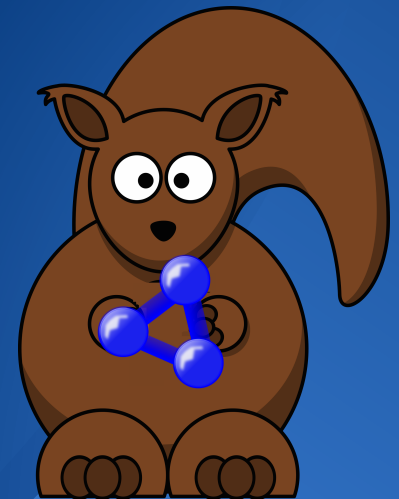


Exploring the Effects of Climate Change on Marine Species using Linked Data

Presented by SQURLs: Arne Martin Klemenz
Brian Mitchell
Prashant Gupta
Tamara Bobic

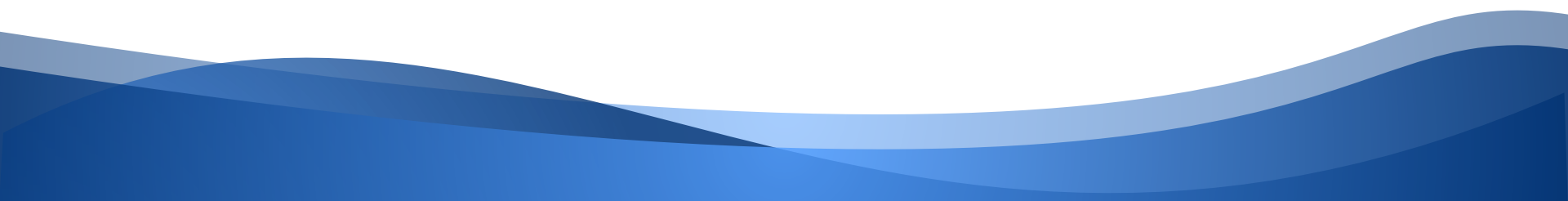


Threats to Marine Biodiversity

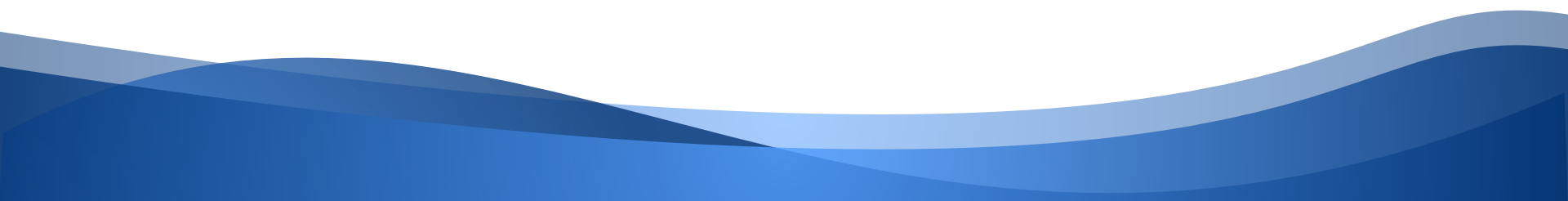


Research Problem: view-point of a marine biologist

How do I use various datasets from multiple disciplines (climate, environment and natural disaster) to explore the possible threats to marine biodiversity?



What we want to do...

- Explore the temporal changes in environmental factors at a specific location/ecosystem
 - Explore which invasive species might migrate from other ecosystems due to environmental changes
 - Discover predator/prey relationships among the indigenous and invasive species
- 

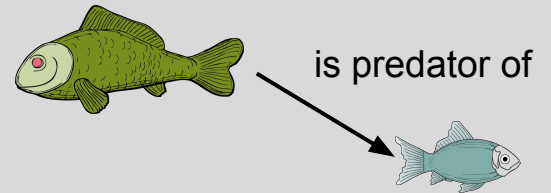
Current average temp.: 11°C
Current average salinity: ~2.0%

Species: 

Current average temp.: 18°C
Current average salinity: ~3.9%

Species: 

Predator relation:



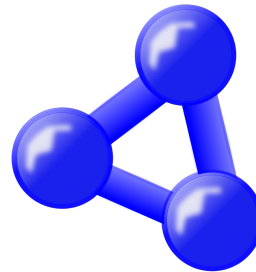


Technical Details

Linked datasets we have



FishBase



Schema extension



FishBase

http://www.ics.forth.gr/isl/MarineTLO/v4/marinetlo.owl#BC15_Water_Area

owl:equivalentClass

Location

a

http://www.fishbase.org/entity/ecosystem#Baltic_Sea

hasLocation

WaterMeasurementEvent

hasTime

"2014-09-02"

hasDepth

"300m"

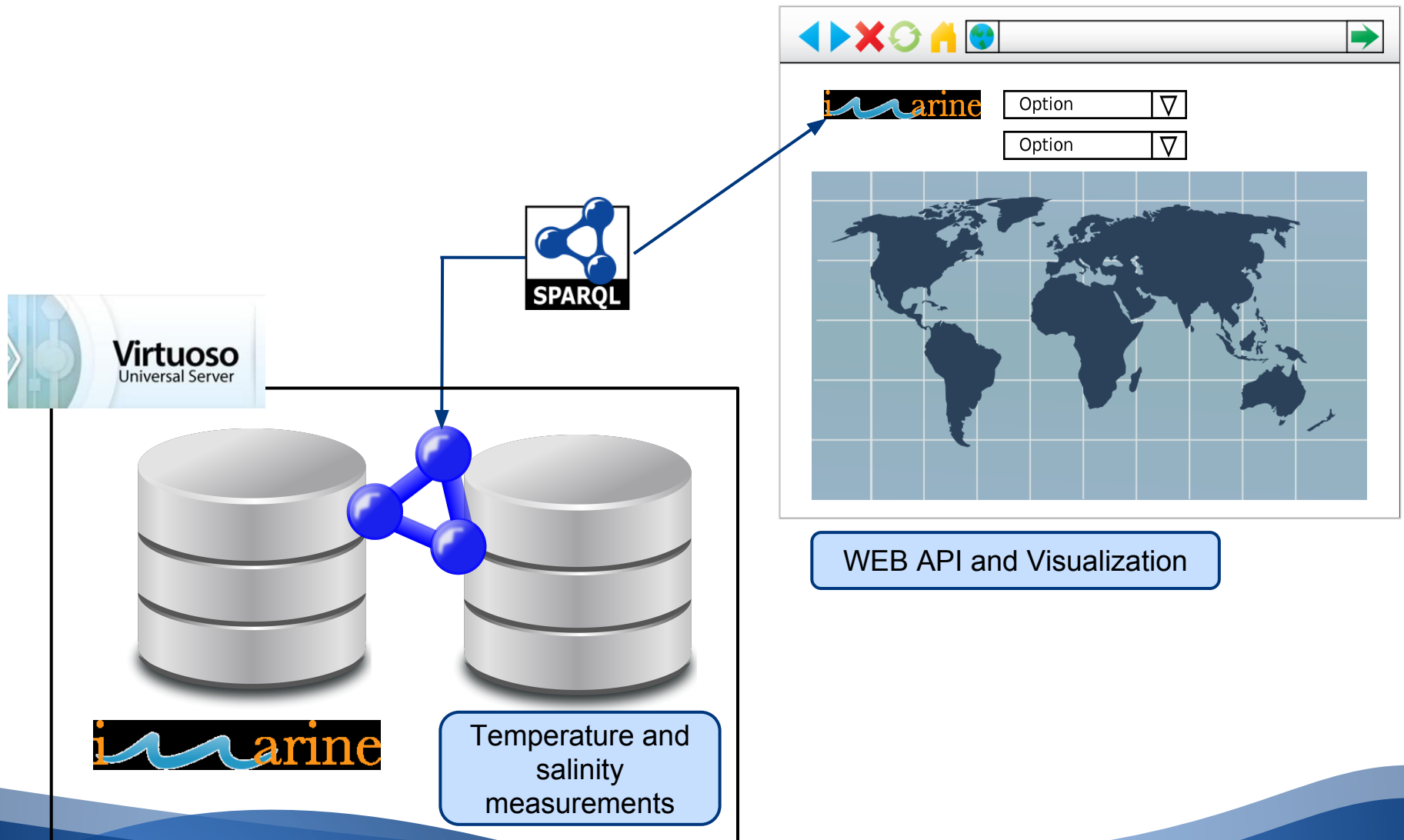
hasTemperature

"10 C"

hasSalinity

"2%"

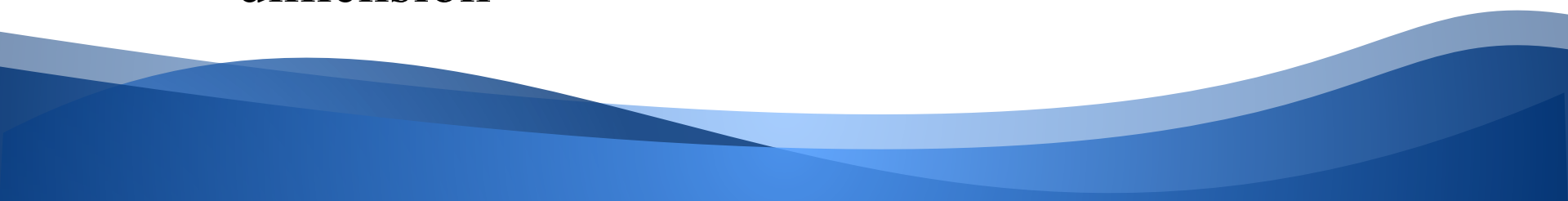
Design Architecture





Demo

Future Directions

- Incorporate other factors (pollution, human activities, etc) and explore their effects on marine biodiversity
 - Infer relationships and compatibilities among various ecosystems based on their marine species
 - Visualizations of various environmental factors on marine diversity both on temporal and spatial dimension
- 



Ευχαριστώ
πολύ!

Vielen Dank!

Hvala!

Dhanyavād!

Special thanks to our tutors: Irimi Fundulaki, Nikos Minadakis, Maribel Acosta and the iMarine project for providing us with the data.