Ocean Accounts China

Mangrove Assets and Ecosystem Services in Beihai, Guangxi

Beihai, Guangxi is a large seaport in the Guangxi region on China's southwest coast.

Its status as a seaport on the north shore of the Gulf of Tonkin grants it historical importance as a port of international trade.

It is famous for its subtropical coastal ecosystems such as mangroves, seagrasses, tidal marshes and coral reefs.

Why ocean accounts?

Ocean accounts help policy makers to make better decisions about how to manage marine ecosystems and resources.
In China, the development of the ocean economy is transforming from one which pursues short-term economic benefits to one which considers environment and ecosystem protection and long-term sustainability.

Research focus

The six-month pilot study in China looked at mangrove assets and ecosystem services in Beihai, Guangxi. This was chosen as the research focus because of the importance of mangrove forests and the availability of data.

Activities and analysis

The study was organized by the Fourth Institute of Oceanography, with assistance from an advisory board and a working group.

New techniques, such as satellite remote sensing, light detection and ranging remote sensing methods and hyperspectral techniques, were tested. Field studies and ground truthing exercises were conducted to test these techniques.

Major findings and results

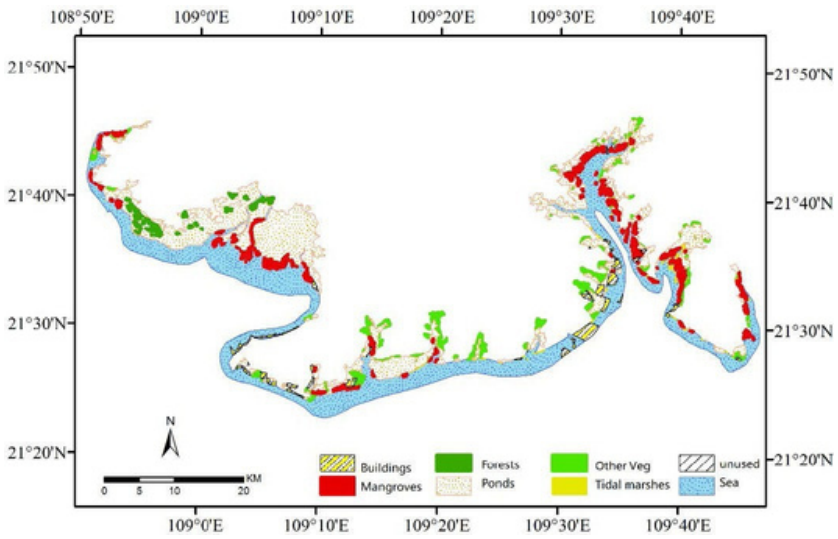
Asset accounts for mangroves were created by linking ocean assets to existing environment asset categories, and then designing a classification of ecosystem services of mangroves.

Using satellite data, a matrix showing the change in sea area from 1998 to 2018 was developed. This analysis shows an increase in total mangrove area from 4.68 km^2 to 32.79 km^2.
(Figure 1)

The total carbon stock of Beihai's mangroves was calculated at 0.67 million tC, based on in situ sample collection.

The metrics assessed will be used to compile a Green House Gases Inventory and to better understand the impact of climate change, and of biodiversity conservation and loss.

Figure 1



Summary of findings

- **A classification of ecosystem services for mangroves was designed and then used to create asset accounts.**
- **Seven-fold increase in mangrove land cover from 1988 to 2018 (4.68 km^2 to 32.79 km^2).**
- **Total carbon stock of Beihai mangroves was calculated as 0.67 million tC. These findings will be used in extended research, and to apply carbon-related assets accounting to National/Local Green House Gas Inventories.**

Challenges and considerations

A 2-D spatial data framework was used for this study, however, a 3-D spatial data framework would provide more accurate results.

Additional technical guidance is required on ocean accounts and the System of Environmental Economic Accounting to further ocean accounting work which is coherent and can inform policy.

International standards on the data framework and ecosystems services framework still need to be developed to ensure comparability.

Next steps

There is potential to expand the study to other coastal blue carbon ecosystems such as seagrasses, tidal marshes and seaweeds.

Ocean accounts could provide useful information to inform climate change and biodiversity conservation.

The pilot team will strengthen engagement with international and regional agencies among the UN system.

Financial and technical support will be sought from initiatives such as the Belt and Road Initiative and South to South Cooperation Fund.

Further Reading and Contact Details

For more information, please contact ESCAP Statistics Division – telephone number+66 2288 1234, or visit our resource platform on Environment Statistics via the QR code link