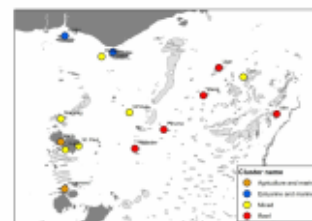


### Torres Strait Community Natural Resource Use Typology (NERP TE 11.1, CSIRO)



[Metadata](#) | [Metadata \(XML\)](#)

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| Title     | Torres Strait Community Natural Resource Use Typology (NERP TE 11.1, CSIRO) |
| Date      | 2015-11-12  |
| Date type | Publication   |

#### Abstract

Determining the impact on Torres Strait communities from future changes to ecosystems requires an understanding of the natural resource base that underpins their livelihoods. To do this, we estimate the relative importance of natural resources, or ecosystem goods and services (EGS) to local livelihoods, which in turn is a function of the relative volume of those EGS, and their relative value to human well-being. Our approach was focused on 'provisioning' and 'cultural' EGS, which have a direct link to local livelihoods.

This analysis considers the Production of EGS to each of the 14 Torres Strait Protected Zone communities (plus Hammond Island). These were quantified through ranking on a scale of 0 (does not exist) to 5 (largest quantity or volume) with the input of TSRA Land & Sea Management Unit officers with experience of the Torres Strait region's communities: Vic McGrath and Frank Loban. This provided the basis for determining community 'typologies' (i.e. communities that have a similar natural resource base).

Using information from the literature on Torres Strait Island communities' livelihoods, plus the TSRA expert knowledge, we formulated a list of 27 significant EGS for Torres Strait. These were then ranked for each community by the TSRA team. This information was then used to produce an overall average EGS Volume ranking for all communities, and for determining community typologies in terms of their EGS resource base.

Overall, coastal, pelagic and reef associated finfish, and green turtles had the greatest EGS Volume scores. The top 9 ranked EGS were marine resources, highlighting the strong connection between Torres Strait communities and their 'sea country'.

Clustering of EGS Volume scores produced four community types at a distance metric of approximately 1. These were:

- Reef: A group mostly made up of eastern and central islands (excluding Erub), and strongly separated from the remaining Torres Strait communities due to a relatively high volume of Reef resources, and low Production of Estuarine resources;
- Agriculture and Marine: A group consisting of Badu and Hammond Island only, characterised by high volume of all resources, and relatively low volume of reef associated resources;
- Estuarine and marine: A group consisting of Boigu and Saibai, with high volume of estuarine and marine resources, but low volume for most others;
- Mixed: A large (and diverse) group of six widespread islands with medium volume for all resources.

Method:

We formulated a list of 27 significant ecosystem goods and services (EGS) for Torres Strait communities by reviewing the literature and interviewing several natural resource managers in TSRA and AFMA with appropriate expert knowledge. These EGS were then ranked for each community by the expert team through ranking on a scale of 0 (does not exist) to 5 (largest quantity or volume). The data were transformed with  $\sqrt{x / 100}$ , which has the desirable effect of reducing the influence of EGS used by few villages. Agglomerative hierarchical clustering using Ward's clustering criterion was performed with the 'hclust' function of the R statistical package (R Core Team 2013). The resulting dendrogram was reordered based on a PCA of the same data. This information was then used for determining community typologies in terms of their EGS resource base.

For more information see the publication:

Skewes, T., Rochester, W., Butler, J.R.A., Busilacchi, S., Hunter, C., McGrath, V. and Loban, F. 2012. Preliminary Identification and Valuation of Ecosystem Goods and Services Underpinning Torres Strait Livelihoods. NERP Tropical Ecosystems Hub Project 11.1 Milestone Report, June 2012. <http://www.nerptropical.edu.au/Project11.1MilestoneReport-May2012-Preliminaryidentification>

References:

Butler, J.R.A., Bohensky, E., Skewes, T., Maru, Y., Hunter, C., Busilacchi, S., Rochester, W., Johnson, J. and Doupe, J. (2012) Torres Strait Futures: Regional Stakeholders' Future Scenarios and Livelihood Adaptation Strategies. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (64 pp).

Butler, J.R.A., Rainbird, J., Skewes, T., McGrath, V., Nai, F., Bohensky, E., Maru, Y. & Morseu, F. (2013) Masig Yesterday, Today and Tomorrow: Community Future Scenarios and Adaptation Strategies. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (48 pp).

Bohensky, E, Butler, J.R.A., Rainbird, J., Skewes, T., McGrath, V., Nai, F., Maru, Y., Morseu, F. & Lankester, A. (2014) Mabuiag Yesterday, Today and Tomorrow: Community Future Scenarios and Adaptation Strategies. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (49 pp).

Bohensky, E., Butler, J.R.A., Rainbird, J., Skewes, T., McGrath, V., Nai, F., Maru, Y., Morseu, F. & Lankester, A. (2014) Erub Yesterday, Today and Tomorrow: Community Future Scenarios and Adaptation Strategies. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (52 pp).

Bohensky, E., Butler, J.R.A., Rainbird, J., Skewes, T., McGrath, V., Nai, F., Maru, Y., Hunter, C., Morseu, F. (2014). Adaptation Integration Workshop - The Masig Island Example. Report to the National Environmental Research Program. Reef and Rainforest Research Centre Limited, Cairns (25 pp).

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| Metadata language | eng     |
| Character set     | UTF8    |
| Hierarchy level   | Dataset |

**OnLine resource**

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| Linkage  | <a href="http://eatlas.org.au/nerp-te/ts-csiro-resilient-communities-torres-strait-futures-11-1">http://eatlas.org.au/nerp-te/ts-csiro-resilient-communities-torres-strait-futures-11-1</a>   |
| Protocol | WWW:LINK-1.0-http--related  |
| Linkage  | <a href="http://eatlas.org.au/pydio/data/public/nerp-te-11-1_csiro_community-topology_2012-zip.php">http://eatlas.org.au/pydio/data/public/nerp-te-11-1_csiro_community-topology_2012-zip.php</a>                                     |
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| Protocol | WWW:LINK-1.0-http--link |
|----------|-------------------------|

## Point of contact

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| Individual name   | Bohensky, Erin, Dr            |
| Organisation name | CSIRO Land and Water Flagship |
| Role              | Principal investigator        |
| Topic category    | Economy                       |

## Keyword

|         |        |
|---------|--------|
| Keyword | marine |
| Type    | Theme  |

## Extent

|             |   |
|-------------|---|
| Description | Torres Strait and Papua New Guinea Region |
|-------------|---|

## Geographic bounding box

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| Metadata language | eng |
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| Character set | UTF8 |
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## Metadata author

|                   |   |
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| Individual name   | eAtlas Data Manager                           |
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| Role              | metadataContact                               |
| Date stamp        | 2017-02-25T08:29:01                           |