Marine Sensitivity Tech Docs

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Preface

This is a Quarto book.

To learn more about Quarto books visit https://quarto.org/docs/books.

1 Introduction

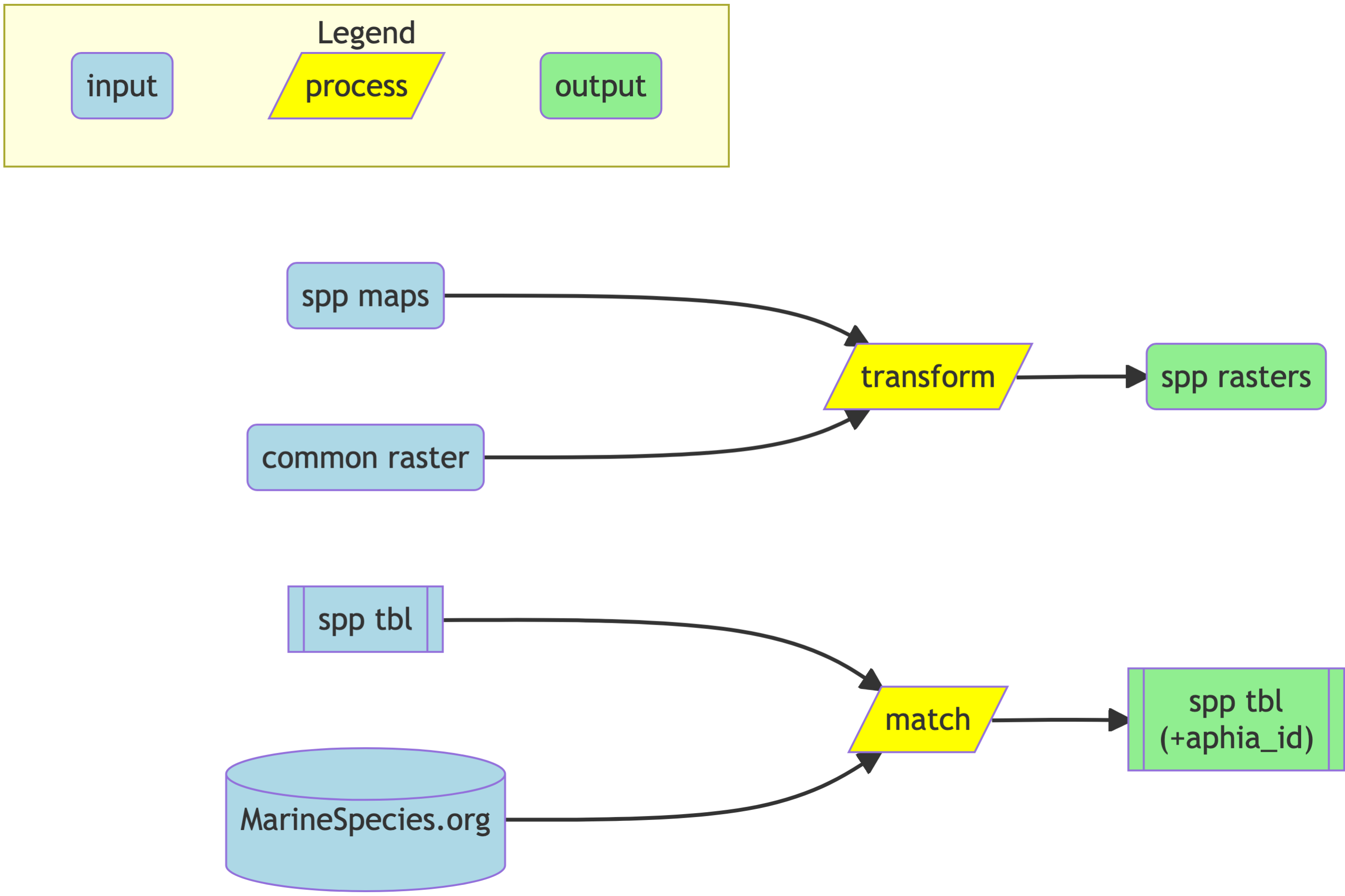
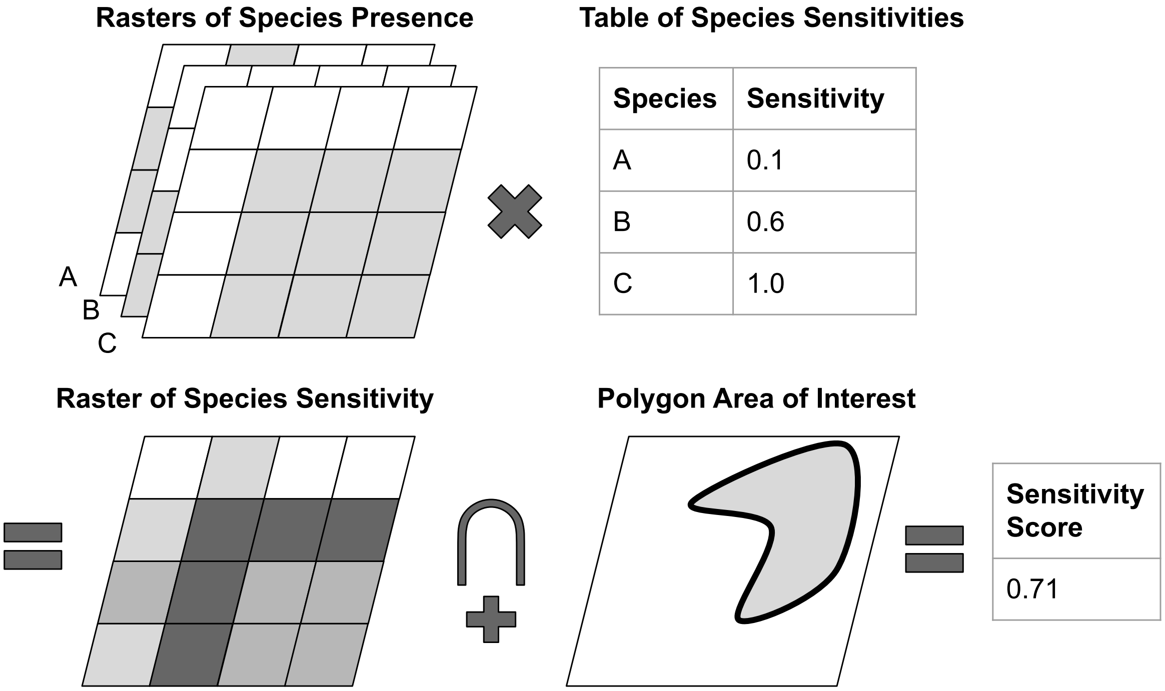


Figure 1.1: Diagram of data preparation for generating marine species sensitivities.

$$cell_S = \sum_{spp} p * w \tag{1.1}$$


Rasters of Species Presence
A
B
C
Table of Species Sensitivities
Raster of Species Sensitivity
Polygon Area of Interest

Species	Sensitivity
A	0.1
B	0.6
C	1.0

Sensitivity Score
0.71

Figure 1.2: Overview of process.

The raster of sensitivity (S) contains cells representing a sum across species (spp) of presence (p) multiplied by the sensitivity weight (w) (Equation 1.1).

Part I

Components

2 Server

The server is for serving up any web services outside those of Github (e.g., website, docs and R package msens) using Docker (see the docker-compose.yml; with reverse proxying from subdomains to ports by Caddy).

2.1 Setup

For instructions on launching an Amazon instance and installing the server software, see Server Setup · MarineSensitivity/server Wiki.

2.2 Services

The server is running the following services:

- **rstudio**
  integrated development environment (IDE) to code and debug directly on the server
  More info..

- **shiny**
  interactive applications
  e.g., **shiny**.marinesensitivity.org/**map**

  More info..

- **pgadmin**
  PostGreSQL database administration interface

  More info..

- **api**
  custom API: using R plumber

  More info..

- **swagger**
  generic database API: using PostGREST

  More info..

- **tile**
  spatial database API: using pg_tileserv for serving vector tiles

  More info..

3 Workflows

```r
librarian::shelf(
  dplyr, gh, glue, knitr, tidyjson,
  quiet = T)
# renv::dependencies(); renv::snapshot()
library(dplyr); library(gh); library(glue); library(knitr); library(tidyjson)

org   <- "MarineSensitivity"
```

3.1 Get Descriptions

```r
gh(glue("GET /orgs/{org}/repos")) |>
  spread_all() |>
  as_tibble() |>
  select(name, description) |>
  arrange(name) |>
  kable()
```

name	description
MarineSensitivity.github.io	default website
api	application programming interface (API) using R Plumber package
apps	Shiny applications
docs	documentation for BOEM’s offshore environmental sensitivity index products
manuscripts	Manuscripts with review of sensitivities by industry and receptors (species, habitats, human uses)
msens	R library of functions for mapping marine sensitivities, sponsored by BOEM
objectives	repository for issues spanning multiple repositories and doing big picture roadmapping
server	server setup for R Shiny apps, RStudio IDE, R Plumber API, PostGIS database, pg_tileserv

name	description
workflows	scripts for testing data analytics and visualization as well as production workflows

4 Libraries

or maybe later Python module

5 API

There are actually three APIs, each used for different purposes:

1. **api**
   custom API: using R plumber
   source: MarineSensitivity/api

2. **swagger**
   generic database API: using PostGREST
   source: Postgres database, non-spatial

3. **tile**
   spatial database API: using pg_tileserv for serving vector tiles
   source: Postgres database, spatial

6 Apps

7 Docs

8 Summary

In summary, this book has no content whatsoever.

```
1 + 1
```

```
[1] 2
```

References