

Marxan:

A model to analyze data and inform Marine Spatial Planning

What is Marxan?

Marxan is a software optimization tool that enables spatial analysis of multiple sets of spatial data (i.e. GIS or mapped) using different scenarios to produce different options that meet multiple planning objectives.

How can Marxan assist Marine Spatial Planning?

In the case of marine spatial planning, the tool can:

- Include data on human uses, ecological information such as important habitats or areas important to particular species and potential new uses such as renewable energy.
- Identify spatial overlap between existing uses and resources and potential new uses.
- Illustrate areas that avoid and minimize socio-economic and environmental costs, while still achieving various potential targets for new uses such as renewable energy.
- Incorporate stakeholder interests using different scenarios.

Why use Marxan?

Marxan can be a useful tool for Washington's Marine Spatial Planning process to:

- Illustrate various scenarios using best available data.
- Identify patterns and overlap across multiple datasets.
- Provide transparent, data-driven outputs.
- Involve stakeholders.
- Inform and support the subsequent consideration of and development of spatial recommendations by stakeholders, agencies, and others.

Marxan is a decision-support tool, but does not provide outputs that are 'the answer'. Instead, the model can inform the many potential solutions for a planning process to consider. In the case of marine spatial planning, the model can highlight a variety of solutions that avoid highly used areas and sensitive areas.



Washington's Marine Spatial Planning Study Area.

Marxan's history

Marxan was originally developed in and used by Australia for marine conservation planning efforts and has since been used in a variety of coastal and land planning applications around the world, including:

Australia – Great Barrier Reef

Gulf of Mexico

Galapagos Islands

South Australia

British Columbia

Connecticut/New York

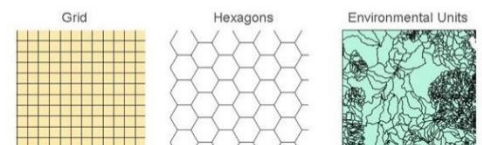
Central Coast of California

Baltic Sea

Papua New Guinea

Channel Islands, California

Examples of planning analysis grids for Marxan:



Washington is using a hexagon grid. Each hexagon covers one square mile. The Washington Marine Spatial Planning study area contains over 8,000 hexagons.