

Interactive web atlas for DiadES results

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INRAE



LOCAL AND GLOBAL INITIATIVES:

HOW SCIENCE SUPPORTS MANAGEMENT ACTIONS ON DIADROMOUS FISH

Objectives

Present DiadES main results

- Diadromous species distributions in the marine and continental domains
- Economic valuations of ecosystem services in case studies
- Evolution in abundance and distribution in the context
 - of global warming (without anthropogenic mortalities)
 - and global change (with anthropogenic mortalities)

→ 4 pages in the atlas

Expectations on the atlas

Based on feedback from DiadES partners

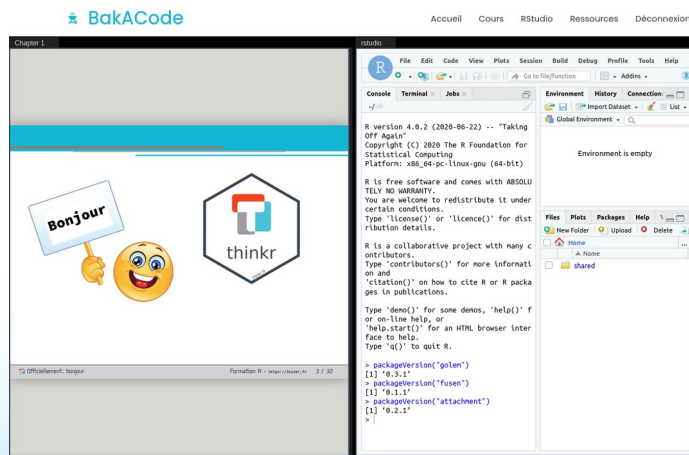
“give 3 questions for which you imagine finding answers in the atlas”

Two main entries:

- “For my favourite species, w...?”
 - 46 % of the proposed questions
- “For my basin of interest, w...?”
 - 30 % of the proposed questions

Developed with R experts for all your R needs

- **Consulting:** R server and infrastructure audit, choice and installation.
 - Full Service Partner RStudio
- **Studies and developments:** Data analyses, R packages development, Shiny applications design and deployment
- **Training and certification**
 - 3-levels certification: beginners, R package developers, R Shiny developers
 - On-demand trainings (git, cartography, dataviz, Javascript, ...)
- **Open-source and community:** Multiple open-source R packages, conferences, tutorials, ...



Developed with **THINKR**

Development: Everything is package

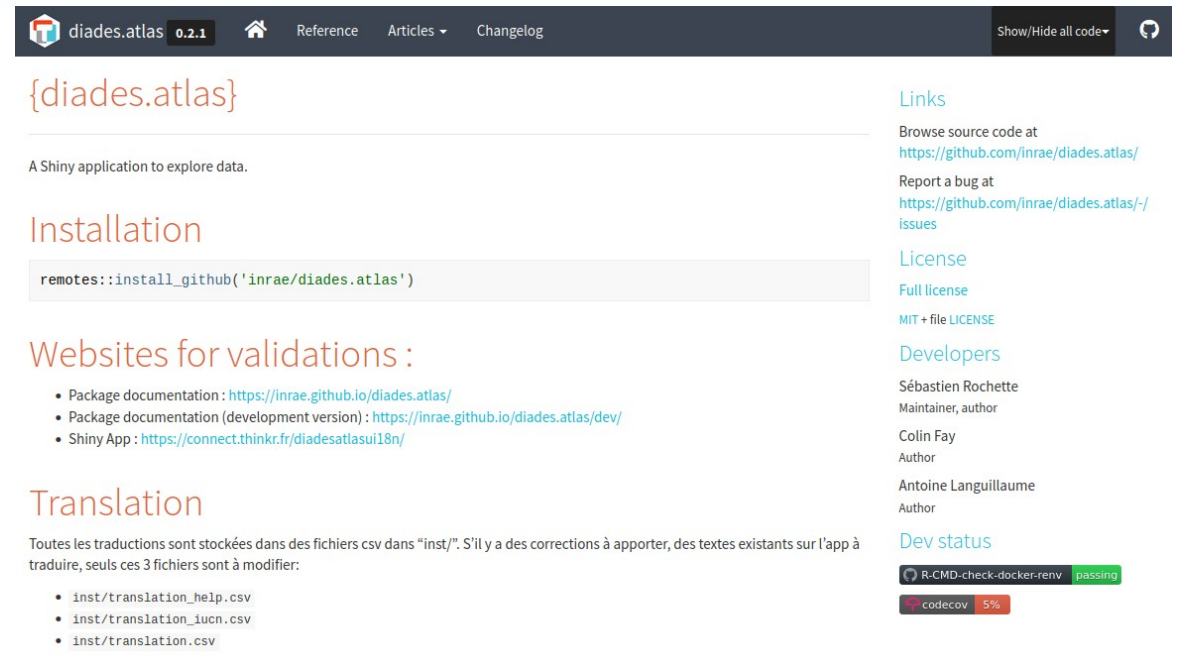
- **Documentation:**
 - To know how to install the product
 - To understand the features described with words
- **Tests:**
 - To check in detail that everything works as required
 - Robustness to the addition of new features
- **Versioning**
 - To follow the history of evolutions
 - To go back if necessary
- **Package**
 - Resume development after delivery
 - Re-use on new data

Communication



Developed with Development

- GitHub repository:
 - <https://github.com/inrae/diades.atlas>
- R package with source functions, documented and tested:
 - <https://inrae.github.io/diades.atlas>
- R Shiny interface included in the package:
 - <https://iwa.diades.org/>
- Docker configuration files for deployment
- Instructions for maintenance
- Project communication
 - <https://github.com/inrae/diades.atlas/projects/1>



The screenshot shows the GitHub repository page for 'diades.atlas' (version 0.2.1). The page includes a navigation bar with 'Reference', 'Articles', and 'Changelog' tabs. The main content area features a description of the Shiny application, an 'Installation' section with a terminal command: `remotes::install_github('inrae/diades.atlas')`, and a 'Websites for validations' section with links to package documentation, development version, and a Shiny App. A 'Translation' section lists CSV files for translation. On the right, there is a 'Links' section with source code, bug reports, and license information, and a 'Dev status' section showing CI/CD results for 'R-CMD-check-docker-renv' (passing) and 'codecov' (5%).

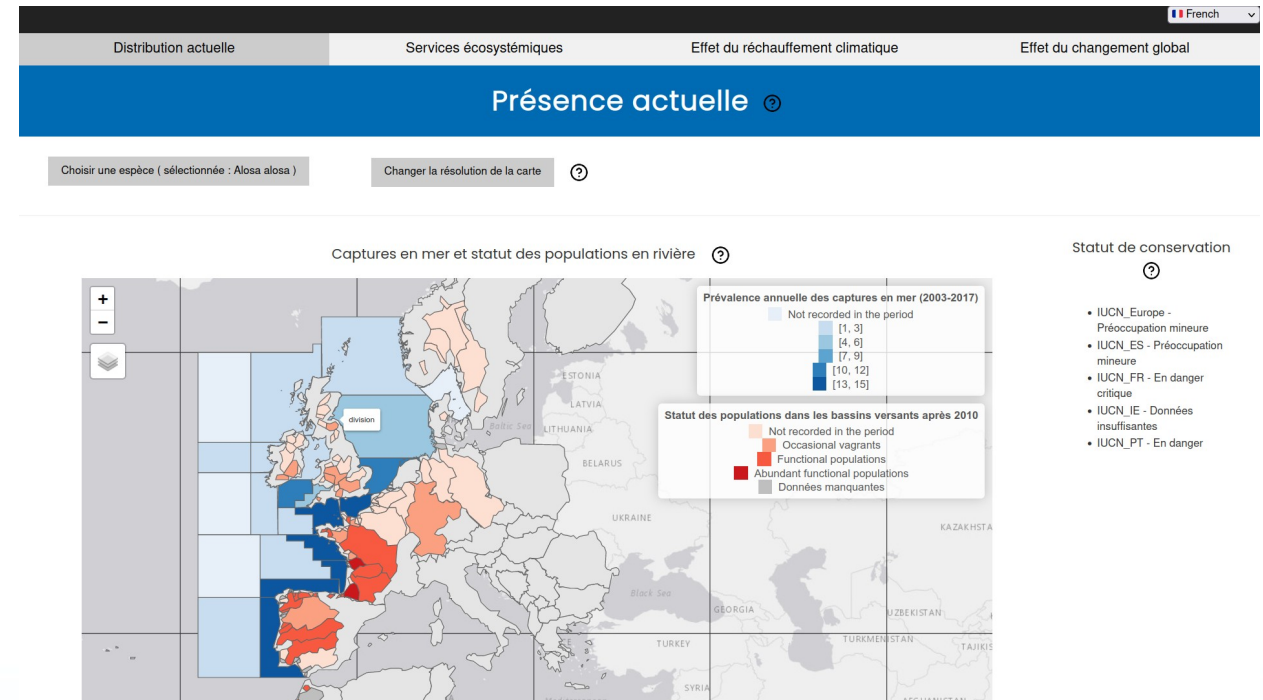
How to use the DiadES atlas

Tab 1: Present distribution

Based on

- Distribution at sea from catch and by-catch
- Population status from EuroDiad 4.0 database (present time)

Explore the consistency between marine and continental distributions



How to use the DiadES atlas

Tab 2: Ecosystem services

Current ecosystem services

Choose a species (2 selected) Choose a case study (2 selected) ? Choose an ecosystem service (3 selected) ? Show results ?

	Case study	Category	Allis shad	Twaite shad
2	Minho	[Cultural services] ALL EXISTING SUBCATEGORIES	€	€
4	Minho	[Provisioning services] ALL EXISTING SUBCATEGORIES	€	0
6	Minho	[Regulating services] ALL EXISTING SUBCATEGORIES	0	0
1	Waterford Harbour	[Cultural services] ALL EXISTING SUBCATEGORIES	€	€€
3	Waterford Harbour	[Provisioning services] ALL EXISTING SUBCATEGORIES	0	0
5	Waterford Harbour	[Regulating services] ALL EXISTING SUBCATEGORIES	€	€

Species are displayed as

Rows

Column

interreg atlantic area DiadES

DB version: 1.0.1 - App version: 0.3.1 - by ThinkR

Based on semi-quantitative valuation of ecosystem services in case studies

- ? : missing data
- 0 : no service
- € : low value
- €€ : medium value
- €€€ : high value

Explore a first picture of ecosystem services provided by diadromous species (but comparisons between species, ES, and case studies not possible (yet))

How to use the DiadES atlas

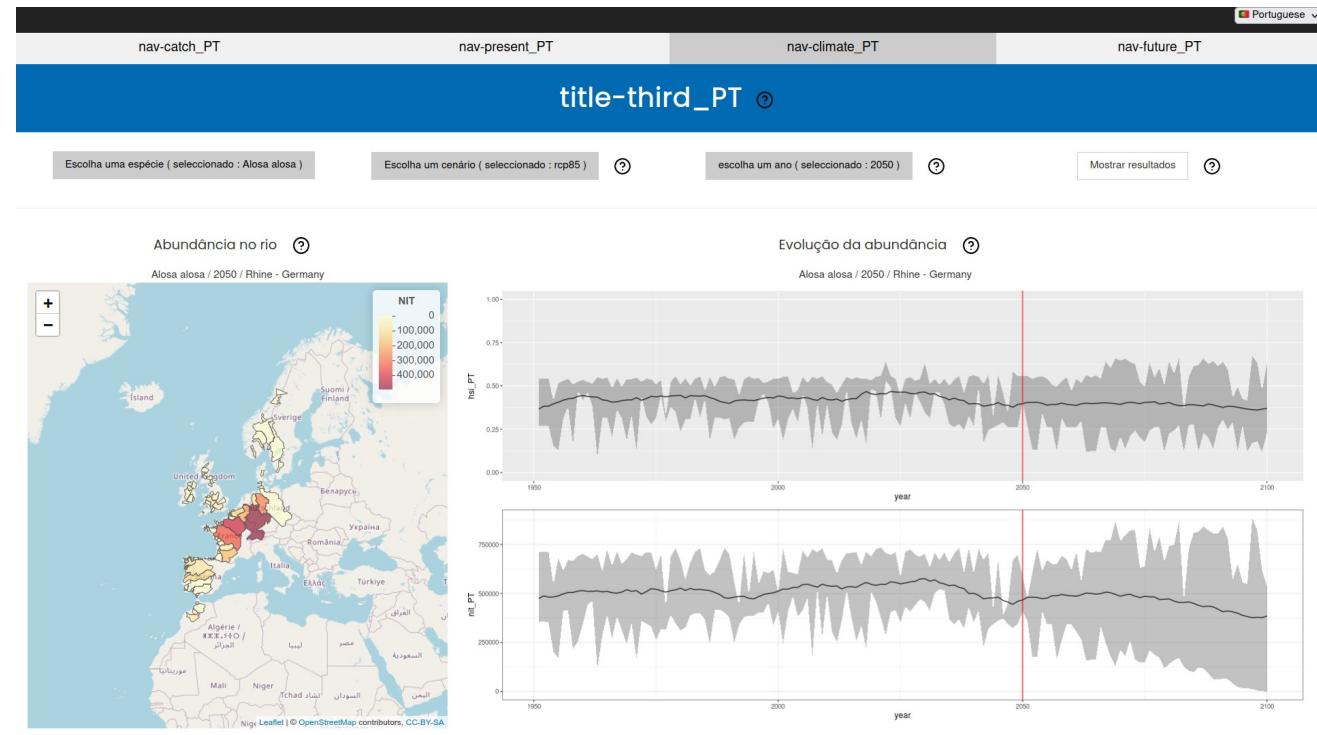
Tab 3: Effect of global warming

Based on

- habitat suitabilities and
- abundances

in catchments simulated by the HyDiaD model

Explore trajectories considering only global warming

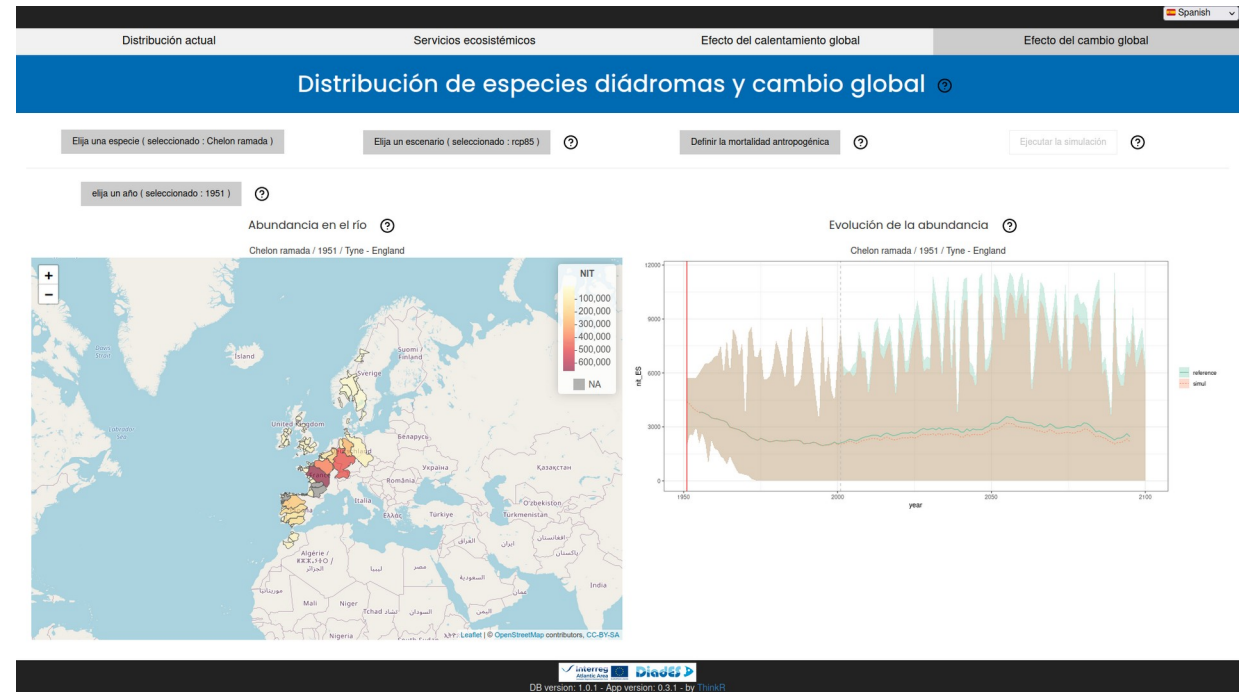


How to use the DiadES atlas

Tab 4: Effect of global change

The same as previously but with anthropogenic mortalities by countries for two periods

Explore consequences of mortality increase/reduction in catchments in a country and in the neighboring catchments



Main uses of the atlas

End-users targeted:

people involved in diadromous species management in Europe in the long term

Feed thinking on a management process

Explore processes at play

- in diadromous species ecology
- in production of ecosystem services associated with diadromous species

Main limitations

Do not use the atlas

- To extract fully-validated data directly usable in a management process
- To find information within a basin (spawning/growth zone, habitat quality, fishing effort,...)
- To list management tools at local, regional, national or European scales
- To identify relevant mitigation solutions

Use always with caution since

- Catch at sea are not comprehensible
- Ecosystem services valuation is a first (and so limited) research work
- The HyDiaD model is still in progress

Perspectives

Update valuation of ecosystem services with the last figures

Add a new tab presenting the turn-over of species in catchments between current and future conditions

Integrate feedback from users (workshop tomorrow morning) to improve the interface

Connections with similar tools

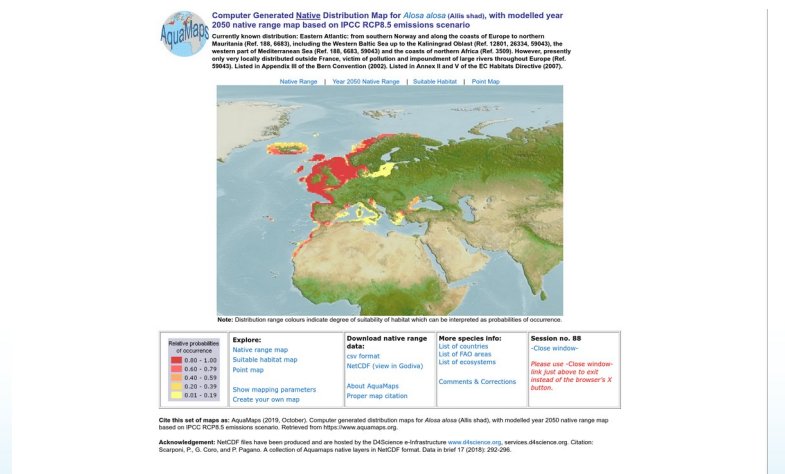
For eel: visuang from **Interreg Sudoe**  

- <https://aztidata.es/visuang/>



For all species: AquaMaps in Fishbase

- <https://www.fishbase.de/summary/Alosa-alosa.html>



Thanks for your attention...

... and we will continue exchanges
during the workshop tomorrow morning
in subgroups !