ♦ the Data Warehouse
- ♦ TAG
- ♦ Pesci
- ♦ the SDE Geodatabase
- ♦ Remote Sensing
- ♦ the Lihir Gold Mine Project
- ♦ Ningaloo Transect Image system
- ♦ Genlog and VARS

Other relational databases are also used at CMAR. These include MySQL, Postgres and MSAccess.



Some sites where data from CMAR databases can be found:

- ♦ AODN – portal.aodn.org.au/webportal
- ♦ OBIS – www.obis.org.au
- ♦ IMOS – imos.org.au
- ♦ ASDD – asdd.ga.gov.au
- ♦ ALA – www.ala.org.au
- ♦ GTSP – www.nodc.noaa.gov/GTSP
- ♦ Trawler – www.marine.csiro.au/warehouse/jsp/loginpage.jsp

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FOR FURTHER INFORMATION

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