



GROUP 1 Pichaya Zerne

Derick Omollo, Kenneth Otieno (Task 1a)

Daina Mathai, James Mbugua (Task 1b)

Task 1a. Creating and building new data: Tourism pressure based on accommodation

This task will demonstrate how to collect and analyze a novel tourism dataset to use as an input for marine planning.

You will also provide a useful new product for the WIO Symphony tool.

After this task, you can:

1. Know how to collect data manually from basic data from google earth
2. Export data to use in ArcGIS and convert data format to shapefile
3. Know how to register data within table format (attribute table)
4. Be able to do a basic analysis.

Overview

- Using Google Earth Pro to collect the point data of the coastal hotels around Mombasa in Kml format.
- Register point data into ArcGIS or QGIS to great point data of hotel convert data to Shapefile
- Put in information of hotel information in Attribute table
- Calculate distance from MPA +

Task 1b. Identify Chlorophyll-a concentration index for Eutrophication in the marine coastal zone.

This task will demonstrate how to get access and create data from a free open-source satellite database and identify Chlorophyll-a concentration as one of indices for Eutrophication in marine water.

You will give input and perform model works for the WIO Symphony tool.

After this task, you can:

1. Know how to get access and explore data in Google Earth Engine
2. Know how to export satellite data into GIS software
3. Working with Raster data; classify, normalization (High-low)

Overview

- Introduction to Google Earth Engine (Cloud base global satellite data source); create account, get an access, explore data, etc.
- Using google Earth Engine to extract Chlorophyll-a concentration (demo Java script) amount in different time period using different remote sensing data
- Export chlorophyll-a concentration data into GIS software (ArcGIS) in different time period (seasonal)

Productivity/Trophic Status	What does the water look like?	Maximum chlorophyll concentration ($\mu\text{g/L}$)
Oligotrophic	Clear	Less than 8
Oligo-mesotrophic	Usually clear	Occasionally over 8
Mesotrophic	Sometimes green	8 to 25
Eutrophic	Green most of summer	26 to 75
Hyper-eutrophic	Frequent dense algal blooms	Over 75

Table adapted from: Atlas of Alberta Lakes, <http://sunsite.ualberta.ca/Projects/Alberta-Lakes>

- Classify trophic status zone base on amount of chlorophyll concentration.
- Making map comparing different in times of chlorophyll-a concentration amount (index for Eutrophication)



Group 2 Mårten Erlandsson & Maria Eggertsen

Michael Mwang'ombe, Patricia Simwa, Dickens Odeny

Task 2. Converting open data to products in WIO Symphony: turtle sightings in the WIO

This task will explore different types of data that can be found online, and how this can be developed into a spatial layer for WIO Symphony. Here we will work with point data of species sightings, such as turtles, fish, and others.

You will contribute by helping decide the best way to spatially model these data that accurately represents the ecosystem component.

After this task, you will:

1. Be familiar with the type of spatial data that is openly available for use in WIO Symphony
2. Perform spatial modelling of raw data so that it can be used in WIO Symphony or other spatial analyses
3. Be familiar with the various tools used for the development of data layers, e.g. QGIS, R, ArcGIS

Overview

- Download an open dataset of turtle sighting in the WIO
- Open the raw data and determine an appropriate format for which the data should be in
- Test different types of spatial modelling, e.g. cost-distance, kernel density.
- Produce a raster layer that matches the projection, extent and resolution of the WIO Symphony grid



Group 3 Ed Sacre & Maria Eggertsen

Annete Nelson

Task 3. Developing a layer of small-scale fishing effort

This task will explore different ways of creating data layers where no open data are available. For this task we will attempt to build a layer of small-scale fishing pressure using satellite imagery of small boats in Google Earth.

You will contribute by mapping small boats and using this data to build a layer that can be used in WIO Symphony.

After this task, you will:

1. Be familiar with the techniques for creating raw data where existing datasets are not available
2. Perform spatial modelling of raw data so that it can be used in WIO Symphony or other spatial analyses
3. Be familiar with the various tools used for the development of data layers, e.g. QGIS, R, ArcGIS

Overview

- Using Google Earth, map small boats around Kenya
- Export the data for use in GIS software
- Test different types of spatial modelling to convert this into a continuous layer for the region, e.g. cost-distance, kernel density.
- Produce a raster layer that matches the projection, extent and resolution of the WIO Symphony grid



Group 4 Linus Hammar & Ylva Jondelius

Harrison Ong'anda, Nina Wambiji, Mohamed Omar

Task 4. Science to Policy: Enhance user-friendliness of the WIO Symphony tool

This task will teach you how to use the Symphony tool in the web interface, to overview data and run analyses and reports.

You will also develop guidelines for the manual and the management plan of the WIO Symphony tool.

After this task, you can:

1. Be familiar with the WIO Symphony software interface
2. Execute analyses in the Swedish Symphony tool (which is the mother of the upcoming WIO Symphony tool)
3. Report results from the Swedish Symphony tool
4. Demonstrate the practical usefulness of the tool for marine planners and managers

Overview

- Using the web interface of the Swedish Symphony tool you will learn to know the system and execute some analyses.
- Once knowing the system you will be asked to help with drafting pointers for the upcoming user manual and give ideas/framework for the future management plan.



Group 5 Gustav Kågesten, Katrin Eitrem Holmgren

Agnes Muthumbi, Dorcas Sigana, Bernard Kiilu, Noah Ngisiang'e, Susan Otieno

Task 5. Data review: Preliminary reality check of existing model products

This task will make you familiar with the existing preliminary maps to be used in the WIO Symphony tool.

You will contribute to the final maps by reviewing the results and compare with your knowledge from either marine ecosystems or marine/coastal human activities.

After this task, you will:

1. Be familiar with the WIO Symphony data content.
2. Better understand the shortcomings of the current maps underpinning the tool.
3. Have contributed to refining of the maps, possibly be concrete advice.

Overview

- Using QGIS you will browse the current data products (maps) for ecosystem components and human activity pressures.
- You will look into metadata and understand the model process.
- Based on your field of expertise you will review and give input to the models so they can be improved.



Group 6 Charlotte Berkström

Gladys Okemwa, Esther Fondo, Juliete Karisa, Patrick Gwada, Jelvas Mwaura

Task 6. Sensitivity matrix: Refinements and usefulness

This task targets the sensitivity scores which was developed within the project, based on the WIO Symphony expert panel. You will investigate the results in detail.

You will contribute by identifying potential errors and by adding your assessment to the matrix.

You will also inventory additional/new use for the matrix in the Kenyan or regional context.

After this task, you will:

1. Be familiar with the WIO Symphony sensitivity matrix (the scores showing how sensitive ecosystems and species are to different human pressures)
2. Judge the validity of the sensitivity scores.
3. Contribute to both quality and usefulness of the sensitivity scores.

Overview

- You will work with the anonymized answers from the expert panel on ecosystem sensitivity (Excel file)