



Using local knowledge and GIS to facilitate marine spatial planning
EPOG

Australian Aid 


Donna Hayes, Piers Dunstan, Tim Skewes, Ian Mcleod, Ben Howell, and Mibu Fisher
CSIRO Oceans and Atmosphere



Enhancing Pacific Ocean Governance (EPOG)

- Enhance access to useful spatial data
 - Collate and organise data holdings
 - Information portals – KiGeo (PacGeo - SPC)
- MSP Tools
 - Oceans project portal
 - Decision support information portal -Maps
- Enhanced capacity (training)
 - QGIS
 - KiGeo

EPOG Solomon Islands | Tim Skewes



Collaboration

- PIFS
- SPREP
- SPC (Coastal Fisheries & GSD)
- MACBIO
- iClim
- ANCORS/ACIAR project on coastal fisheries
- TNC, Worldfish & CSIRO CTI marine values project & local adaption
- CBD - Convention on Biological Diversity
- Governments of Kiribati, Solomon



Different Policy & Management needs across Regional, National and Community Scales

- The usual approach would be different implementations and approaches that would promote fragmentation and increase the cost of maintenance
- EPOG approach is to use a common set of tools, based on standards, to support each agency to achieve their policy objectives



Kiribati Activities

- Marine Spatial Planning Tools
 - Projects data base
 - Mapping
- Deployment of internet independent version of Pacgeo to MFMRD, Kiribati, In collaboration with SPC.
- Capacity building
 - Training in use of Kigeo (SPC, Macbio)
 - Training QGIS (Macbio, GIZ)
 - Provide training in using Marine spatial planning tools
- Community based Fishery Management (CBFM) ANCORS
 - Tarawa Lagoon Marine Spatial Planning Mapping (ANCORS)
 - Community Based Fisheries Management (CBFM – ANCORS)



Kiribati Activities

- Marine Spatial Planning Tools
 - Projects data base
 - Mapping
- **Deployment of internet independent version of Pacgeo to MFMRD, Kiribati, In collaboration with SPC.**
- Capacity building
 - Training in use of Kigeo (SPC, Macbio)
 - Training QGIS (Macbio, GIZ)
 - Provide training in using Marine spatial planning tools
- Community based Fishery Management (CBFM) ANCORS
 - Tarawa Lagoon Marine Spatial Planning Mapping (ANCORS)
 - Community Based Fisheries Management (CBFM – ANCORS)



KiGeo



Kiribati Activities

- **Marine Spatial Planning Tools**
 - Projects data base
 - Mapping
- Deployment of internet independent version of Pagueo to MFMRD, Kiribati, In collaboration with SPC.
- Capacity building
 - Training in use of Kigeo (SPC, Macbio)
 - Training QGIS (Macbio, GIZ)
 - Provide training in using Marine spatial planning tools
- Community based Fishery Management (CBFM) ANCORS
 - Tarawa Lagoon Marine Spatial Planning Mapping (ANCORS)
 - Community Based Fisheries Management (CBFM – ANCORS)



MSP Tools

<http://msp.csiro.au/>

Web based Drupal tool that can be deployed on a virtual machine with no internet.

-Kiribati



Information technology deployable products

- Production of a deployable virtual machine that contains:
 - Internet independent tools to meet needs, including:
 - **MSP Tools**
 - Marine Projects
 - Map Tool - Marine Information Platform displays information in a **policy relevant context**

<http://msp.csiro.au>



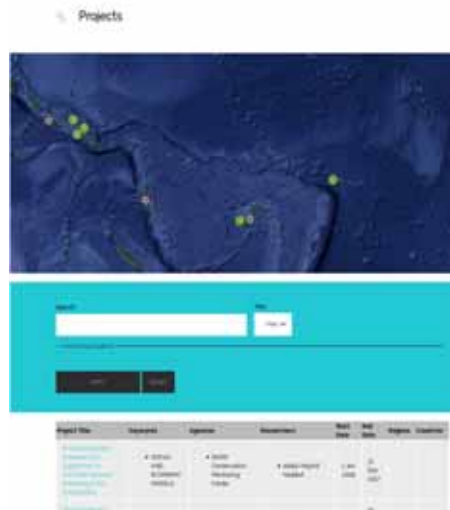
MSP Tools - Maps

Relevant data and information across the spectrum of the Pacific Ocean as a basis for promoting and monitoring the sustainable development



MSP Tools Project Tools

Maintain a more comprehensive ongoing register of initiatives



Kiribati Activities

- Marine Spatial Planning Tools
 - Projects data base
 - Mapping
- Deployment of internet independent version of Pagueo to MFMRD, Kiribati, In collaboration with SPC.
- **Capacity building**
 - Training in use of Kigeo (SPC, Macbio)
 - Training QGIS (Macbio, GIZ)
 - Provide training in using Marine spatial planning tools
- Community based Fishery Management (CBFM) ANCORS
 - Tarawa Lagoon Marine Spatial Planning Mapping (ANCORS)
 - Community Based Fisheries Management (CBFM – ANCORS)



Assisting with Capacity Building (Macbio, GIZ, CSIRO)

- Training Using KiGeo
- An introduction to GIS, using QGIS.
- Meeting with Kiribati GIS users group.
 - What is the GIS users Group?
 - What they want out of GIS?
 - Training Requirements
 - Data management



Data management Discussion RiiBeta Abeta (GIZ)

Agency	Type of data	Level of confidence X - confidential ✓ - can be shared	Infrastructure	Maintenance capacity
Coastal Fisheries	Existing (survey/monitoring) <ul style="list-style-type: none"> Sites ciguatera. Sewage outfall UVC sites in outer islands. Coral monitoring sites (non-points) Proposed MPA sites (only in reports) FADs only point coordinates. Water quality (points only) 	✓ (limited to monitoring) ✓ ✓ (some sensitivities due to fishing pressures) ✓ ✓ ✓	No server No LAN system Only desktop based stored system.	Limited resource. 2 skilled people only.
Mineral	Existing <ul style="list-style-type: none"> Satellite imagery Aerial photos Shoreline Survey on beach mining shoreline Maritime boundary Domestic fishing zones (24 - 45nm fishing buffer zones) PIPA boundary/zone Bathymetry Abalang Tarawa Malena Most layers housed with GSD e.g. bat 	X X ✓ ✓ X X X X ✓ ✓	There's new server. Training opportunity. Nuke and IT based skills and 3 GIS operators.	Only 3 basic skilled GIS users
License (Offshore fisheries)	<ul style="list-style-type: none"> Catch data Position of fishing vessels Track of Vessels (VMS) 	X X	Server same fisheries. VMS hosted in Australia	



Kiribati - GIS User Group Training/capacity requirements

Agencies	Needs
Coastal fisheries	<ul style="list-style-type: none"> Bioregion maps GPS equipment Training manual Spatial register system for MPAs Spatial data analysis & reporting Data management (storage/maintenance)
Housing	<ul style="list-style-type: none"> Installation of QGIS on server for multiple user Training manual Hard drive
CBFM	<ul style="list-style-type: none"> Data sharing/storage on cloud Demarcation of boundaries for marine resource management
Mineral Division	<ul style="list-style-type: none"> GPS equipment Training manual Rate of change of Coastline Lidar/UAV elevation data critical for development areas Bathymetry maps



Kiribati Activities

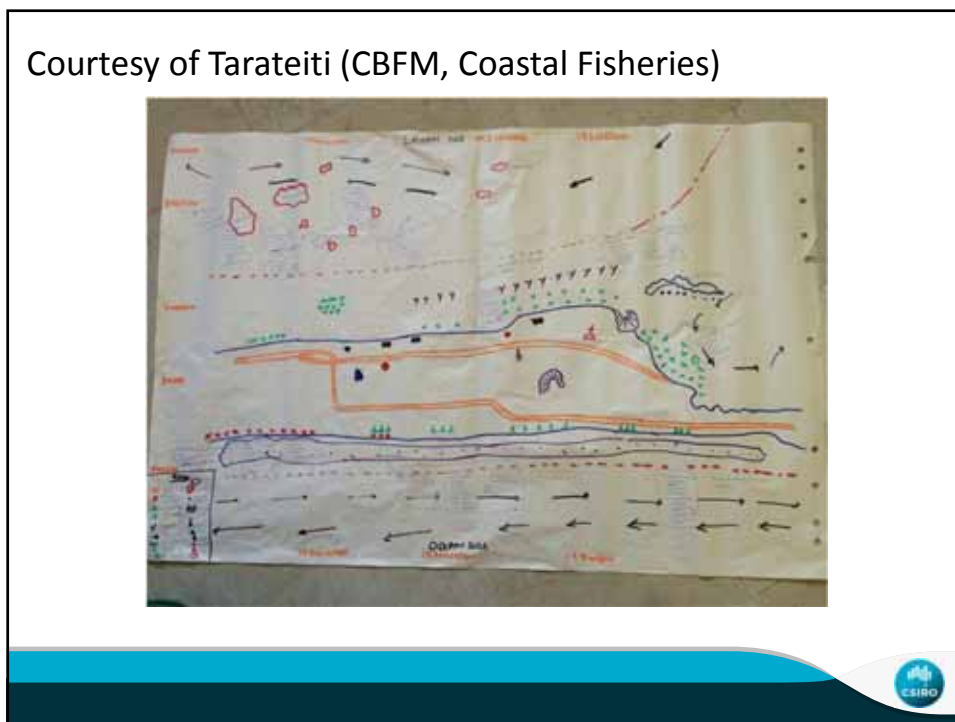
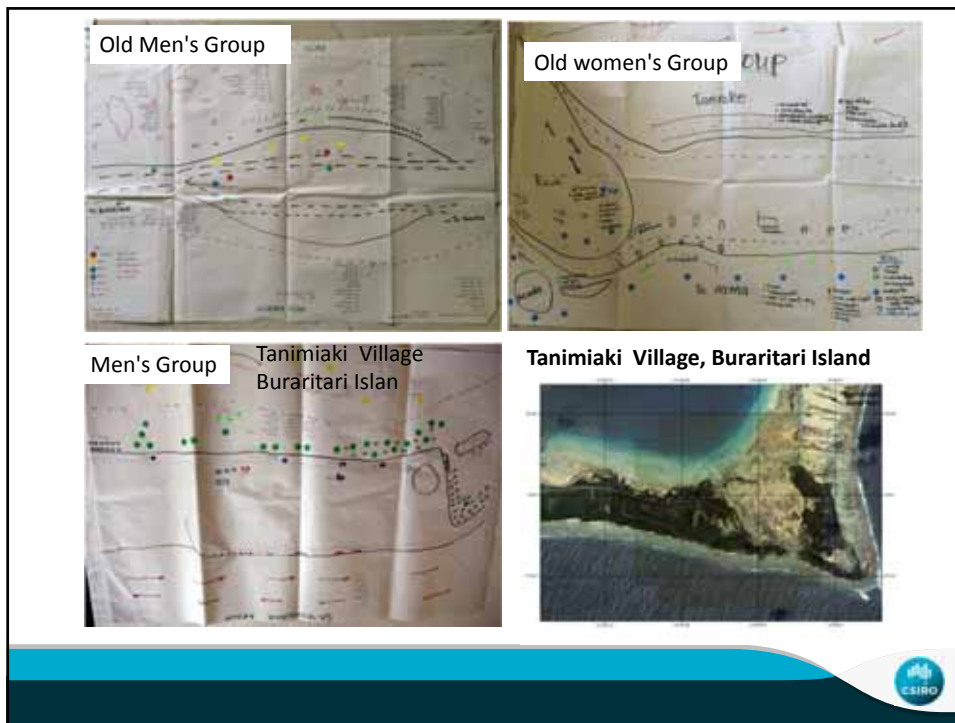
- Marine Spatial Planning Tools
 - Projects data base
 - Mapping
- Deployment of internet independent version of Pagueo to MFMRD, Kiribati, In collaboration with SPC.
- Capacity building
 - Training in use of Kigeo (SPC, Macbio)
 - Training QGIS (Macbio, GIZ)
 - Provide training in using Marine spatial planning tools
- **Community based Fishery Management (CBFM) ANCORS**
 - Tarawa Lagoon Marine Spatial Planning Mapping (ANCORS)
 - **Community Based Fisheries Management (CBFM – ANCORS)**



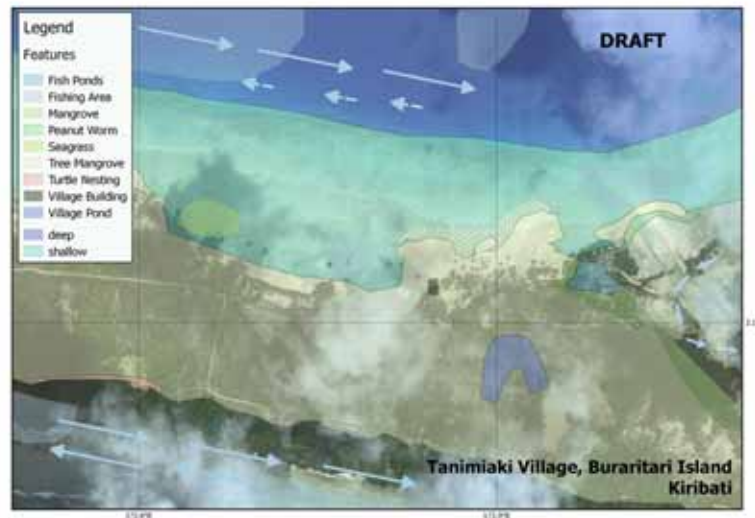
Use of local knowledge to describe assets & values

- Opportunistic section of work
- CBFM Project (ANCORS) Auelie Delisle and Brook Campbell have been working with 5 pilot villages.
- Produced hand drawn maps of important regions
- Piers saw these and thought we can value add to this.





Capturing Content from CBFM



Kiribati Activities

- Marine Spatial Planning Tools
 - Projects data base
 - Mapping
- Deployment of internet independent version of Pagueo to MFMRD, Kiribati, In collaboration with SPC.
- Capacity building
 - Training in use of Kigeo (SPC, Macbio)
 - Training QGIS (Macbio, GIZ)
 - Provide training in using Marine spatial planning tools
- Community based Fishery Management (CBFM) ANCORS
 - Tarawa Lagoon Marine Spatial Planning Mapping (ANCORS)
 - Community Based Fisheries Management (CBFM – ANCORS)



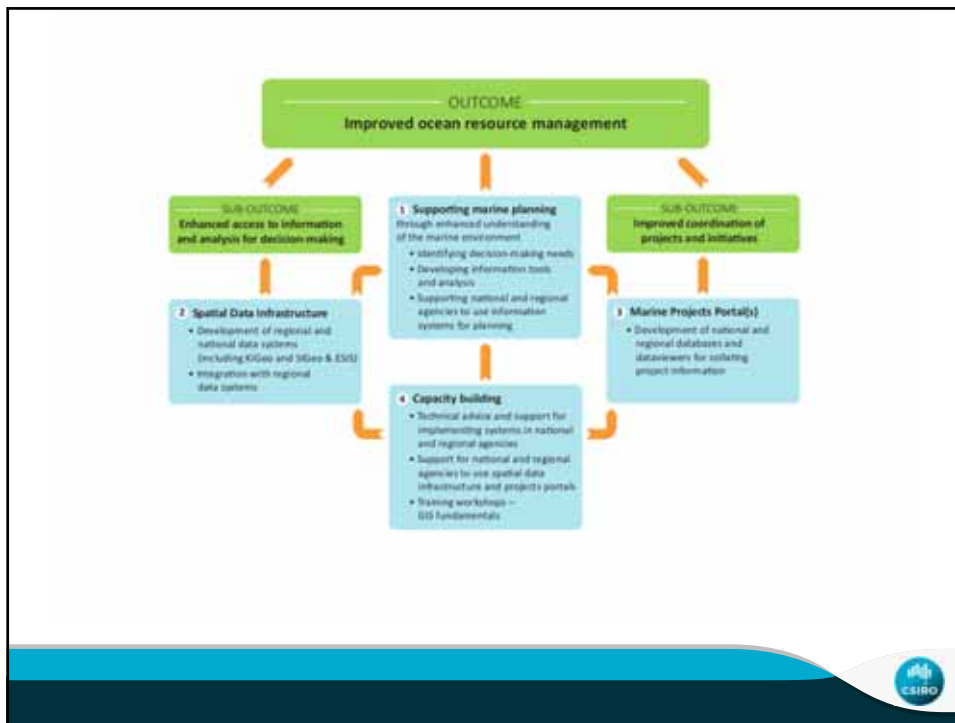
Tarawa Lagoon



Tarawa Lagoon Management Plan in collaboration with ANCORS

- Discussion of policy goals and management plans for coastal fisheries in Tarawa
- Discuss, identify and map out important & significant resources of Tarawa Lagoon.





Work in a lovely environment



Many Thanks to all our collaborators

- PIFS
- SPREP
- SPC (Coastal Fisheries & GSD)
- MACBIO
- iClim
- ANCORS/ACIAR project on coastal fisheries
- TNC, Worldfish & CSIRO CTI marine values project & local adaption
- Convention on Biological Diversity
- Governments of Kiribati, Solomon Islands



Thank you



Oceans and Atmosphere
Donna Hayes

t +61 3 6232 5014
e Donna.Hayes@csiro.au
w msp.csiro.au

OCEANS AND ATMOSPHERE
www.csiro.au

