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# Climate Fish

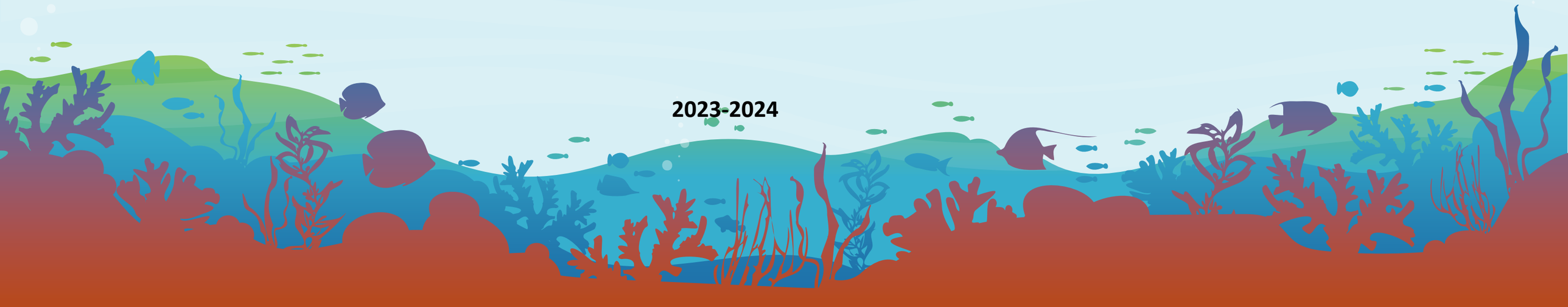
MANAGEMENT TOOLS AND ANALYTICS FOR THE FOOD INDUSTRY


Mohammad Amirifard - 10887256

Haniyeh Tabaghchi Aghdam - 10882762

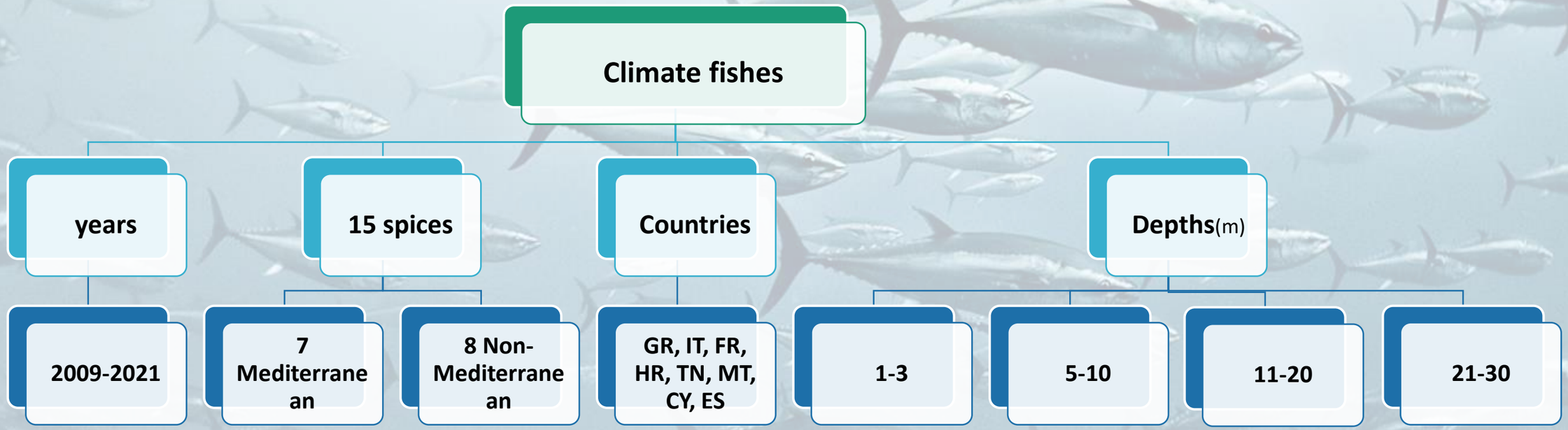
Mahnoush Yousefi - 10901873

Mousa Kakroodi - 10902124

2023-2024

# Dataset


Climate fishes
years
15 spices
Countries
Depths(m)
2009-2021
7 Mediterranean
8 Non-Mediterranean
GR, IT, FR, HR, TN, MT, CY, ES
1-3
5-10
11-20
21-30

# First Analysis

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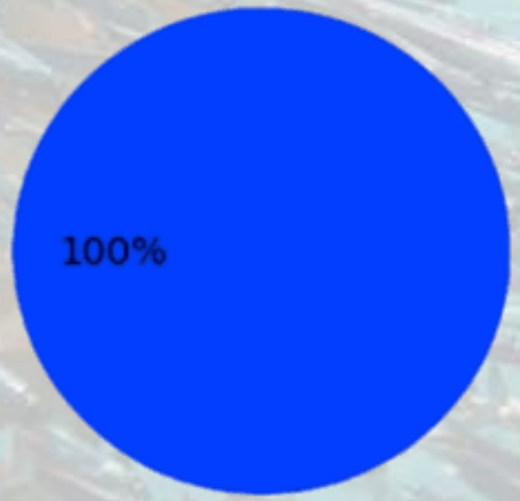
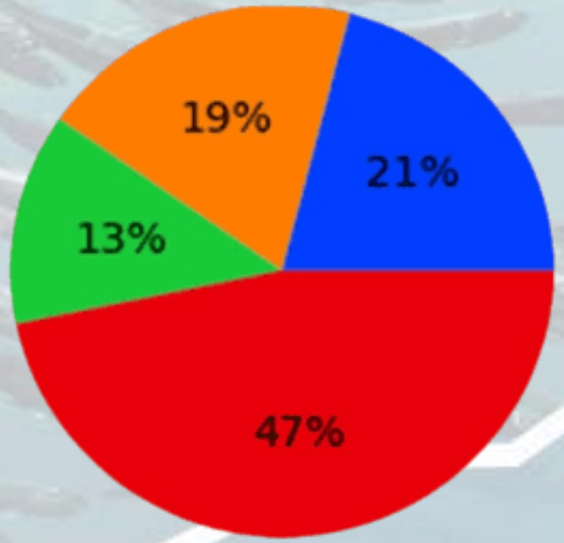
**2009**



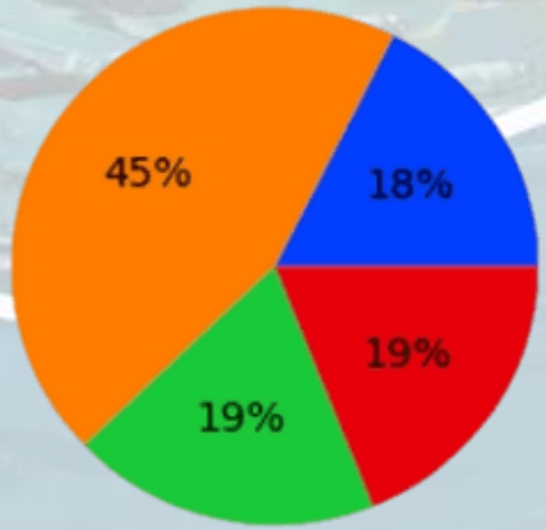

- 1-3 m
- 5-10 m
- 11-20 m
- 21-30 m

**2015**




- 1-3 m
- 5-10 m
- 11-20 m
- 21-30 m

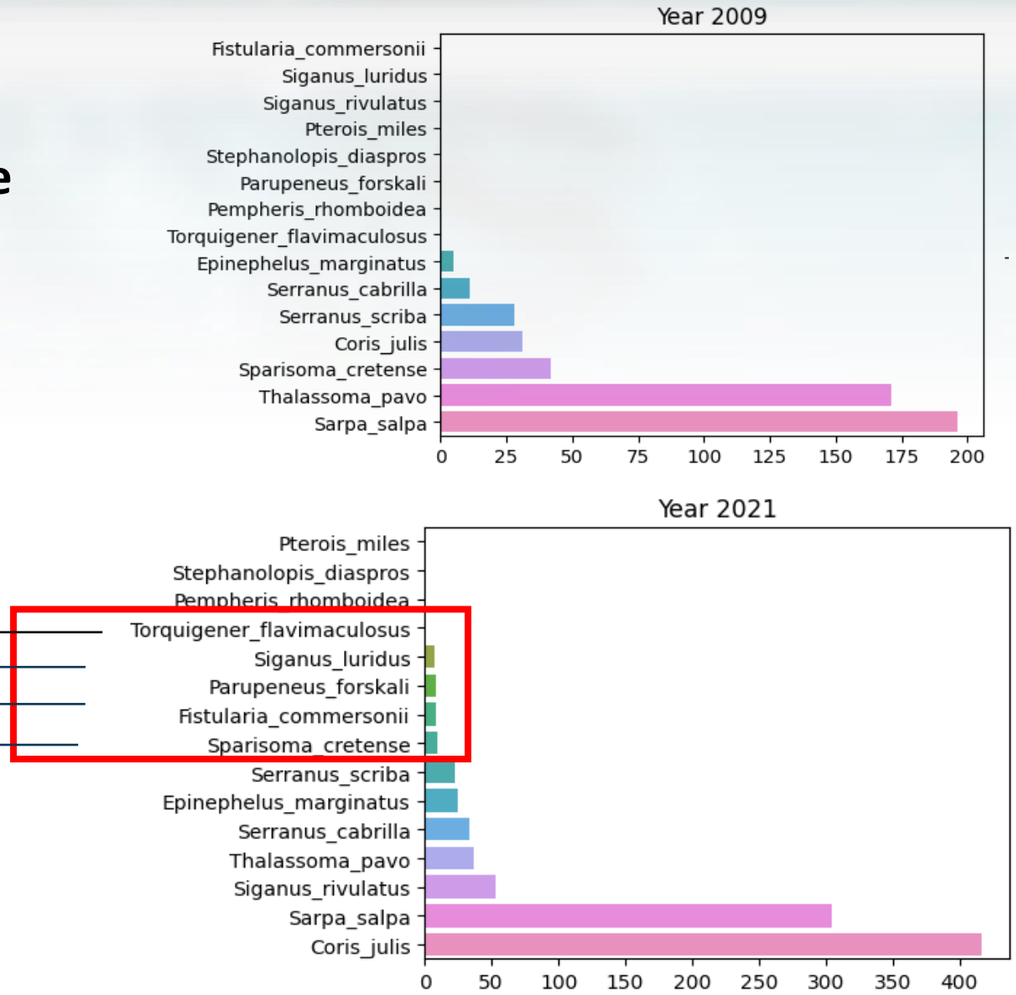
**2021**




- 1-3 m
- 5-10 m
- 11-20 m
- 21-30 m

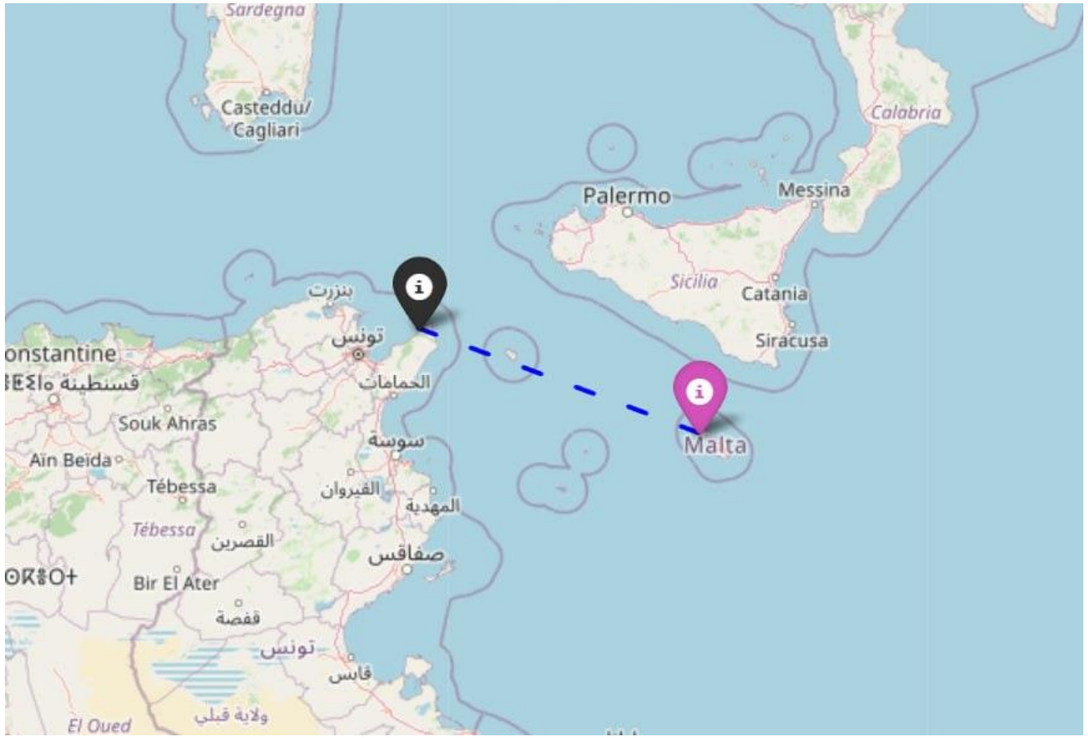
# Second Analysis

**There is a trend of an increase of these species in the Mediterranean sea.**

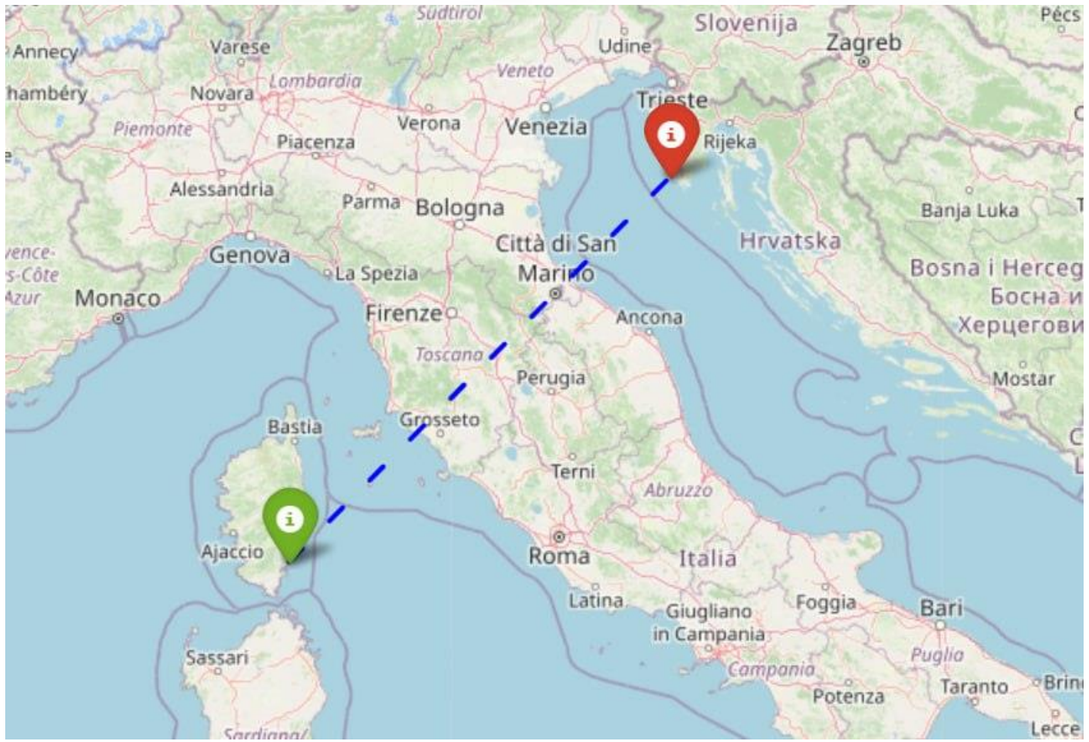


# 3rd Analysis
# 2 spices of fishes which are northward

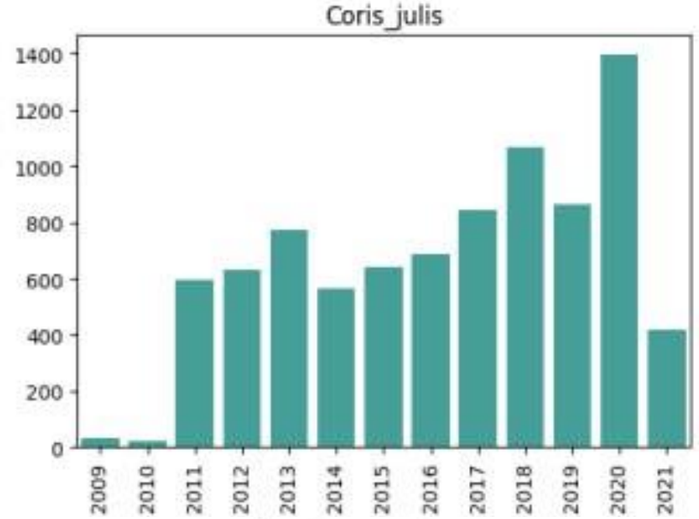
**Sparisoma cretense**

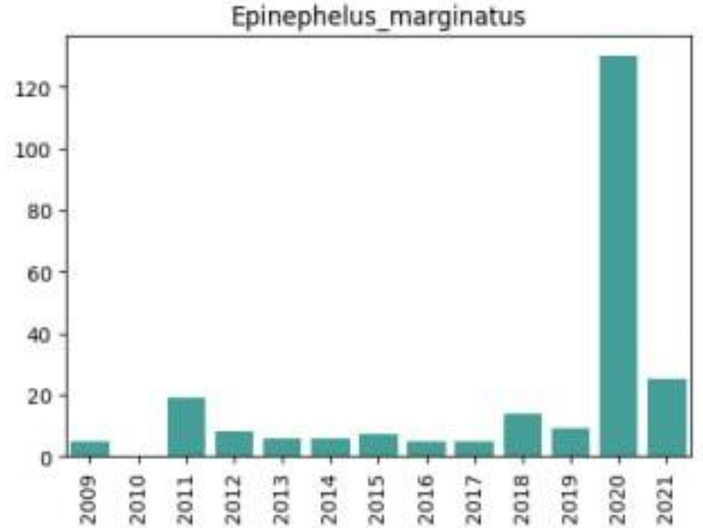


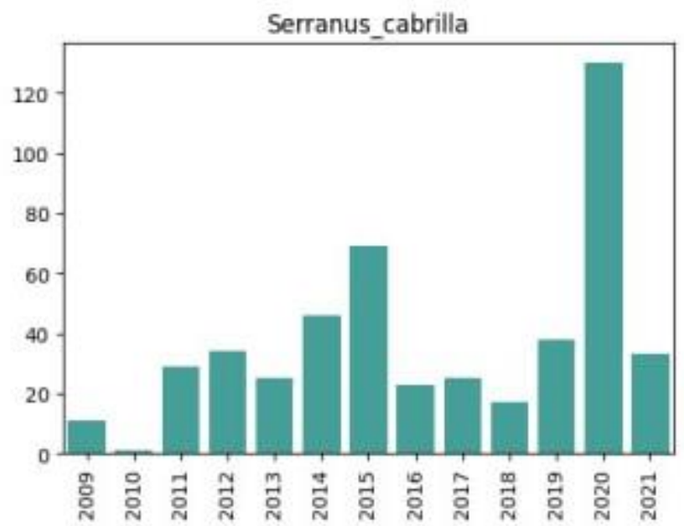

**Thalassoma pavo**

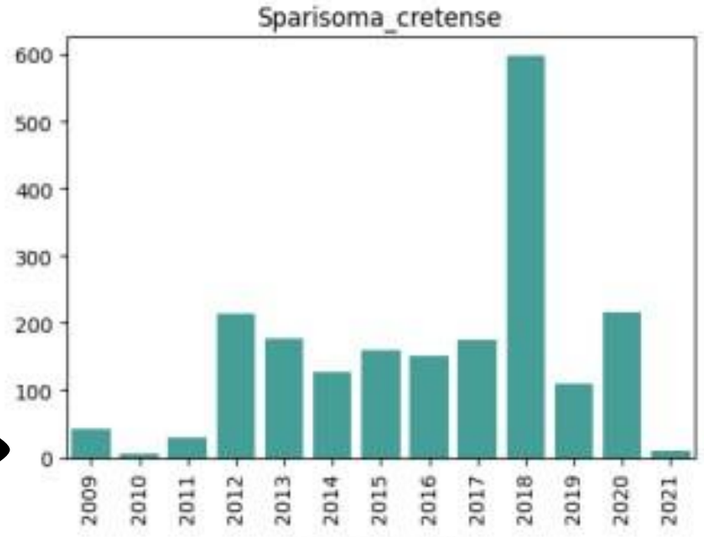


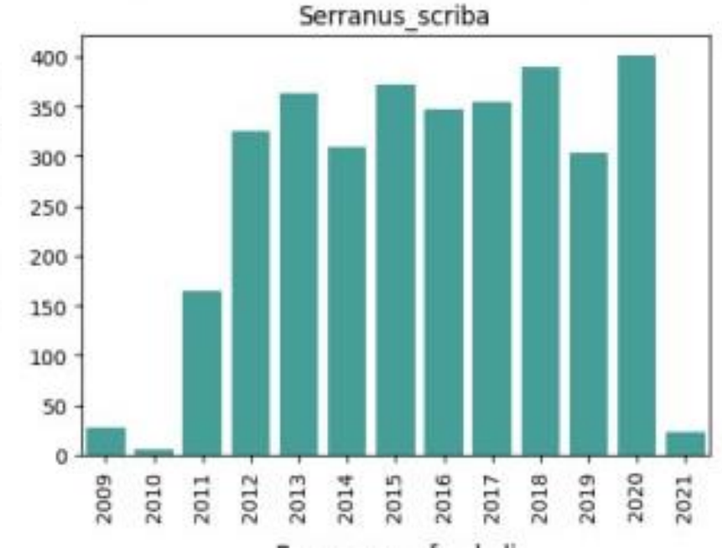
# 4th Analysis
# Mediterranean fishes

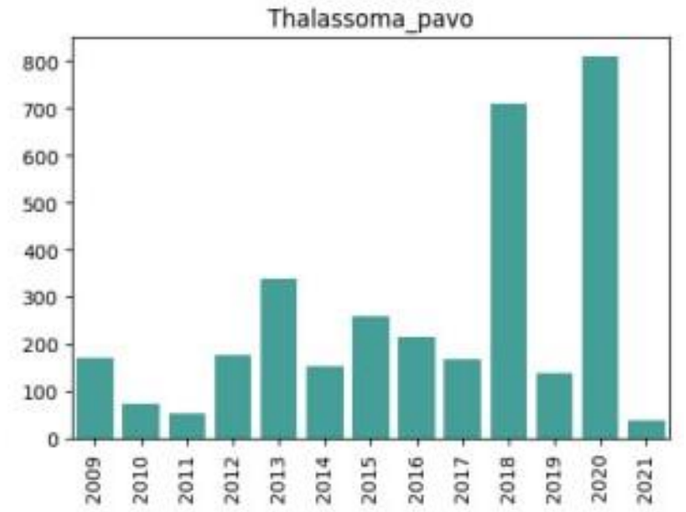


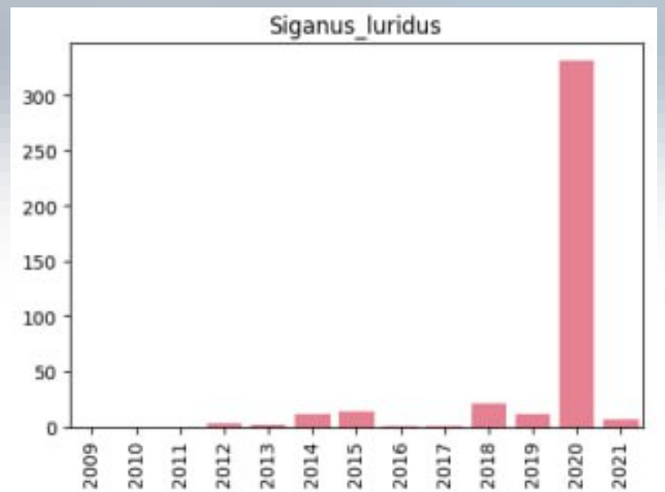



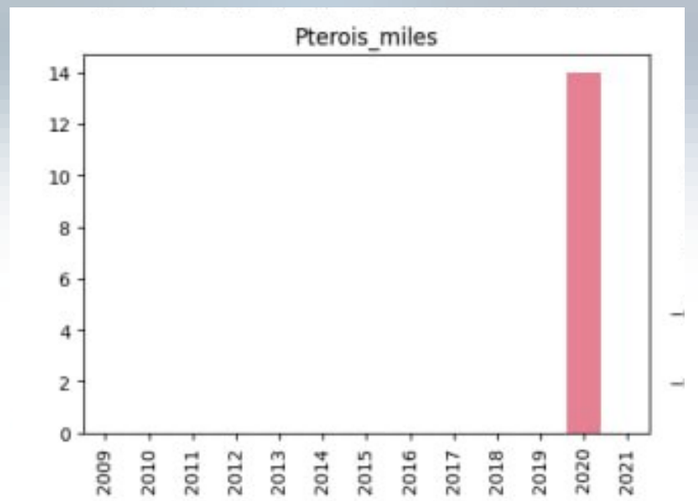



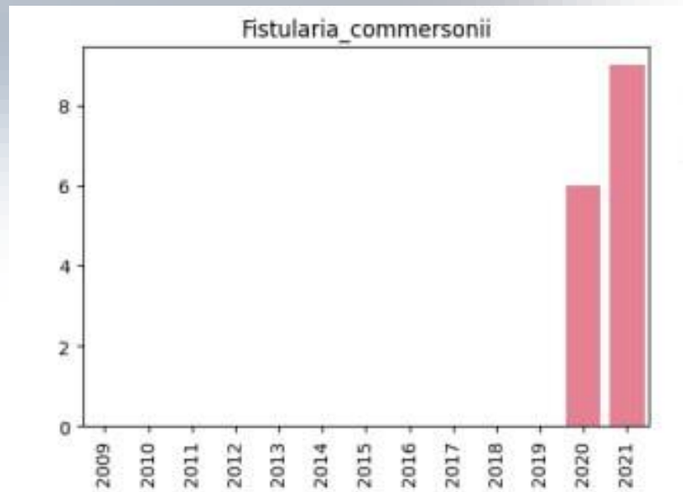



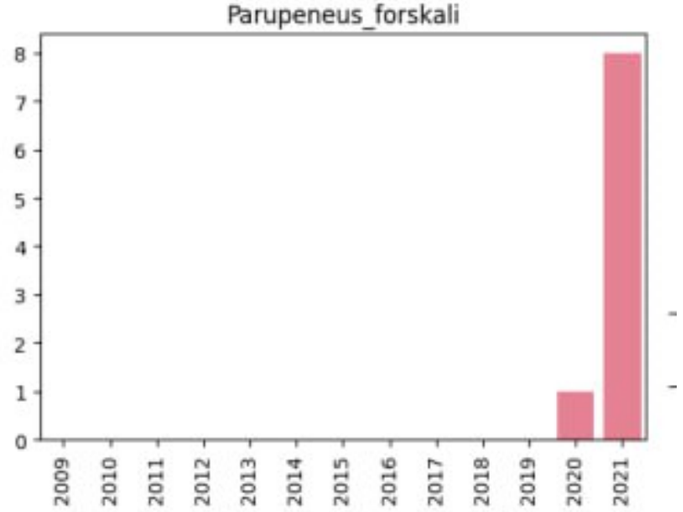



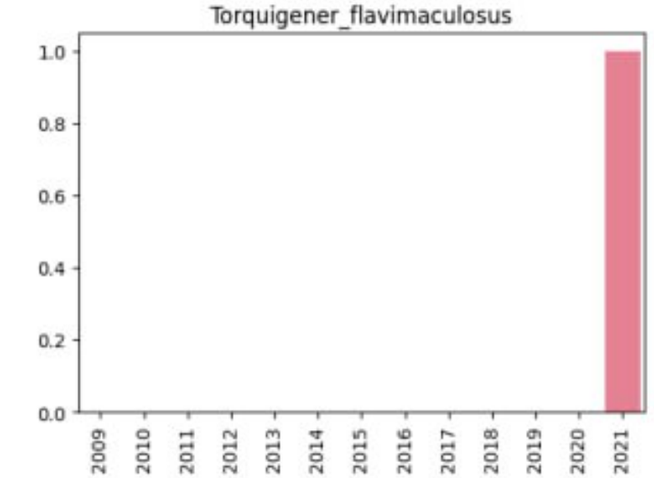
# Non-Mediterranean fishes

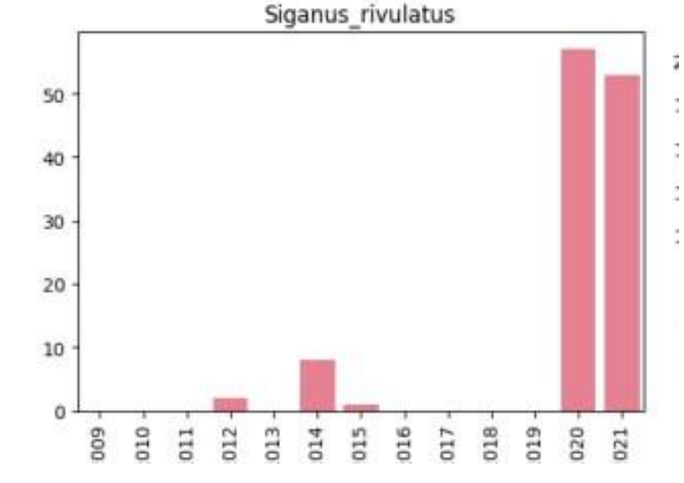


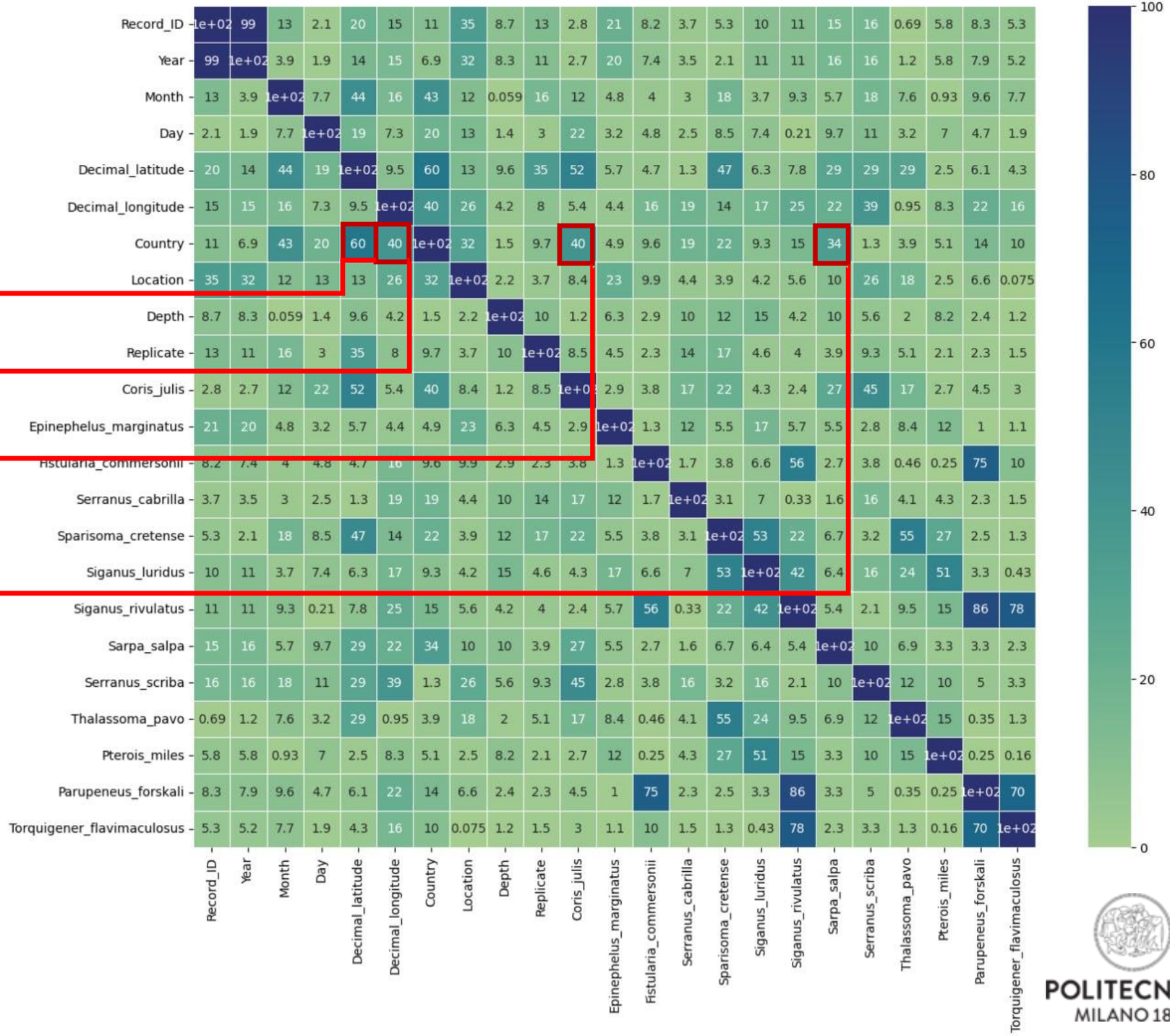
# Correlation Matrix

**Decimal Latitude: 60**

**Decimal Longitude: 40**

**Coris Julis: 40**

**Sarpa Salpa: 34**



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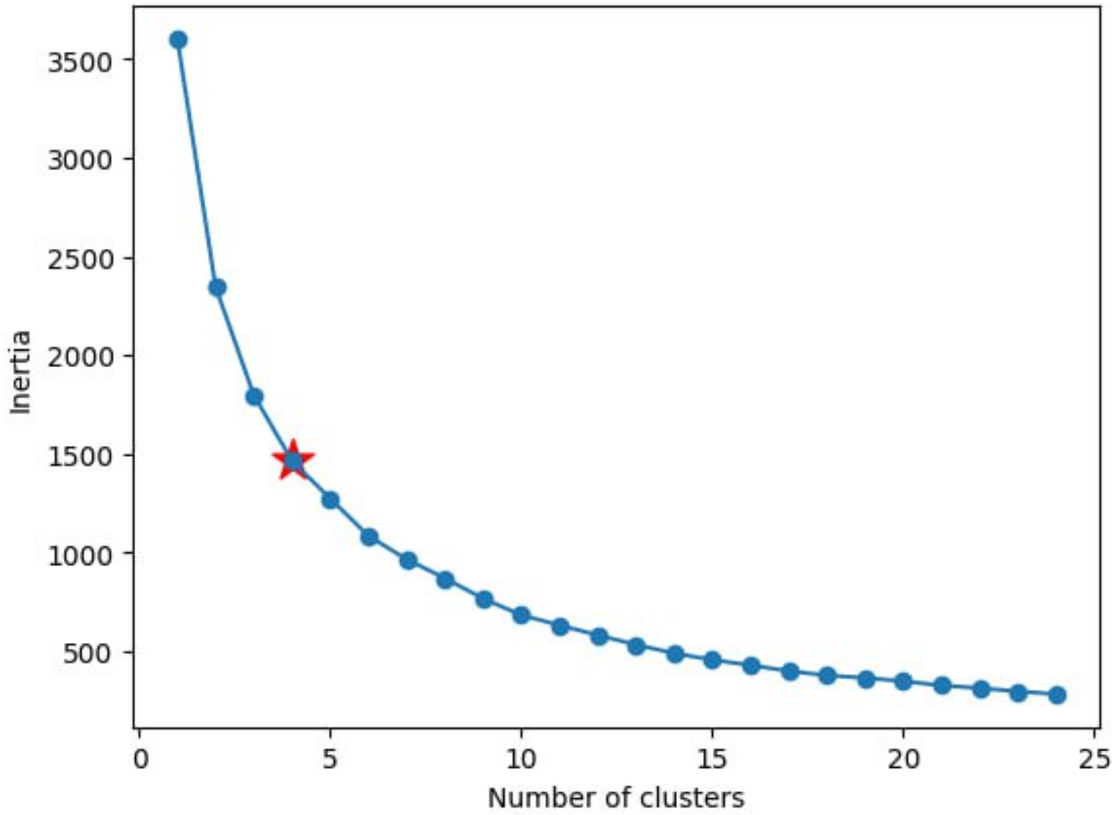
# Elbow of Clustering


| | Cluster 0 | Cluster 1 | Cluster 2 | Cluster 3 |
|---|---|---|---|---|
| Country_Name | FR | IT,GR,MT,TN,CY | ES | HR |

# P-value test

- Null hypothesis assumption on the Decimal longitude and Coris julis specie

| | cluster0 | cluster1 | cluster2 | cluster3 |
|---|---|---|---|---|
| cluster0 | --- | <0.05 | <0.05 | <0.05 |
| cluster1 | <0.05 | --- | <0.05 | <0.05 |
| cluster2 | <0.05 | <0.05 | --- | <0.05 |
| cluster3 | <0.05 | <0.05 | <0.05 | --- |

# Thanks For your kind Attention