



# Navigating spatial data management and analysis in sustainable fisheries using a combined R – Python approach

Annette Scheffer, Francis Neat, Peter Hair, Marcus Nelson, Robert Lefebure, Ashleigh Arton, Catherine S. Longo

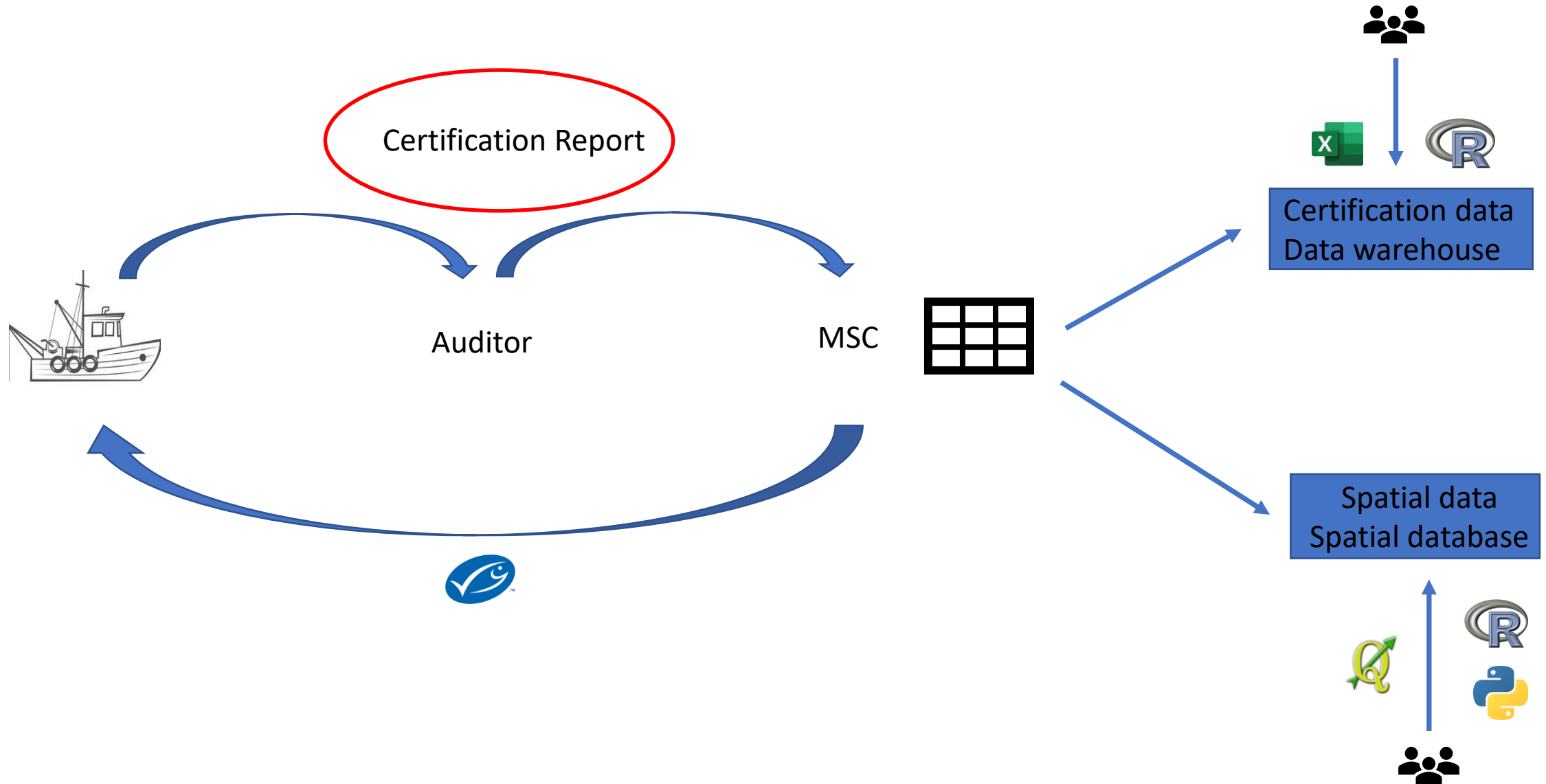
**Worldwide sustainable fisheries certification since 1997**

**Safeguard seafood for this & future generations**

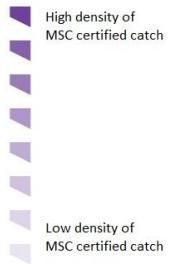
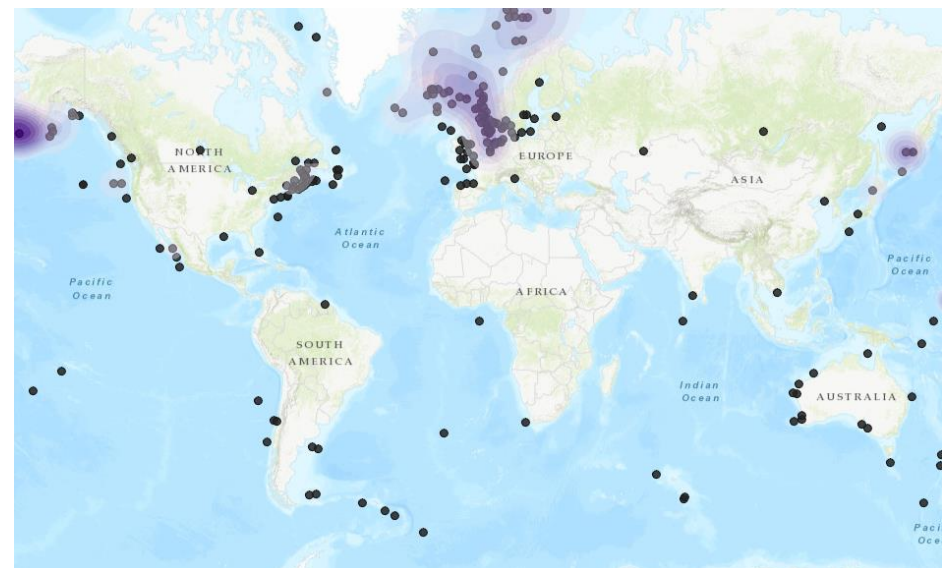
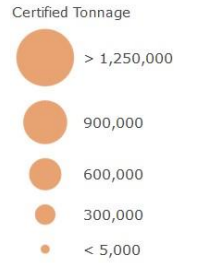
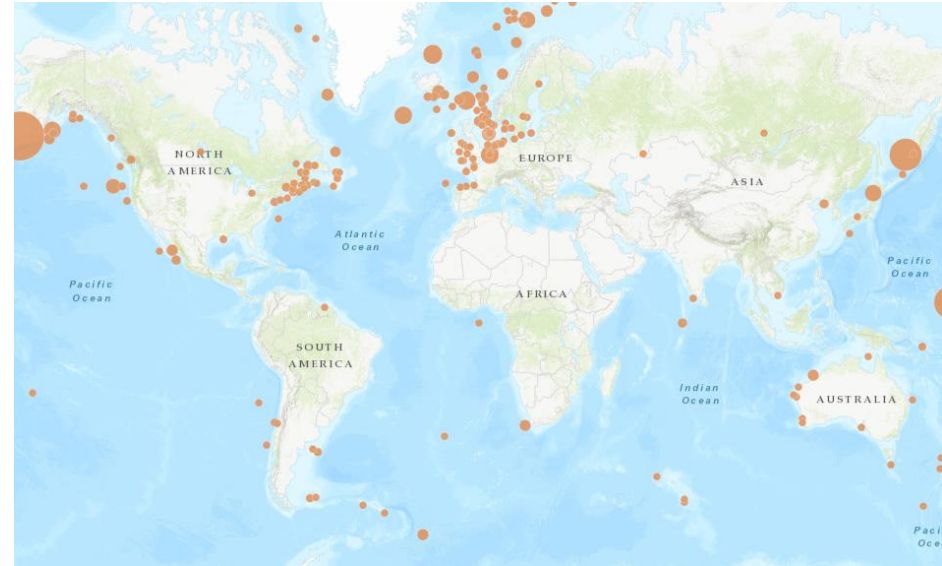
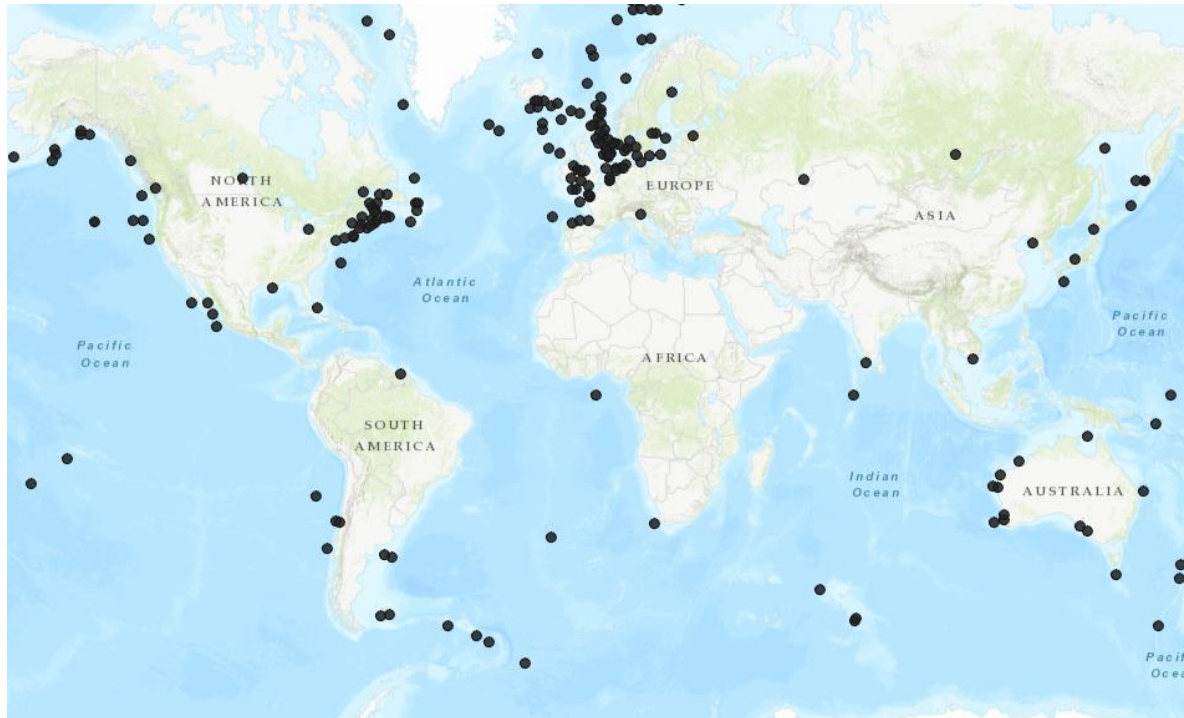
**Use market demand for ecolabel to incentivise sustainable fishing**



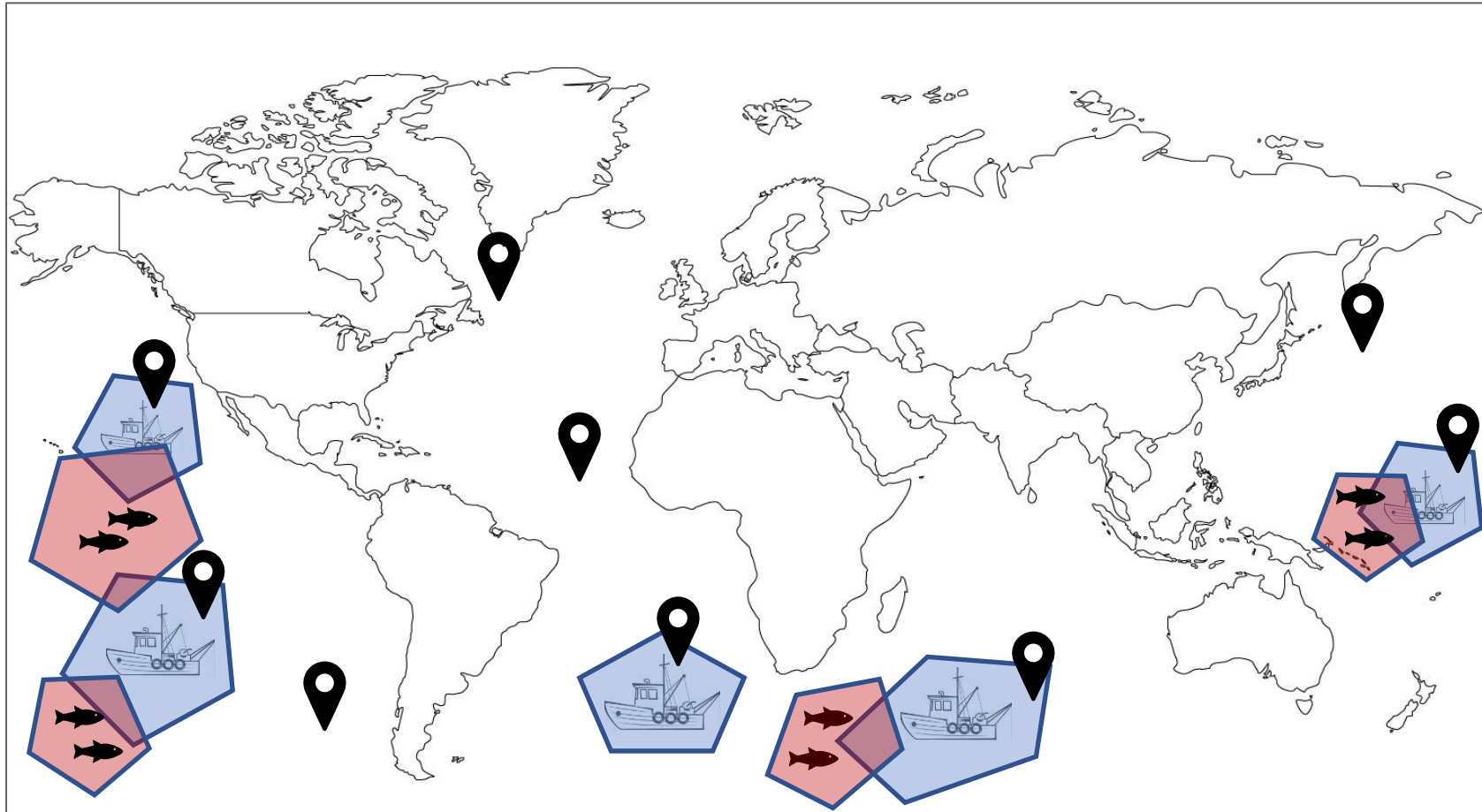
# Marine Stewardship Council – Data collection




# MSC spatial data – point locations



# MSC spatial data – fishing & stock areas



 Certificate holder locations with species, gear and catch amount

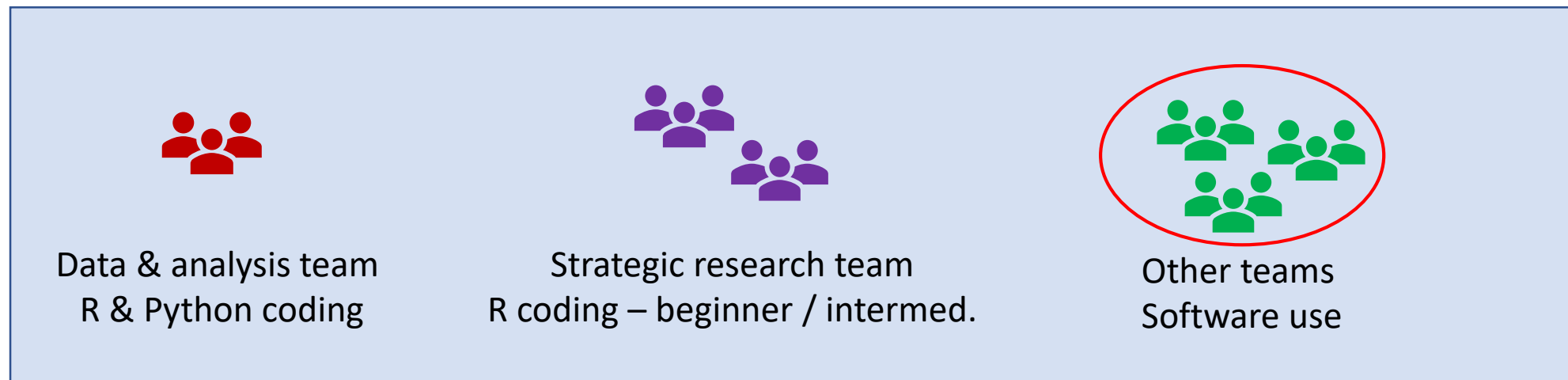


Fishing areas associated with certificates



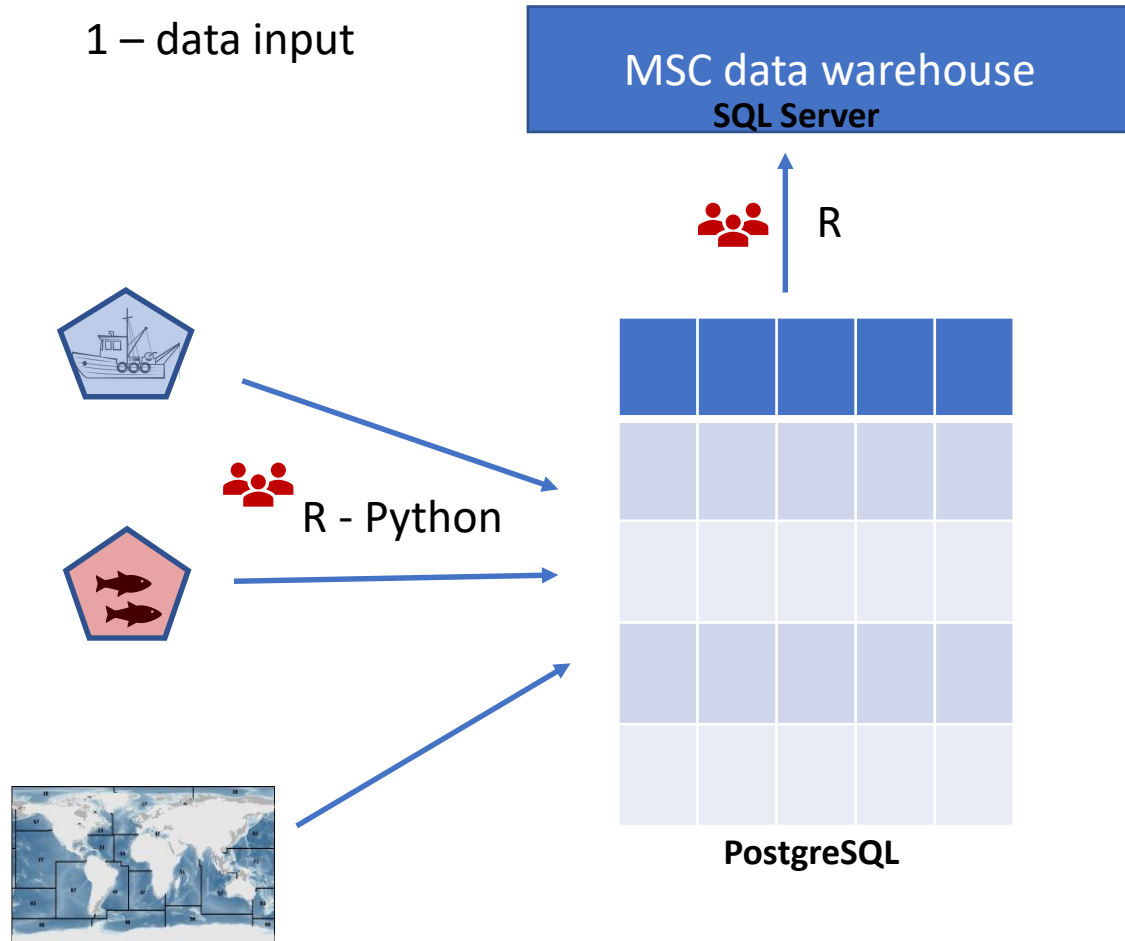
Stock distribution for target species

MSC organisation – multiple departments – different software / coding proficiency



# Spatial database – data input

1 – data input





# Spatial database – user interactions



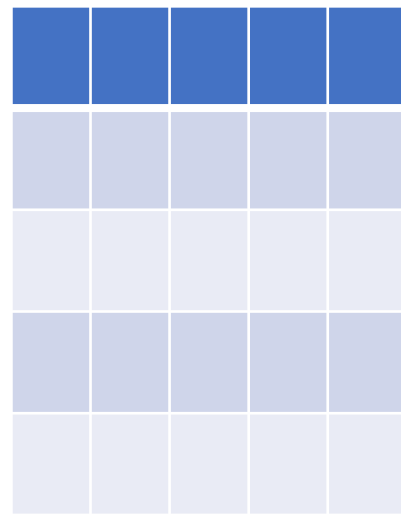
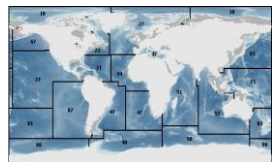
1 – data input

MSC data warehouse  
SQL Server

R



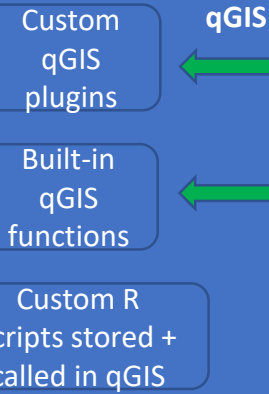
R - Python



PostgreSQL

2 – user interactions

Python  
@ qGIS  
plugin  
builder



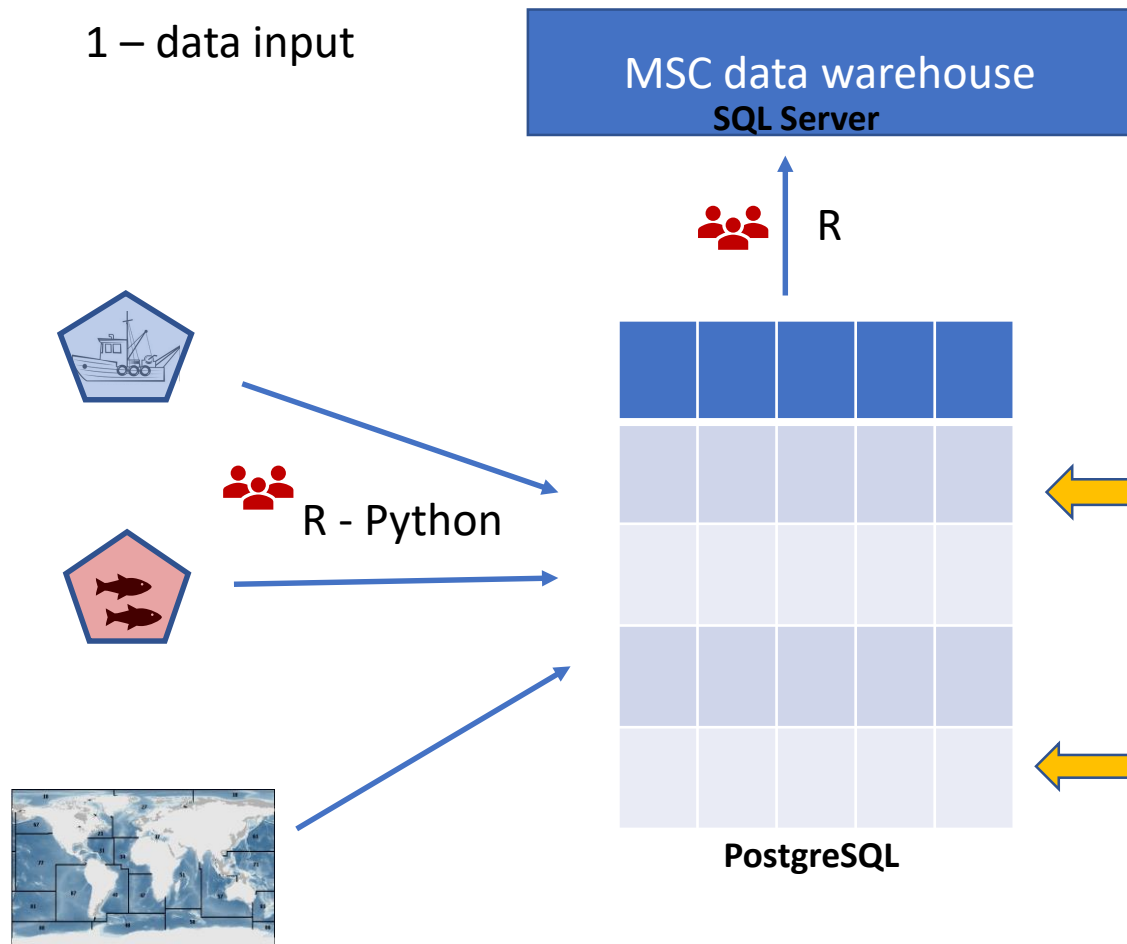
qGIS



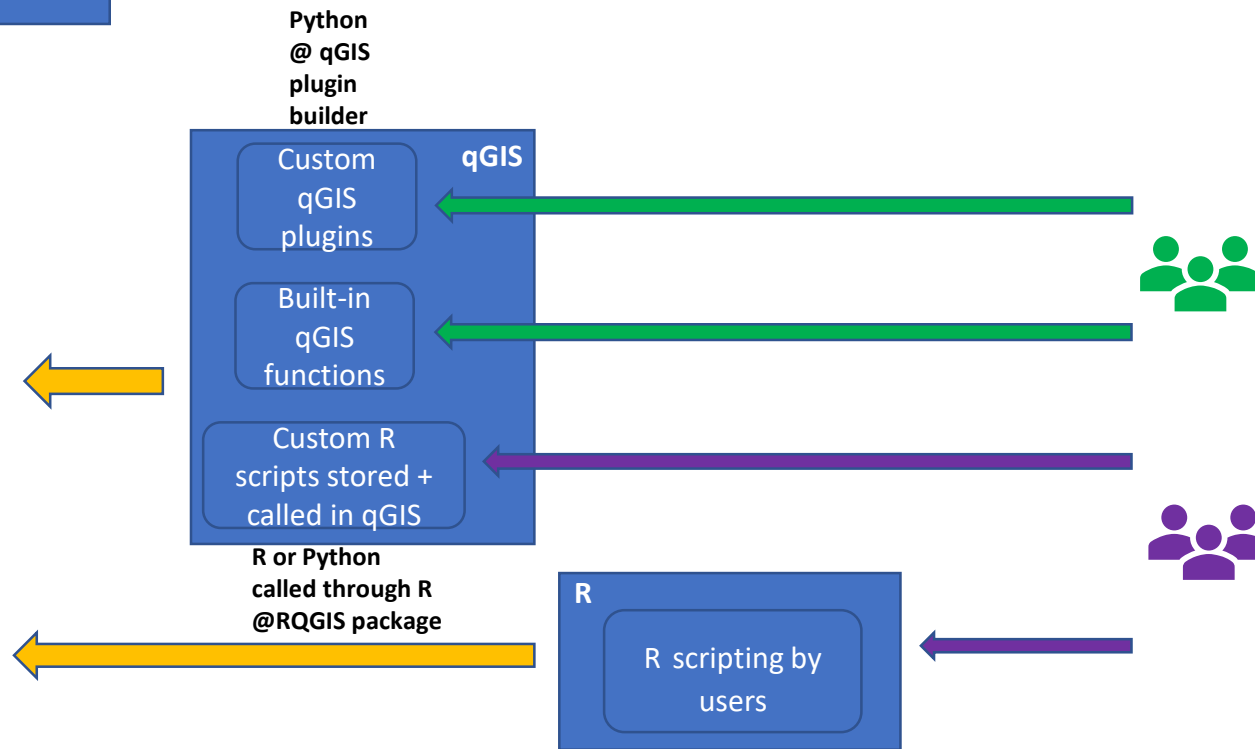
# Spatial database – user interactions



## 1 – data input



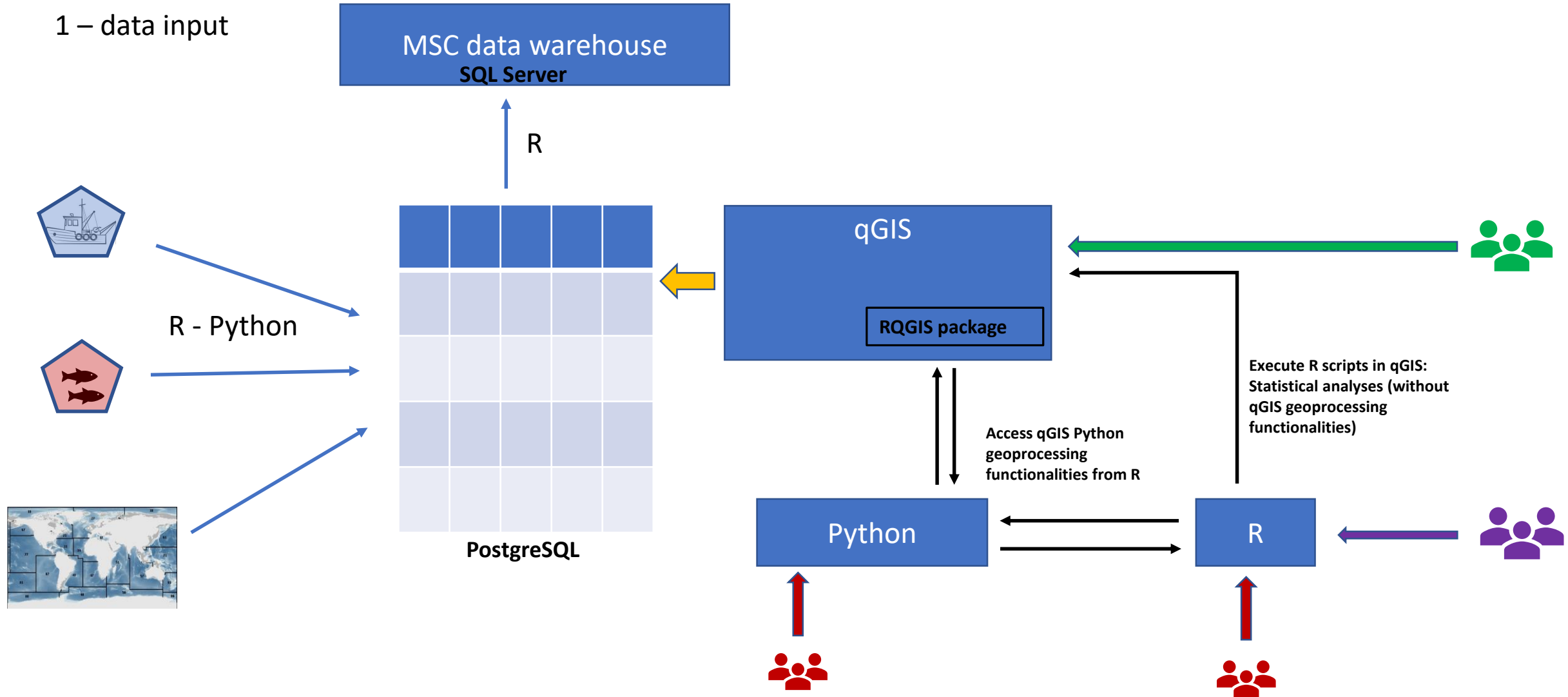
## 2 – user interactions



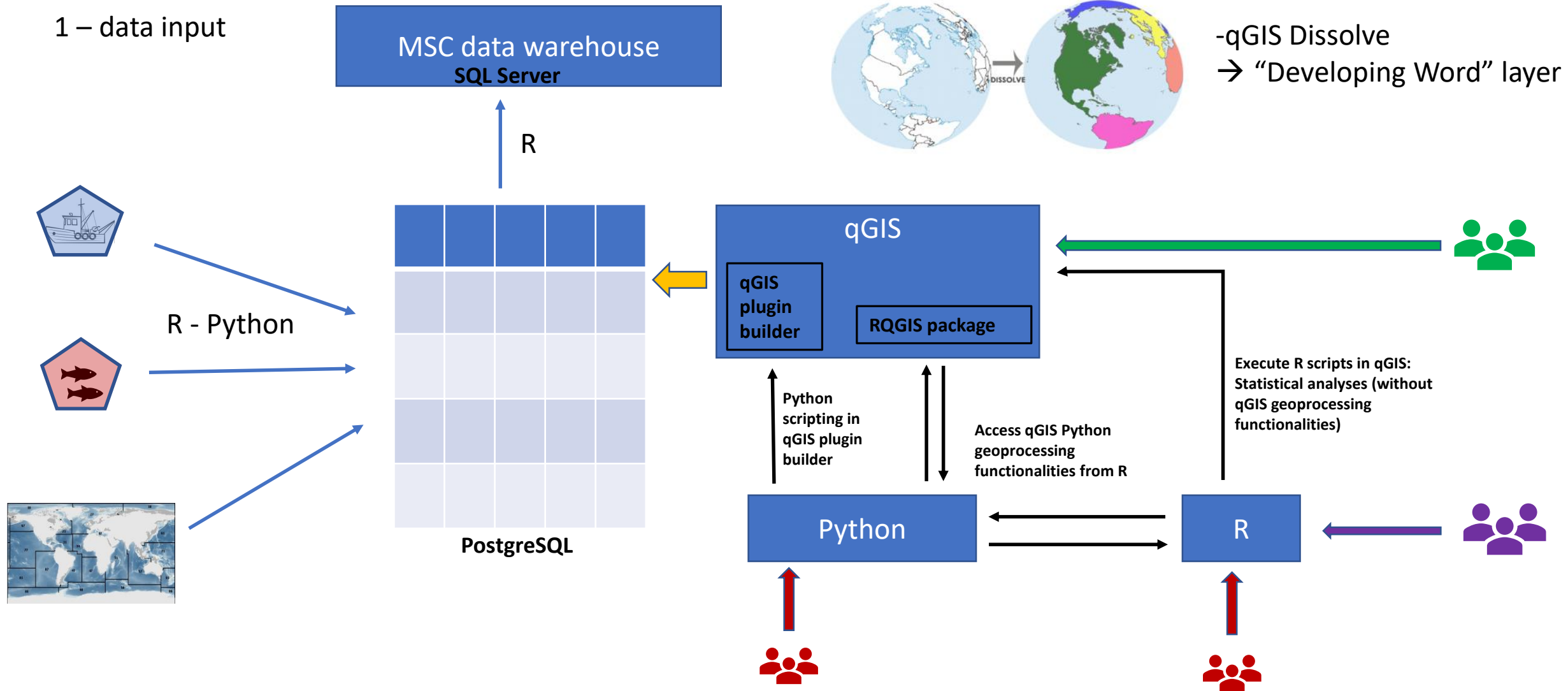
# Spatial database - organisation



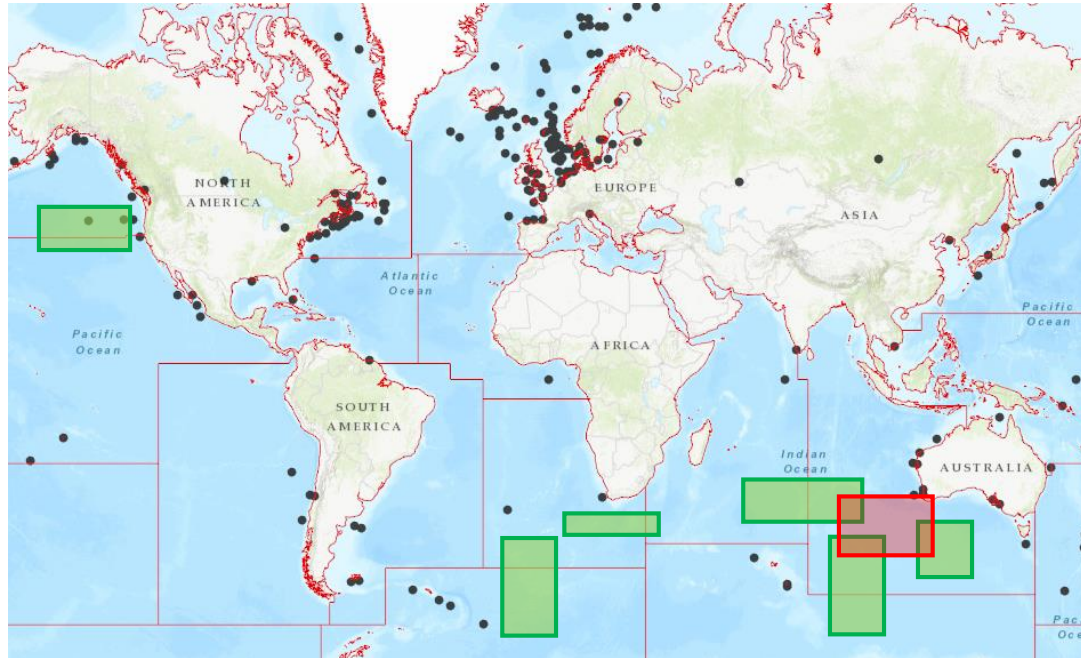
1 – data input



# Spatial database - organisation



# Spatial database – automated processes examples – qGIS plugins through Python programming



UN FAO Major Fishing Areas



Large Marine Ecosystems

- match fishing areas + attributes with external spatial layers
- fishing areas & companies per FAO area, per stock etc
- calculate stocks (number & areas) untouched by MSC fisheries
- overlay MSC developing countries layer
- create buffers

# Thank you – Questions?



Annette.Scheffer@msc.org



[www.msc.org](http://www.msc.org)



@MSCecolabel

# Thank you – Questions?

[Annette.Scheffer@msc.org](mailto:Annette.Scheffer@msc.org)



[www.msc.org](http://www.msc.org)



[@MSCecolabel](https://twitter.com/MSCecolabel)