LifeWatch ERIC
Metadata Catalogue

User Manual

Version 2.0

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Abbreviations

DOI	Digital Object Identifier
EML	Ecological Metadata Language
EOSC	European Open Science Cloud
SSO	Single-Sign-On
UI	User Interface
UUID	Universally Unique IDentifier

1. Introduction: what is the LifeWatch ERIC Metadata Catalogue?

The LifeWatch ERIC Metadata Catalogue, hereby the Catalogue, is a standard-based information management system based on GeoNetwork 4.2.11, designed and implemented to enable access to several resources from a variety of providers through descriptive metadata, enhancing and promoting the information exchange and sharing among organisations and research infrastructures.

The main goal of the Catalogue is to increase collaboration within and among organisations to reduce duplications, to enhance information consistency and quality, and to improve the accessibility of a wide variety of resources along with the associated information, organised and documented in a standard and consistent way.

The Catalogue allows to manage descriptive metadata related to six kinds of resources:

- ***Datasets***, by using the EML 2.2.0 standard[1] (schema composed by 77 metadata attributes);
- ***Research Sites***, by using a customised ISO 19139 standard[2] (schema composed by 14 metadata attributes);
- ***Services***, by using a customised ISO 19139 standard (schema composed by 34 metadata attributes);
- ***Virtual Research Environments***, by using a customised ISO 19139 standard (schema composed by 24 metadata attributes);
- ***Workflows***, by using a customised ISO 19139 standard (schema composed by 24 metadata attributes);
- ***Training Resources***, by using a metadata schema based on the EOSC training profile available here: https://eosc-training-profile.readthedocs.io/en/latest/elements.html that includes 22 metadata attributes.

This means that the resources stored in the catalogue are based on three main standards:

- a customised ISO 19139 (VREs, Services, Workflows and Research Sites);
- a subset of EML 2.2.0 (Datasets);

[1] EML: Ecological Metadata Language - https://eml.ecoinformatics.org

[2] ISO 19139 standard - https://www.iso.org/standard/32557.html

- empty schema (Training Resources), that is a schema based on XML tags that can be created ad-hoc for specific resources.

Metadata fields can be optional/mandatory and can require single/multiple values.
The Catalogue allows (upon validation and verification) the creation of Digital Object Identifiers (DOIs) for resources that do not have it, by exploiting the GeoNetwork – DataCite connection.

Moreover, the Catalogue allows to:

- discover resources with advanced filters (e.g., according to the provider, to the group, i.e., LifeWatch National Distributed Centres, etc.);
- discover resources by using an interactive map;
- create/edit metadata records with a powerful online editor system;
- schedule harvesting and synchronisation of metadata among distributed catalogues;
- manage groups and users with the corresponding profiles and privileges.

2. Privileges, roles and user groups

The Catalogue uses a system of privileges, roles and user groups.

There are no restrictions for users to search and access public information in the Catalogue.
To get access to restricted information or advanced functionality instead, an account is required.

This implies that depending on the privileges set on a specific metadata record and on the assigned role, users will be able to read about a resource and download or interactively browse information related to that resource. Every authenticated user is assigned (by the administrator) to a particular group and is able to manage metadata within that group.

3. Metadata ownership

Starting from release 2.1.0, GeoNetwork has a new metadata access policy. The old edit and admin privileges have been removed, and the concept of reviewer has been introduced. The purpose of this new profile is to control when a metadata can be published outside or not. In previous releases, all users belonging to a group with edit privileges could edit the same metadata. Now, a metadata is only visible to its creator, to a reviewer which has access to the group and to an administrator.

4. Authentication & Account Management

4.1. Login

Users can access their account's resources by authenticating to the LifeWatch ERIC Metadata Catalogue. It is possible to use several authentication mechanisms (Figure 1):

- the LifeWatch ERIC Single-Sign-On (SSO), that allows users already logged into any of the LifeWatch ERIC applications, to be automatically recognised and granted access;
- Google;
- Federation with EOSC.

For users that don't want to use such authentication mechanisms, it is possible to "Register" to the catalogue by filling in the information displayed in Figure 2.

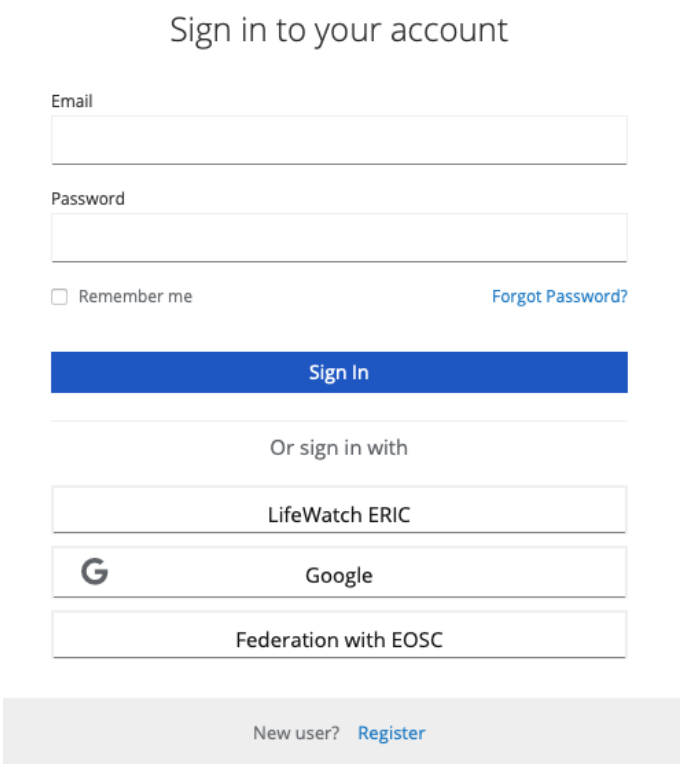

Figure 1. Login form

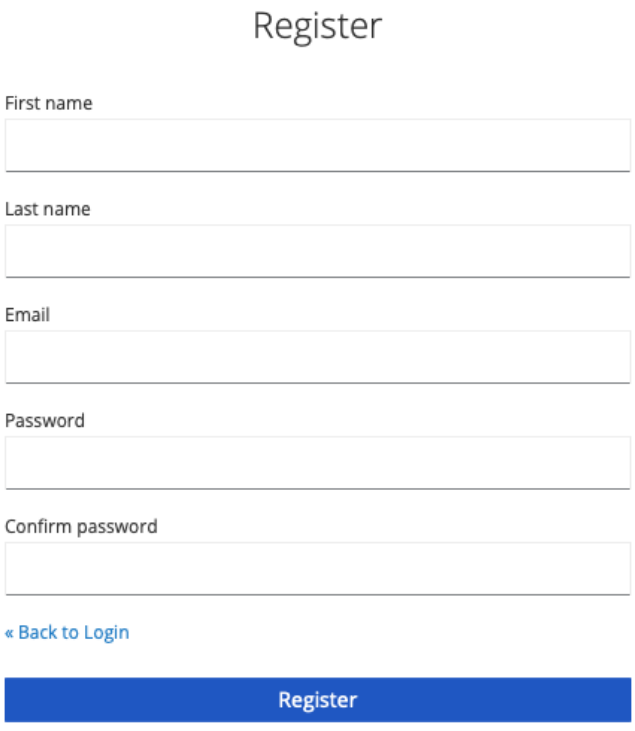

Figure 2. Registration form

4.2. User profile overview

After logging in, users can access their profile by clicking on the user's name on the top-right corner of the page (see Figure 3).

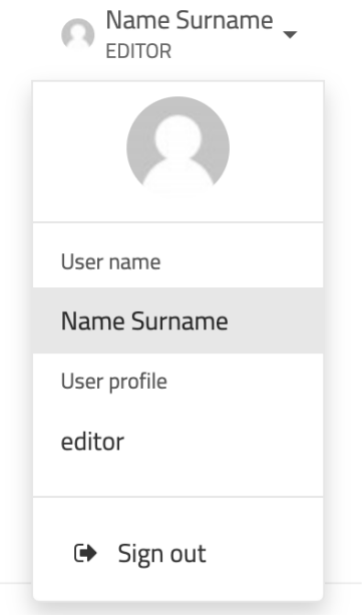

Figure 3. User information

4.2.1 User details overview

In the user details section, in addition to personal information, users can view the groups to which they belong, their role within those groups, and their contributions to the metadata catalogue. This includes details such as processed records, actions performed on individual resources, and the specific groups associated with those actions. Each resource also includes a link to access its detailed information.

4.3. Managing groups

Users can view the list of groups they belong to by clicking on "Manage groups" on the left panel. By clicking on a specific group indeed, it is possible to access its details like the group's name, associated links, logo, a summary of the group's contributions to the catalogue (including the

number of processed resources), a list of users who are members of the group, the group's administrators, etc.

5. How to search for resources?

The Catalogue allows users to search records in three different ways:

5.1 Simple search

The simple search functionality allows users to quickly find metadata records using keywords. It is ideal for general queries where users do not require specific filtering or advanced search parameters.

At the top of the Search page, users can enter the desired keywords in the search box, see suggestions, and either press Enter on the keyboard or click the Search icon (magnifying glass) next to the bar. The wildcard * is used to match the start or end of word; for example, if users search for Area*, the results will contain words beginning with the text Area. Wildcards can also be used multiple times to search for part of a word.
The system will scan titles, abstracts, keywords, and other metadata fields to retrieve relevant records.
The simple search allows users to use the so-called "Facets", which represent the main filters on the left of the page (e.g., type of resource, contact, keyword, year, group, etc.).
Once the search is performed, the results are displayed as a list in the centre of the screen as shown in Figure 4.

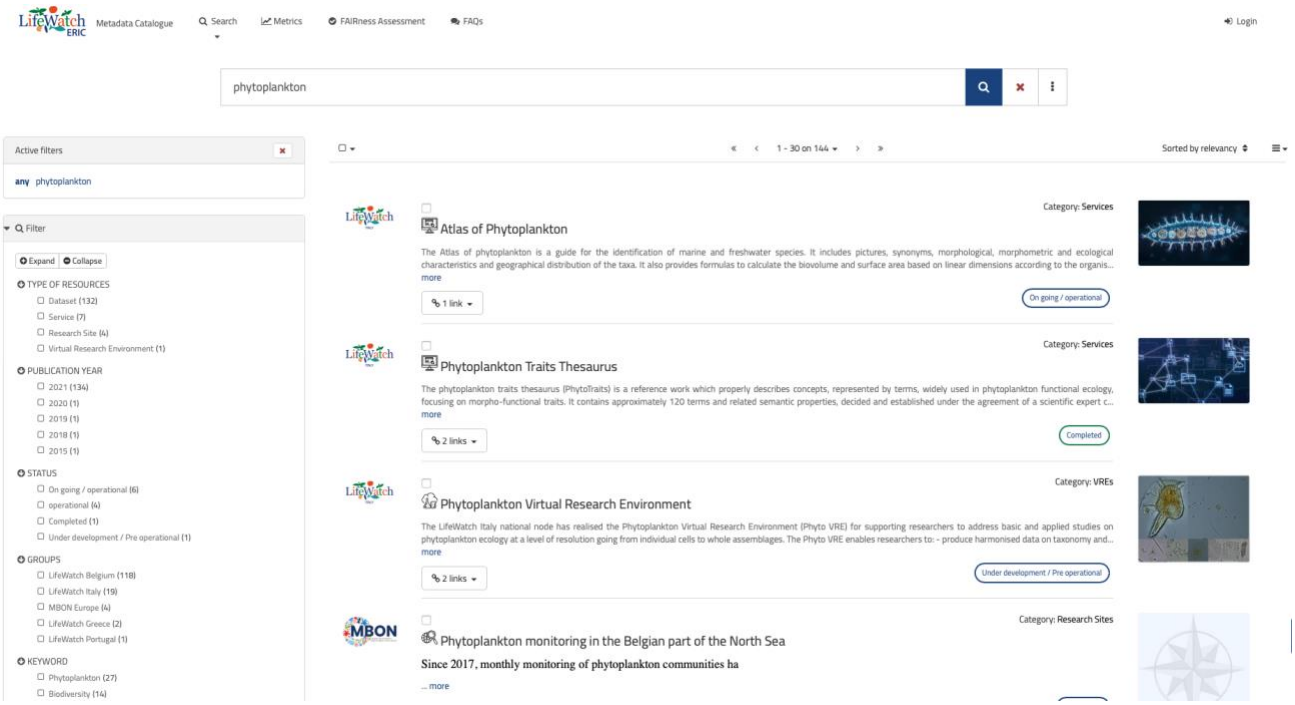

Figure 4. Simple search

Several views options are provided at the top of the search results in order to:

- present matching records: by using a grid, a list, or a table;
- sort the results: by default, the records are sorted by relevance, but it is possible to change the sorting preference by using the dropdown menu at the top-right of the results list. Users can choose among: last updates, new records, title, rating, popularity;
- manage how many results are shown per page: for easier navigation, pagination buttons on the top of the results page allow users to browse through multiple pages of records if the number of results exceeds the current view.
- quickly select records.

5.2 Advanced search

The advanced search option works similarly to the default search. However, users can be more specific in the search criteria as it offers different elements to look for resources.

To perform an advanced search, it is possible to open the options panel by clicking on the three vertical dots button on the right side of the Search box as displayed in Figure 5.

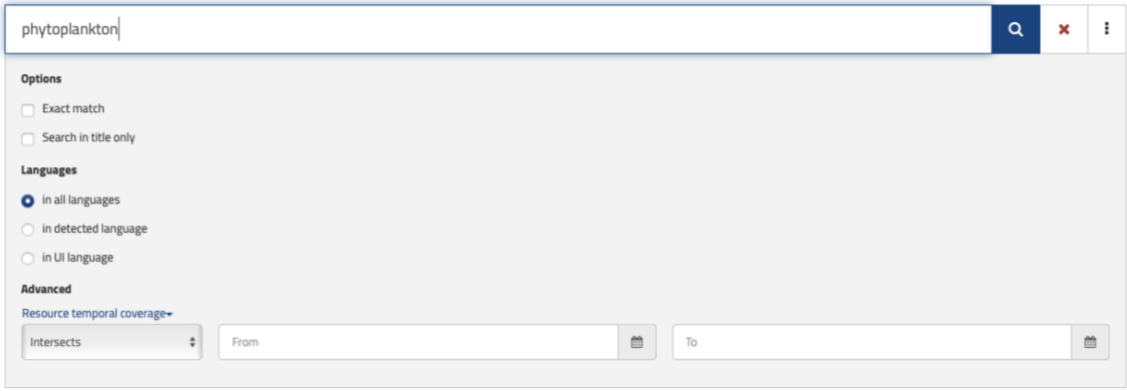

Figure 5. Advanced search

The available additional advanced options are:

1. Options:
    - exact match: by selecting this checkbox, the system searches for results that exactly match the entered keywords or phrases;
    - search in title only: this option restricts the search to titles of metadata records, ignoring other fields like abstracts or keywords.

2. Languages:

Users can specify the language scope for the search:

- in all languages: it searches metadata records in all available languages;
- in detected language: it restricts the search to the detected language of the metadata records;
- in UI language: it filters records based on the language of the catalogue's user interface.

3. Advanced:

The resource temporal coverage feature allows users to define a date range for the temporal coverage of the resources they are searching for.

After both simple and advanced search, it is possible to refine the search results by using the facet filters on the left-hand side of the Search page. By applying one or more filters, the list of

results dynamically updates to match the selected criteria, ensuring users can quickly locate the most relevant metadata records.

5.3. Map Search

The Map Search functionality in the LifeWatch ERIC Metadata Catalogue enables users to search for metadata records by their spatial extent or geographical location. There are two ways to use the Map Search:

- users can click on the Map button on the bottom right side of the Search page. This action opens a little slide out map interface providing visual feedback on the extent of each record. The map can be enlarged by clicking on the world icon;
- users can use the Search menu and select the Map item. This action opens an interactive map interface where users can visually define a spatial area of interest (Figure 6).

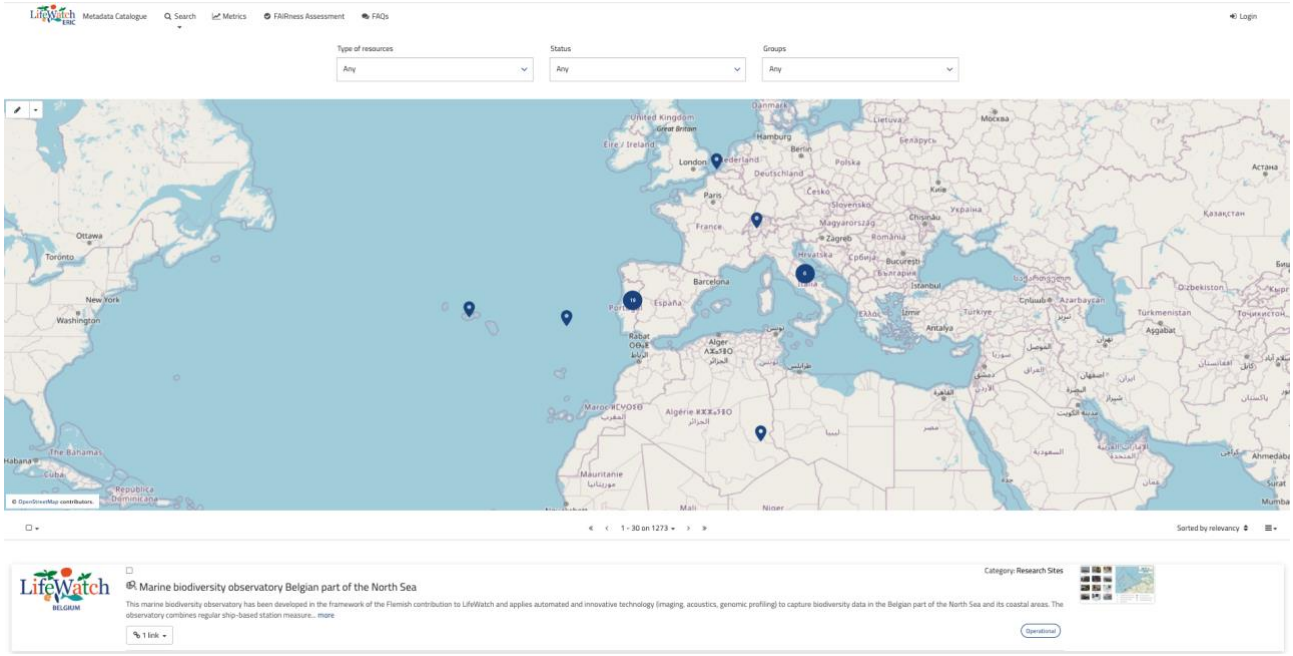

Figure 6. Map Search

This map search Interface allows users to:

- interactively use the map: users can navigate the world map with zoom in and zoom out by using the map controls or the mouse scroll to focus on specific regions;

- define a search area: users can define a geographic search area by drawing a bounding box, which allows them to select a rectangular region directly on the map to focus their search. In order to define a geographic search area with a bounding box, users should click on the pencil icon located on the upper left corner of the map. This action activates the drawing tool. Then, users have to click and drag the cursor on the map in order to create a rectangular area that focuses the search on the selected region;
- refine results: once a search area is defined, users can further refine their results using the filters on the top.
- view search results: once the map area and filters are applied, the search results appear in a list below the map. Each result includes basic metadata information such as the group, the title, the resource type, and a preview of the abstract. Clicking on a result will open its detailed metadata view.
- dynamic updates: any modifications to the map area or additional filters dynamically update the search results, ensuring an interactive and seamless user experience.

6. How to access the detailed view of a specific resource?

In order to see the details of a specific resource, just click on its title. All specified metadata will be shown (see Figure 7).

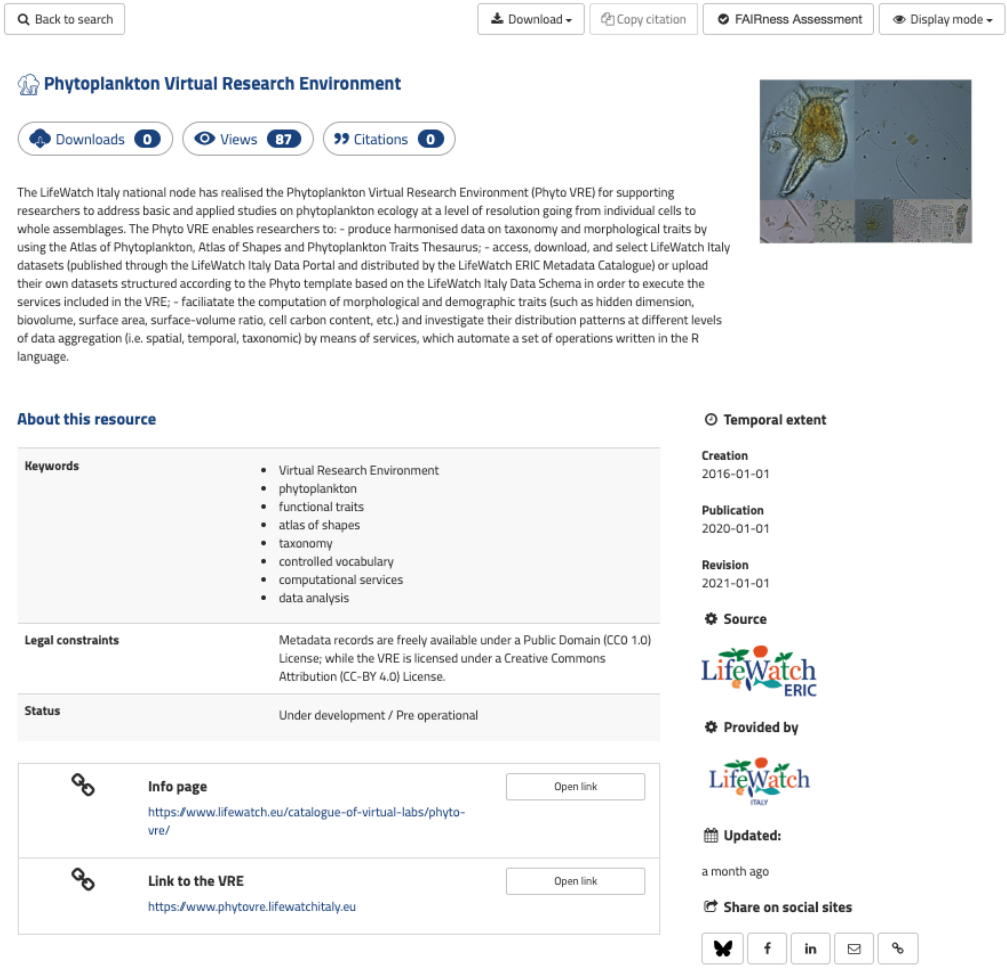

Figure 7. Detailed view of a resource

The metadata fields displayed in the detailed view strictly depend on the type of resource since each kind of resource has its own metadata schema.

As already mentioned in Section 1, the resources stored in the catalogue are based on three main standards:

- ISO 19139 (VREs, Services, Workflows and Research Sites)
- EML 2.2.0 (Datasets)
- Empty schema (Training Resources)

Below is an overview of the different profiles (Figure 8).

A full report of the LifeWatch ERIC Application Profiles is available here: https://www.lifewatch.eu/download/lifewatch-eric-application-profiles/.

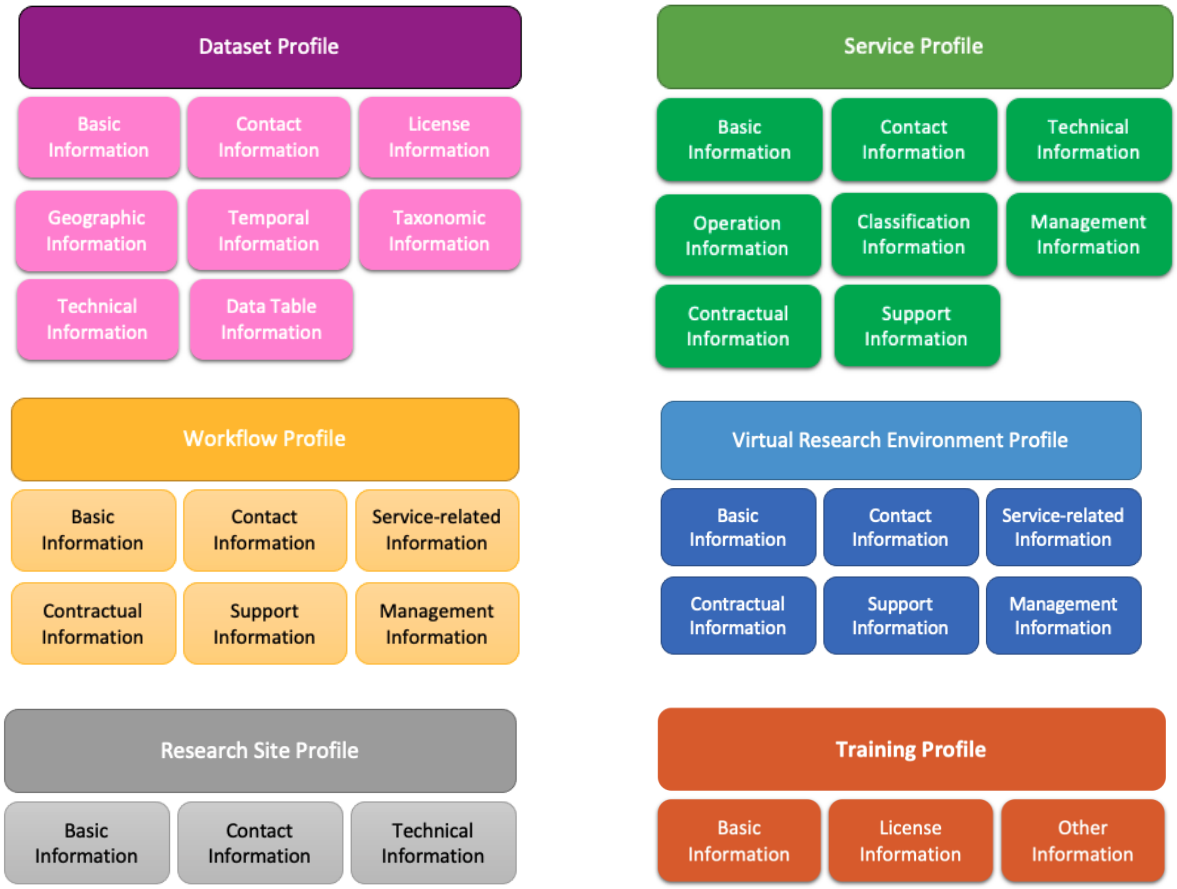

Figure 8. LifeWatch ERIC Application Profiles

7. How to download metadata related to a specific resource?

There are five different export options (ZIP, PDF, XML, RDF, and JSON) to export metadata. In the detail view of the resource, users can click on the "Download" button to export the resource in the desired format as shown in Figure 9.

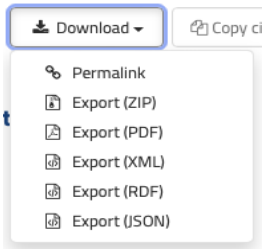

Figure 9. Exporting options

8. How to create a new metadata record?

In order to add a new metadata record, users have to be registered, logged in and have at least the “Editor” role within a group.

To start the creation phase, users have to navigate to the “Contribute” menu item and click on the "Add New Record" option (see Figure 10).

This will open a page in which users have to select:

- the metadata template (LifeWatch users should use the LifeWatch ERIC templates). Templates are pre-configured with fields that are specific to the different resource types and hence selecting the appropriate template ensures that the metadata accurately reflects the nature of the resource;
- the appropriate group that is “owner” of the resource (see Figure 11).

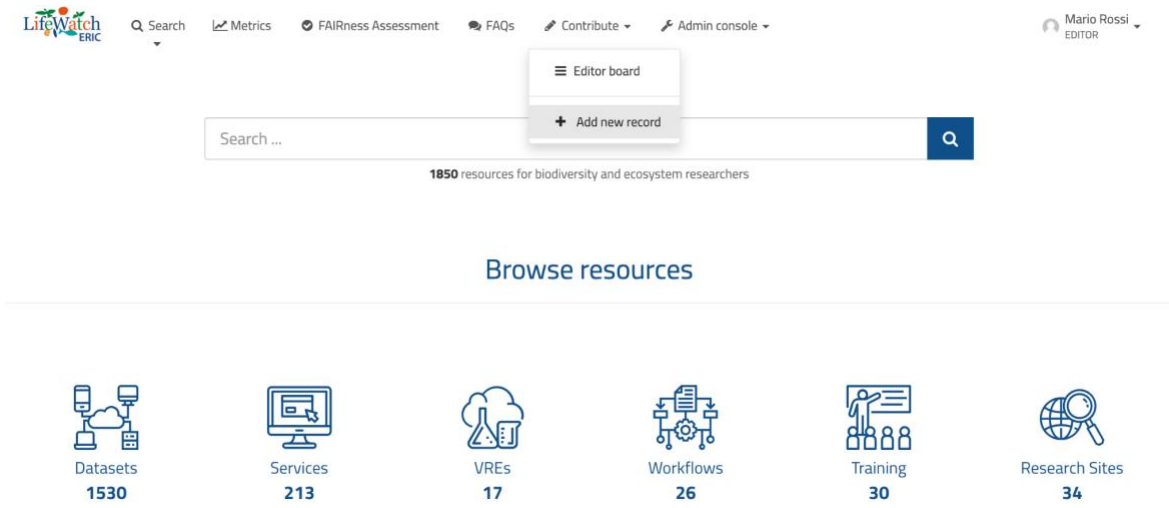

Figure 10. Create a new record - menu item

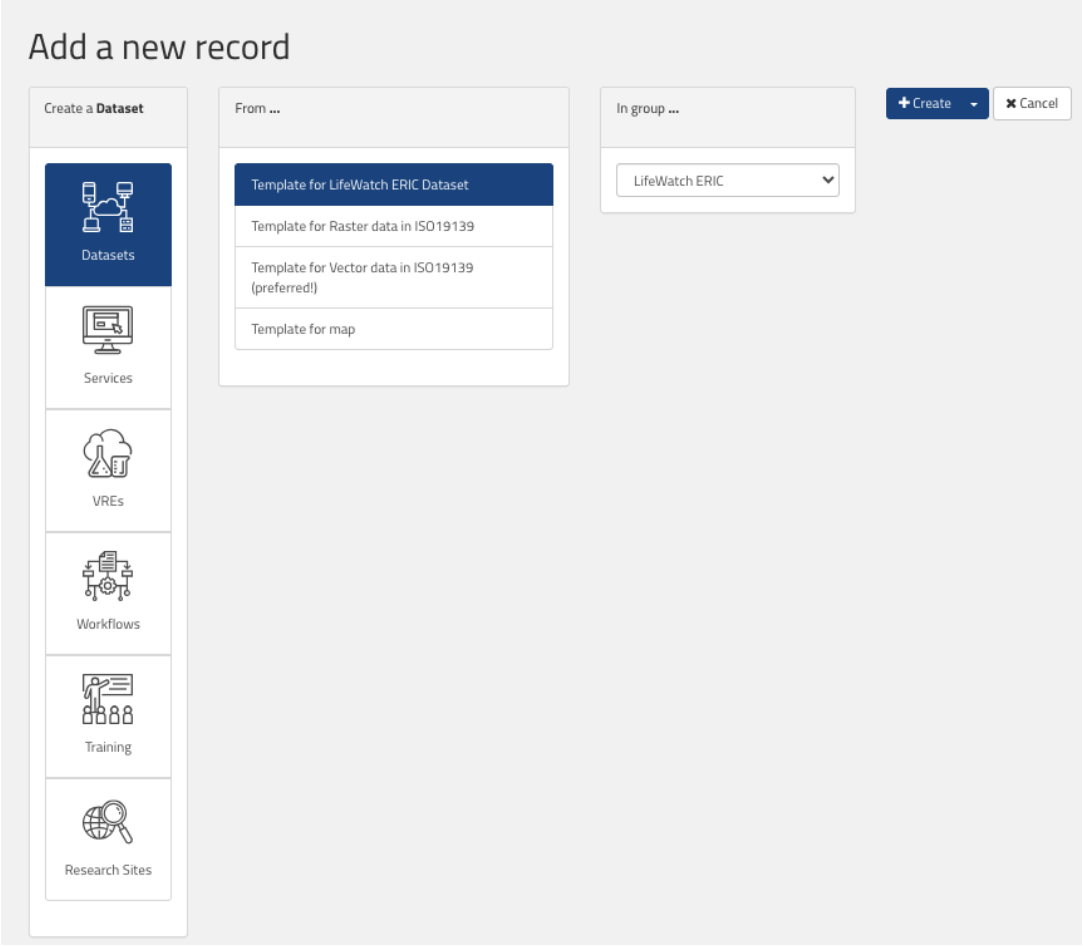

Figure 11. Create a new record – type, template and group selection

By clicking on the "Create" button, the metadata editor interface will be opened, where users can begin documenting their resource (see Figure 12).

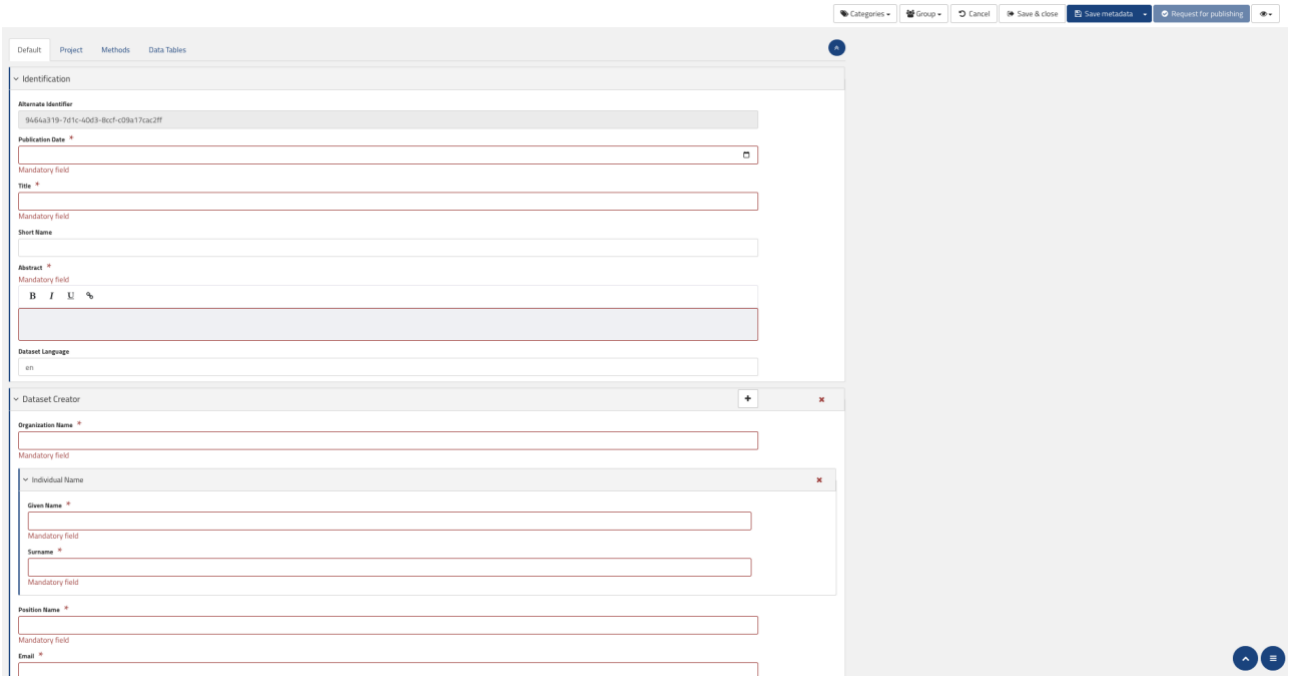

Figure 12. Create a new record – editor view

The editor shows the list of all metadata related to the metadata schema of the selected resource to be added. It is a user-friendly interface that guides users in the input process by means of:

- markers for optional/mandatory metadata.
- tooltips for the description of the specific field (Figure 13);
- controlled lists with the appropriate values of the specific field (Figure 14);
- multiplicity for multi-value attributes (Figure 15).

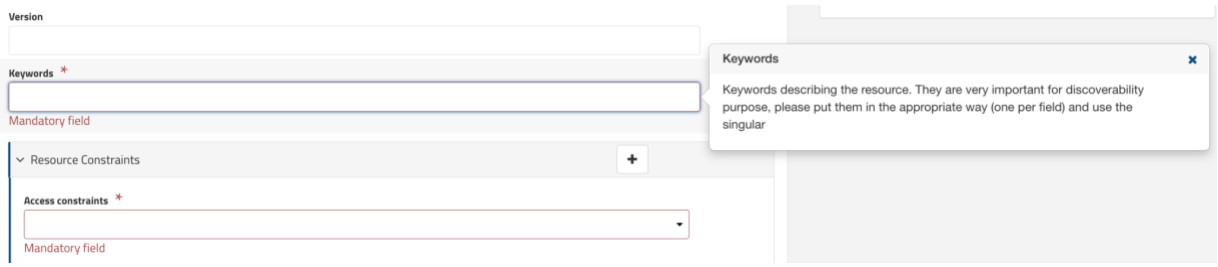

Figure 13. Create a new record – tooltips

Figure 14. Create a new record – controlled lists

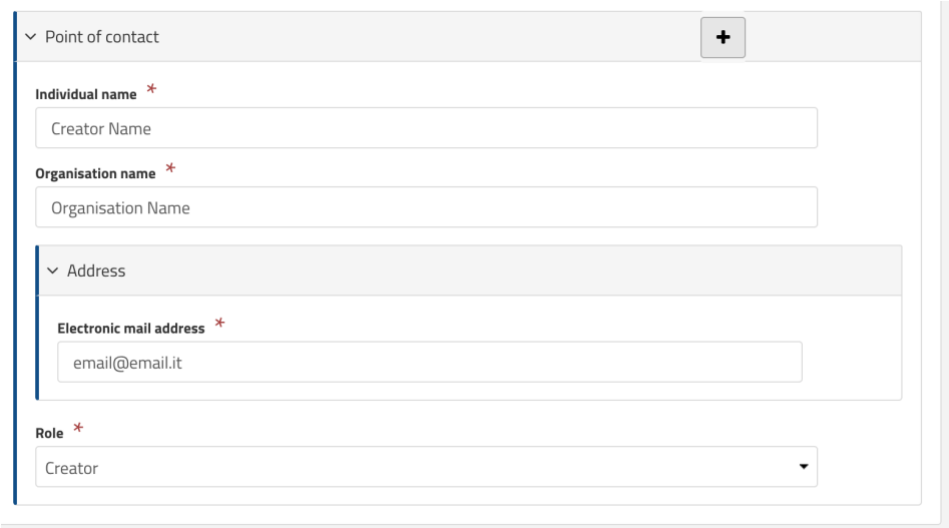

Figure 15. Create a new record – multi-valued fields

9. How to edit a resource?

Users can edit resources that they own by:

1. clicking on the name of the resource to edit from the resource list;
2. clicking on the "Edit" button (see Figure 16);
3. updating the record as needed via editor UI (see Figure 17);
4. deciding for the next step:
    a. cancel --> to go back to the resource list without saving;
    b. save & close --> to go back to the resource list after saving;
    c. save metadata --> to save changes but remain in the same edit page (it is highly recommended to periodically click on this button while filling long metadata records).

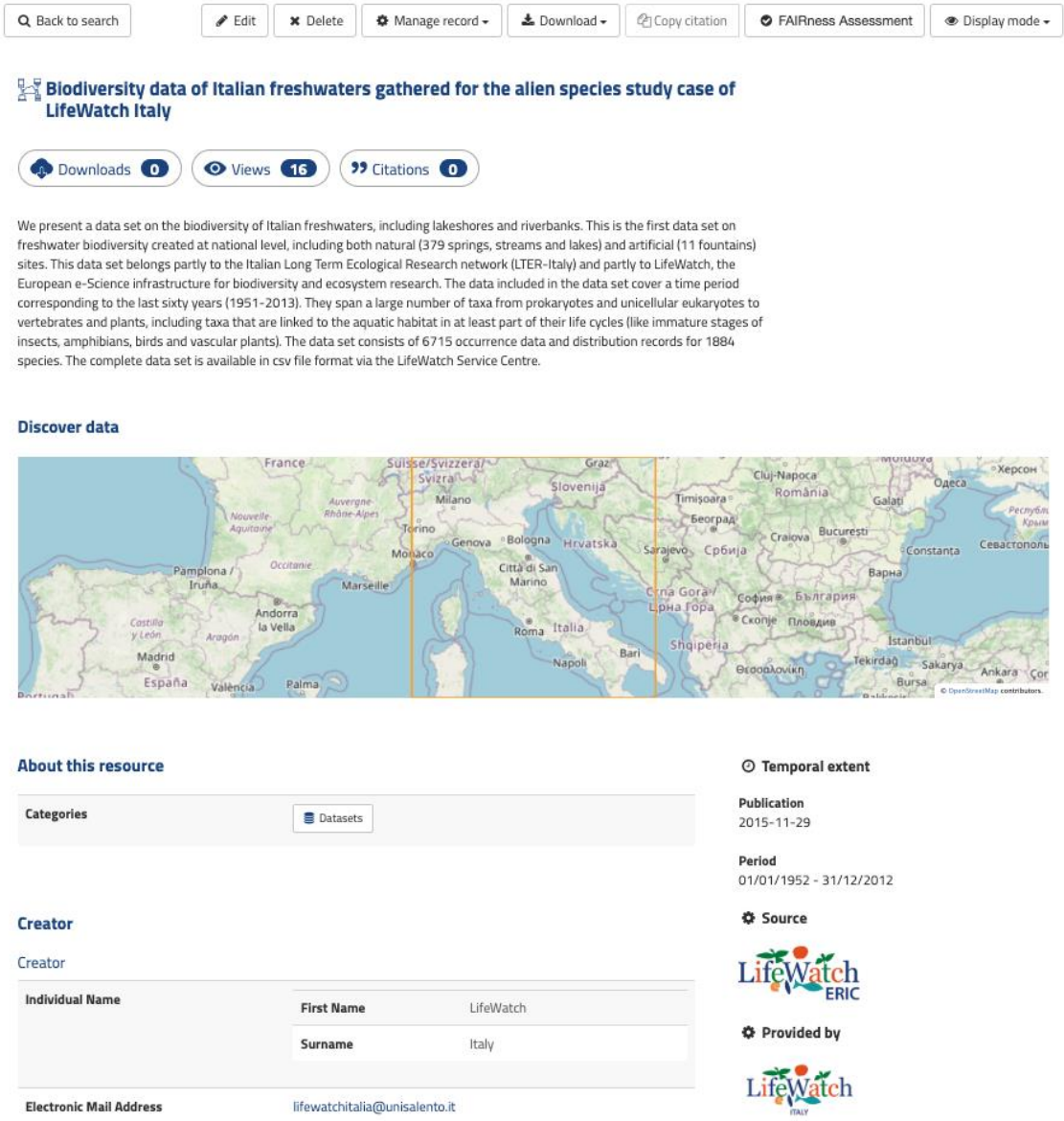

Figure 16. Edit a record – menu item

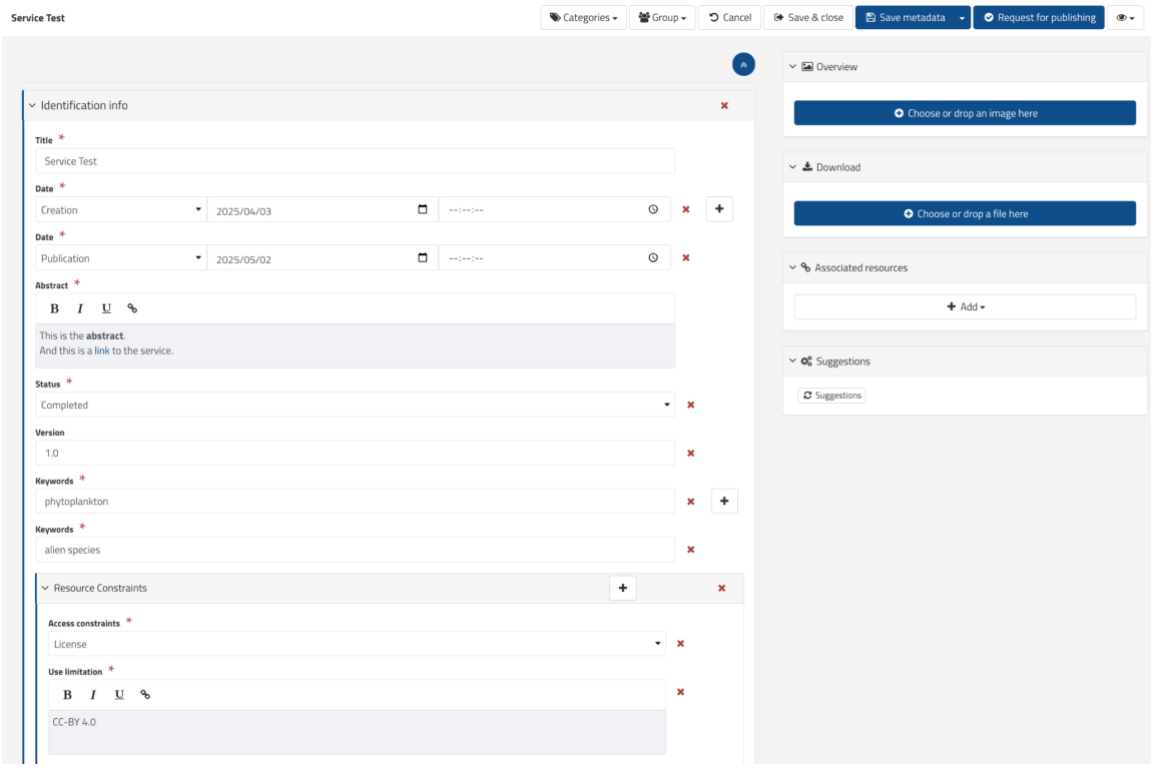

Figure 17. Edit a record – editor view

10. How to publish a record?

When creating a metadata record, users can save it as a draft if it is not yet complete by clicking the “Save & Close” button. Alternatively, if the record is complete and ready, users can request its publication.

10.1 Requesting the publication of a record

To request the record publication, users have to click on the "Request for publishing" button, which becomes enabled only after all mandatory fields have been completed (see Figure 18).

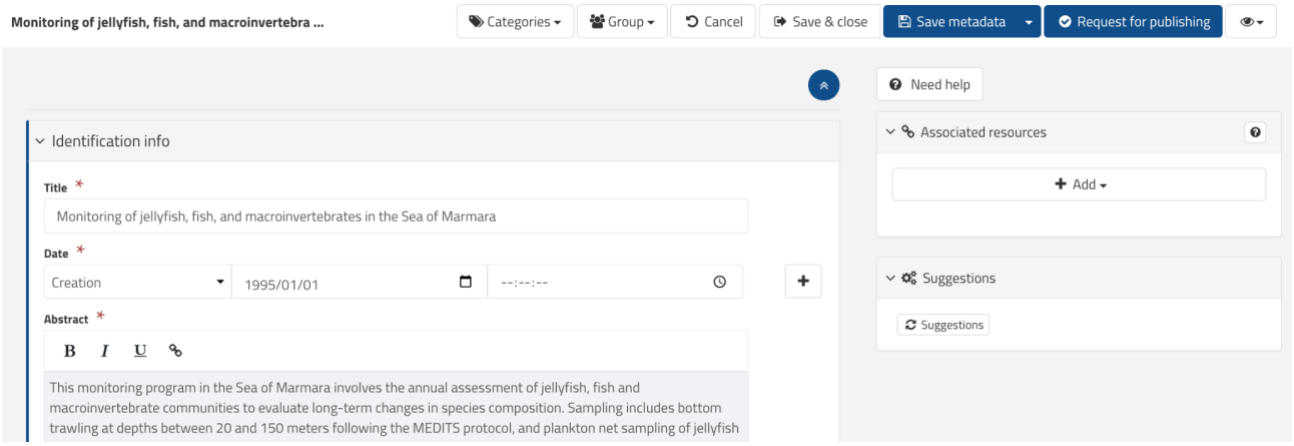

Figure 18. Requesting publication of a metadata record

After clicking the "Request for publishing" button, a pop-up window is opened, which explains the correct steps to proceed (see Figure 19). If users would like to request a DOI for the record, they can select the checkbox labelled "I want to get a DOI" within the pop-up and the administrator will handle the request.

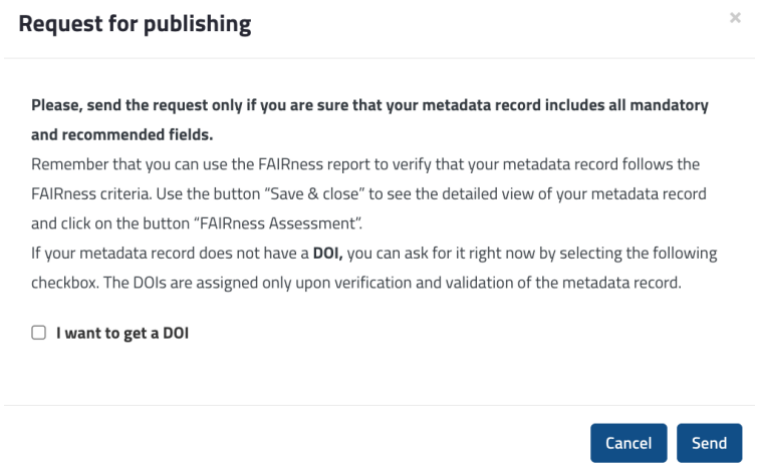

Figure 19. Publish a record – popup

The status of the metadata record changes from "Draft" to "To be approved" or "To be approved (with DOI)" if users have also requested a DOI.

An email notification regarding the publication request will be sent to the group owner's user administrator and the review process will start.

The metadata record can either be published or rejected, and in both cases, users will receive an email notification informing about the outcome.

If the record is approved and published, users will still have the option to request a DOI if it was not requested during the initial submission.

If the user administrator requires additional information or modifications, they may request integrations. In this case, the status of the record will change to "Pending", allowing users to make the necessary updates as requested.

Figure 20 illustrates the complete editorial workflow that shows the entire process from the record creation to publication, including all activities and their corresponding actors.

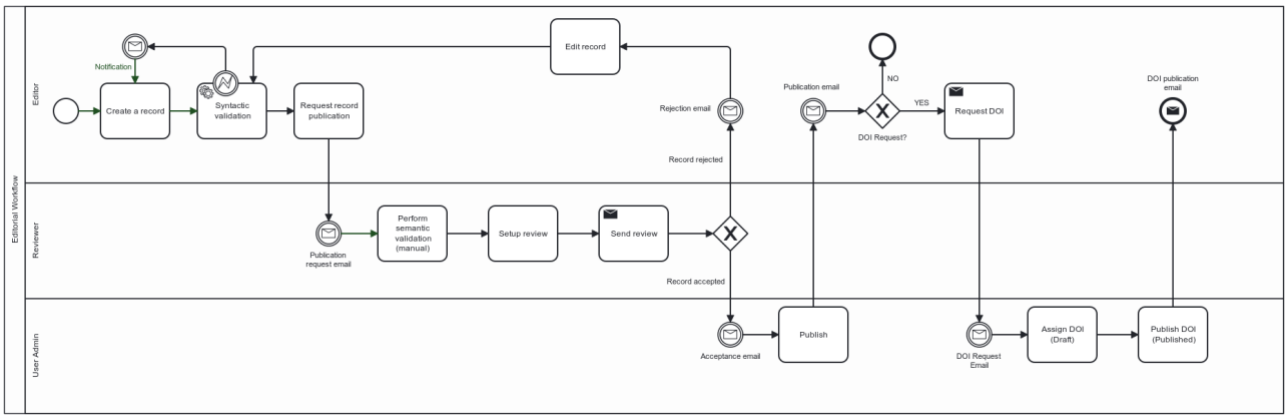

Figure 20. Editorial workflow

10.2 Requesting a DOI after publication

Users can request a DOI either during the initial publication request, as described in the previous section, or afterward. To request a DOI for a record that is already published, users have to navigate to the "Manage record" menu and click on “DOI creation request” (see Figure 21). Please note that this option is available only for records in “Published” status that do not already have a DOI assigned.

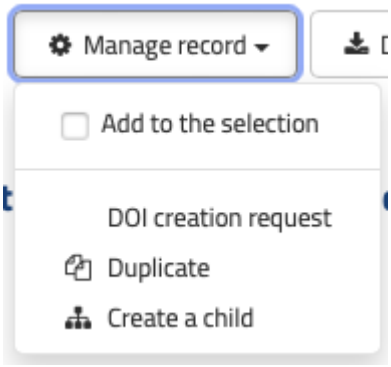

Figure 21. DOI creation request

After clicking, a pop-up will appear to confirm the operation (see Figure 22) and send an email to the administrator that will manage the request.

Figure 22. DOI creation request pop-up

11. Metadata quality assessment

The FAIRness assessment tool allows to assess the FAIRness on three different levels: the specific metadata record; the resource type and entire catalogue.

11.1 FAIRness assessment of a metadata record

To access the FAIRness assessment report for a single metadata record, users have to click the "FAIRness assessment" button in the detailed view. This will open a page that shows the FAIRness evaluation (see Figure 23).

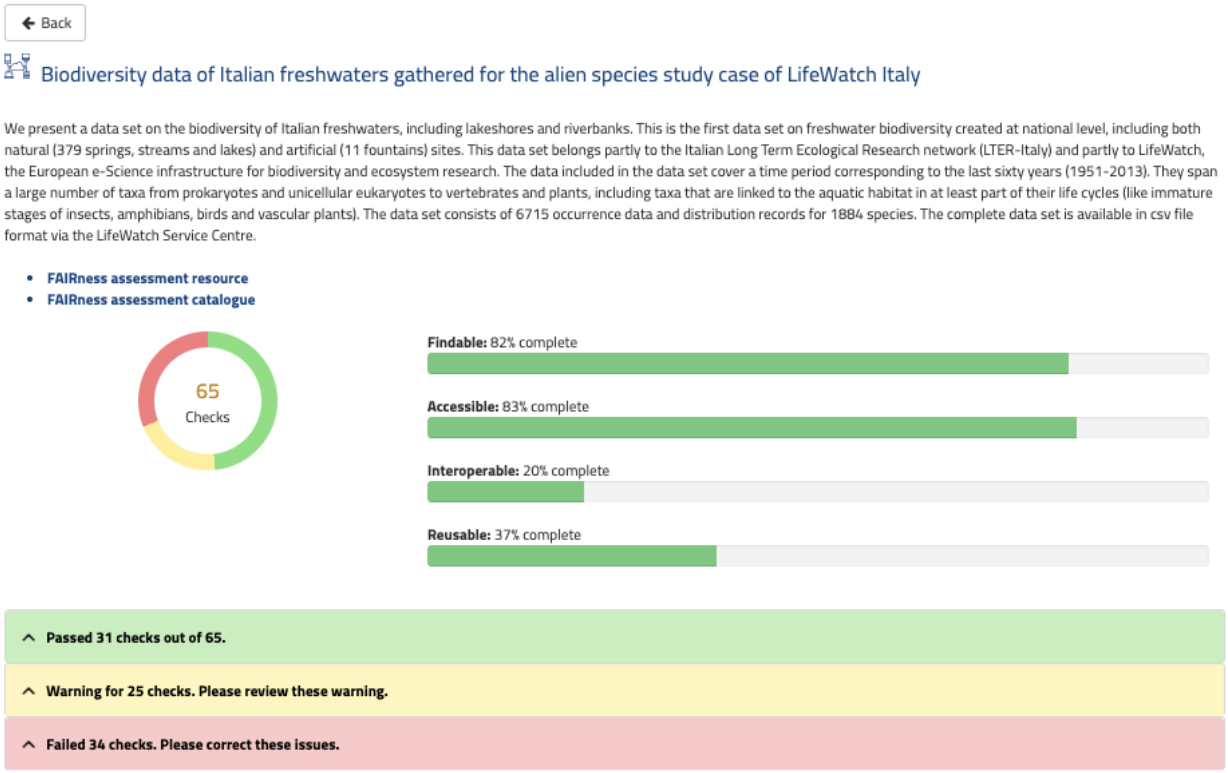

Figure 23. FAIRness assessment report of a record

The pie chart provides a visual summary of the total number of sub-rules that are applied to calculate the record's adherence to FAIR principles. It is divided into three sectors:

- green: it includes all rules whose sub-rules have been fully passed;
- red: it represents the failed sub-rules ;
- yellow: it represents rules with a mix of passed and failed sub-rules.

At the centre of the pie chart, the total number of passed and failed sub-rules is displayed.

On the right side of the pie chart, the bar chart presents the percentages of adherence for each principle. These percentages are calculated based on different weights assigned to each sub-rule by the system.

11.1.1 Passed checks

The header of the accordion displays the total number of passed checks, shown as the number of sub-rules passed out of the total checks performed.

To view more details, users have to click on the header of the accordion. This will expand the section to reveal the list of passed checks, each one with a description and its corresponding FAIR principle (see Figure 24).

Figure 24. Accordion of passed FAIRness checks

The list initially displays the rules (identified by their code and description) for which at least one sub-rule was successful. To view the detailed sub-rules associated with a specific rule, users have to click on the rule. This expands the section to reveal each sub-rule, along with its status and additional details (see Figure 25).

Figure 25. Expanded passed rule with sub-rules in FAIRness report

11.1.2 Warning checks

In the header of the accordion, the total number of warning checks is displayed as the count of sub-rules flagged with warnings.

To view the list of warning checks, users have to click on the header of the section. This expands to show a list of rules (identified by their code and description) that have at least one sub-rule with a warning (see Figure 26).

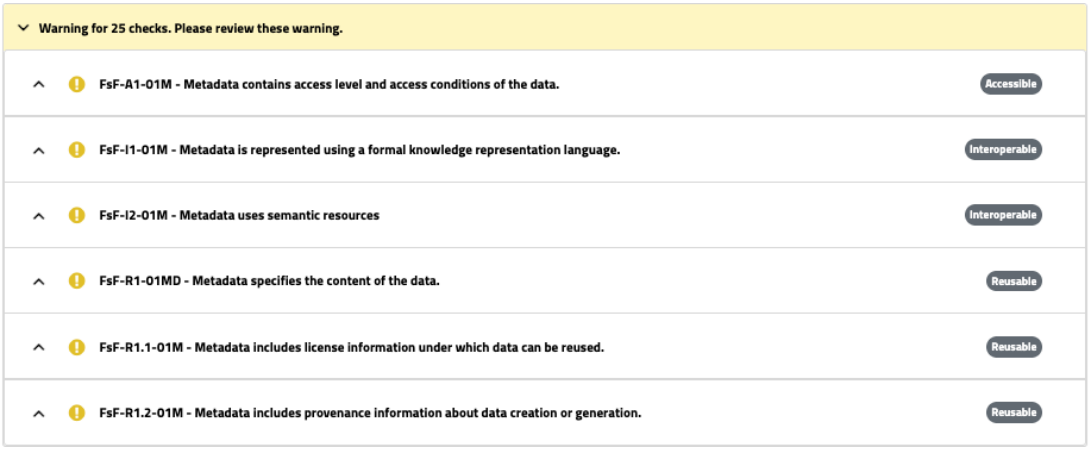

Figure 26. Accordion of warning FAIRness checks

In the expanded view, the sub-rules provide additional information about the nature of the warning (see Figure 27). For instance, a rule about access conditions might show sub-rules detailing machine-readability or standard compliance issues.

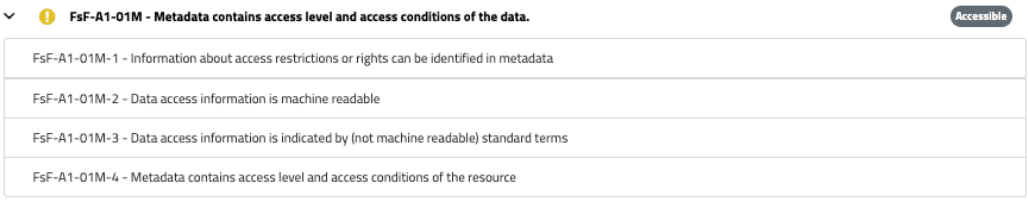

Figure 27. Expanded warning rule with sub-rules in FAIRness report

11.1.3 Error checks

In the header of the expandable section (accordion), the total number of error checks is displayed, indicating the count of sub-rules that failed.

To view the error checks, users have to click on the header of the section. This expands to show a list of rules (identified by their code and description) that have at least one sub-rule flagged with an error (see Figure 28).

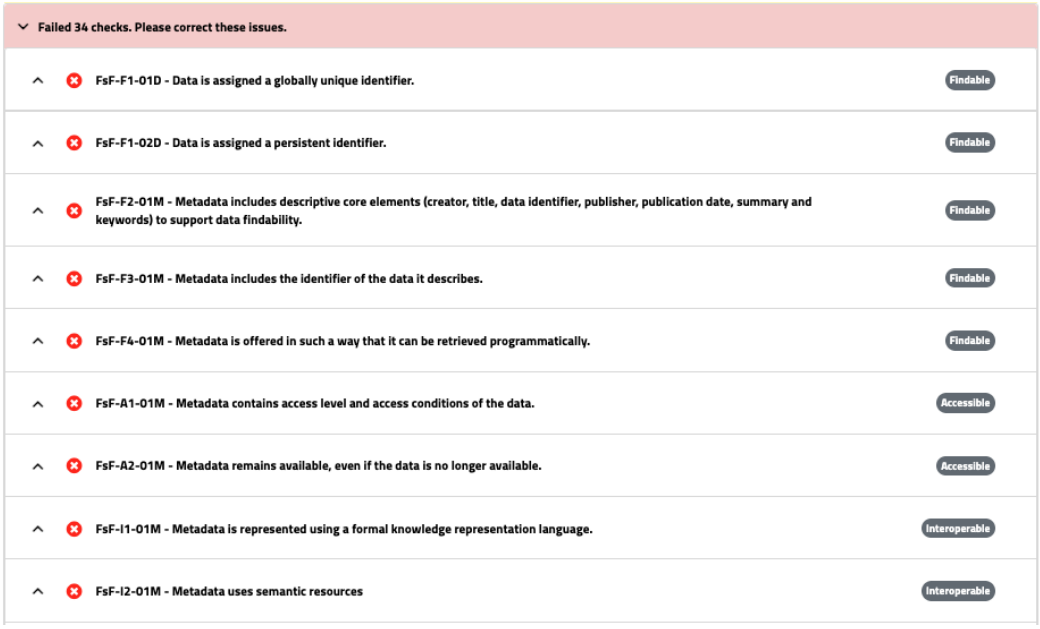

Figure 28. Accordion of failed FAIRness checks

To explore the specific sub-rules associated with a rule, users have to click on the rule. This expands the rule to display its sub-rules along with detailed information about the errors (see Figure 29).

For example, a rule regarding globally unique identifiers may have sub-rules that specify whether an identifier is resolvable, adheres to a specific syntax, or is reachable.

Figure 29. Expanded failed rule with sub-rules in FAIRness report

11.2 FAIRness assessment by resource type

From the FAIRness assessment report of a single metadata record, users can click on the "FAIRness assessment resource" link. This will open a page displaying the FAIRness report for the resource type associated with the metadata record (see Figure 30).

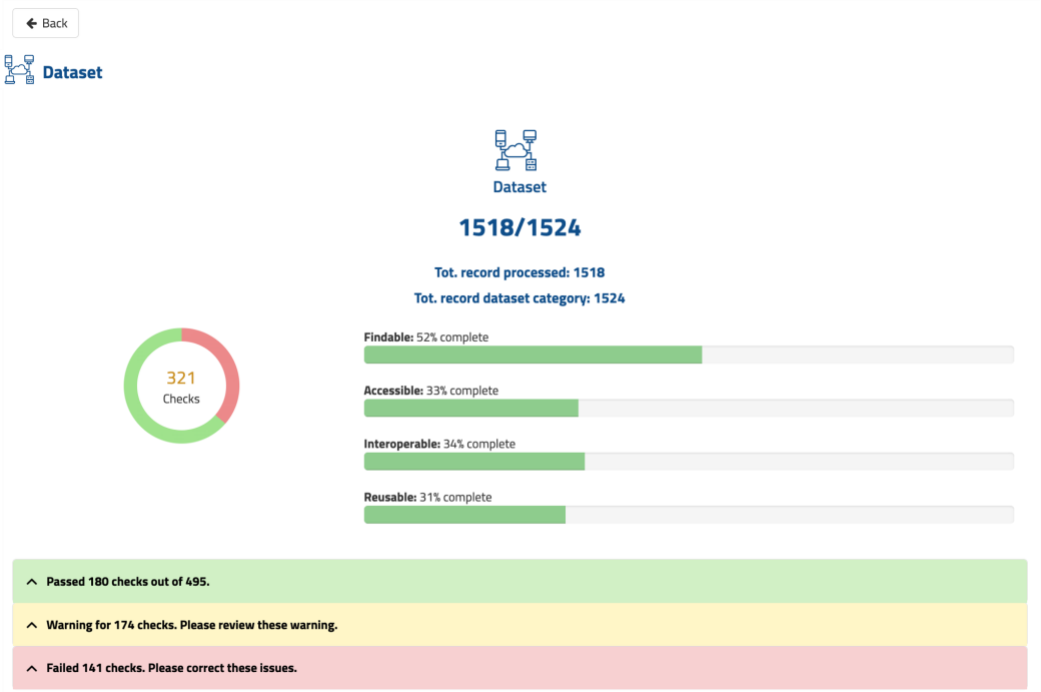

Figure 30. FAIRness assessment report for resource type

The report first provides an overview of the number of processed records out of the total published records of the same resource type in the catalogue.

A circular chart visually summarises the results:

- green sector: it represents the checks that have successfully been passed;
- yellow sector: it indicates the checks that have produced warnings;
- red sector: it highlights the checks that have failed.

The number displayed at the centre of the chart reflects the total number of checks performed on the processed records. For a rule to pass, at least one sub-rule for each record must be successful.

On the right of the pie chart, a bar chart displays the percentages of adherence to each FAIR principle. These percentages are calculated based on the weights assigned to each sub-rule.

To explore detailed results, users have to expand the corresponding accordion:

- the green accordion contains details of successful checks;

- the yellow accordion includes checks with warnings;
- the red accordion lists the checks that have failed.

This breakdown allows users to identify specific rules and metadata records that contributed to the overall results, making it easier to analyse adherence to FAIR principles.

11.2.1 Passed checks

The header of the accordion indicates the total number of passed checks, represented as the number of checks for each metadata record out of the total checks performed.
In the example shown in Figure 31, there are 180 checks out of 495:

- the first number (180) is the total sum of records that have passed each rule. Note that a single record can pass more than one rule;
- the second number (495) represents the total sum of passed, warning, and error checks.

To view the details, users have to click on the header of the accordion.

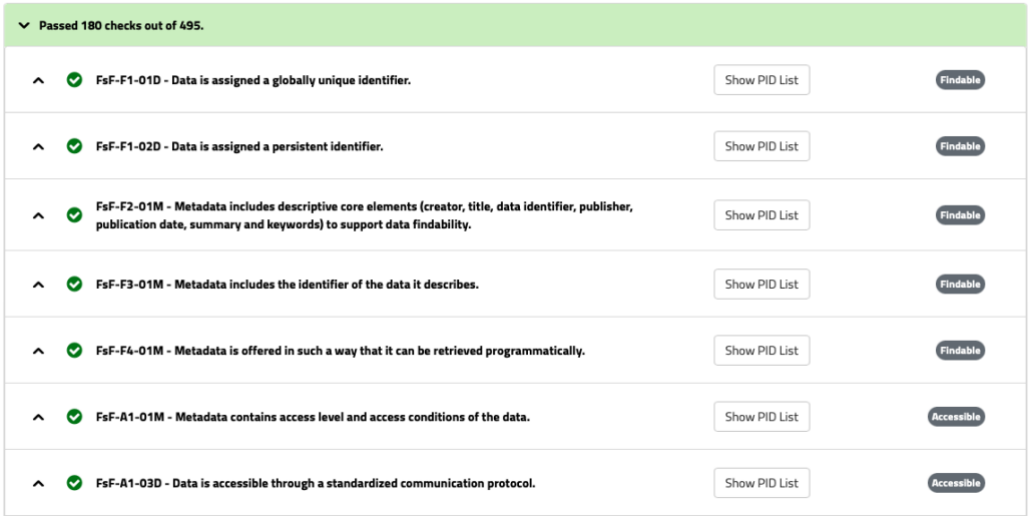

Figure 31. Accordion of passed FAIRness checks for resource type

The accordion displays all the rules available in the tool. For each rule, the system provides a "Show PID List" button. When clicking this button, a pop-up is opened with the list of records that have passed the check (see Figure 32).
If no record has passed the check, the "Show PID List" button for that rule is disabled.

To view the list of records, users have to click on the enabled "Show PID List" button for the corresponding rule.

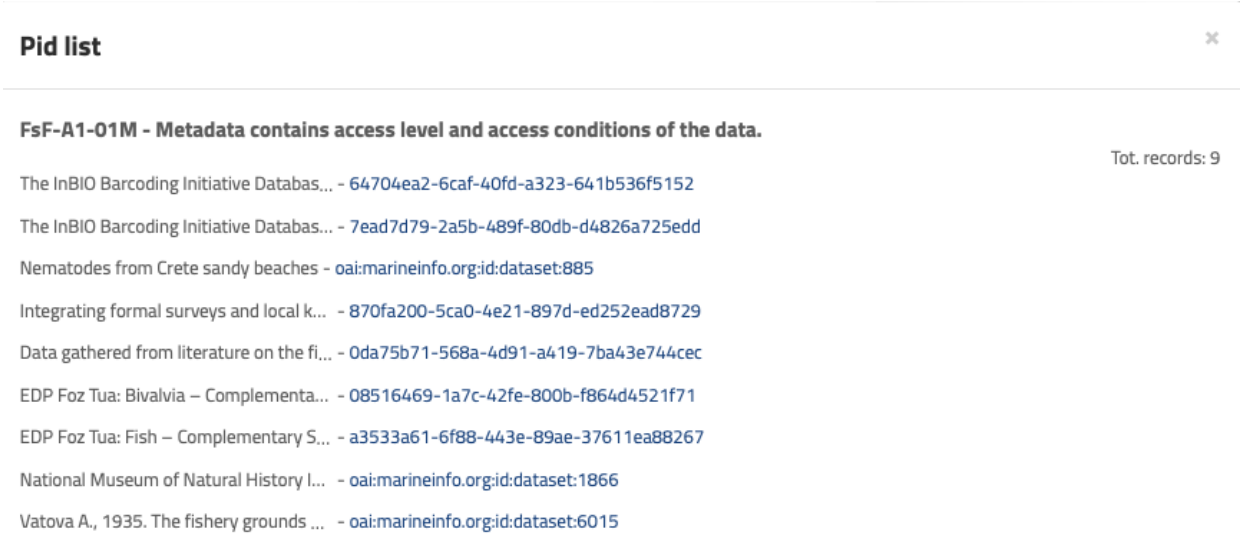

Figure 32. PID list pop-up

In the pop-up, the total number of metadata records that passed the rule is displayed at the top, followed by a list of the metadata records. Each record is presented with its Title and ID, both linked to the record's detail page.

11.2.2 Warning checks

The header of the accordion indicates the total number of warning checks. The computation and the logic are the same explained for the previous accordion.
For each rule there is a button that shows the list of metadata records for which there is the warning.

11.2.3 Error checks

The header of the accordion indicates the total number of warning checks. The computation and the logic are the same explained for the previous accordion.
For each rule there is a button that shows the list of metadata records for which there is the error.

11.3 FAIRness assessment of the catalogue

To access the FAIRness assessment of the whole metadata catalogue, users have to click on the "FAIRness assessment" button in the header of the catalogue.
The page displays the types of resources published in the catalogue and the number of processed and published records for each resource type. Additionally, it provides the FAIRness report for the entire catalogue, summarising adherence to FAIR principles at the aggregate level.
The computation and the logic for the catalogue-level FAIRness report are based on the same principles used for resource-type FAIRness assessments but are aggregated across all published records.

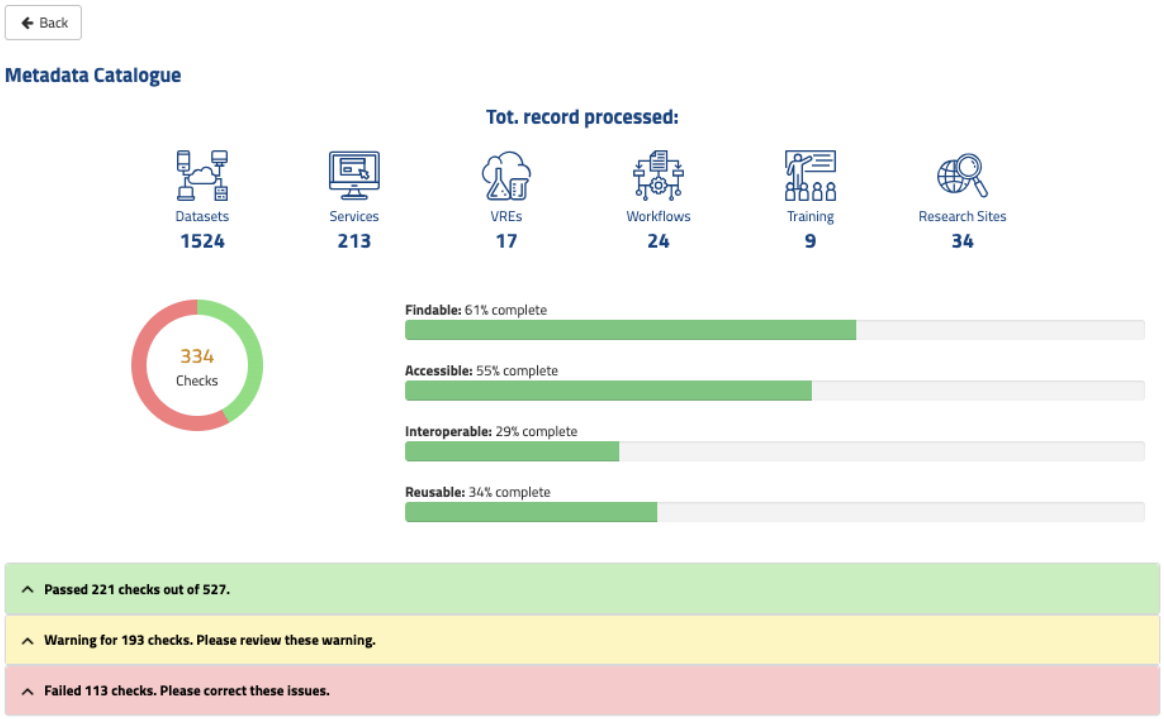

Figure 33. FAIRness assessment report for the metadata catalogue

12. Exploring catalogue metrics

Metrics provide quantitative insights into the usage and performance of metadata records within the catalogue. To view the metrics, users have to click on the "Metrics" menu item in the header of the catalogue's website.
The page displays the main metrics (see Figure 34).

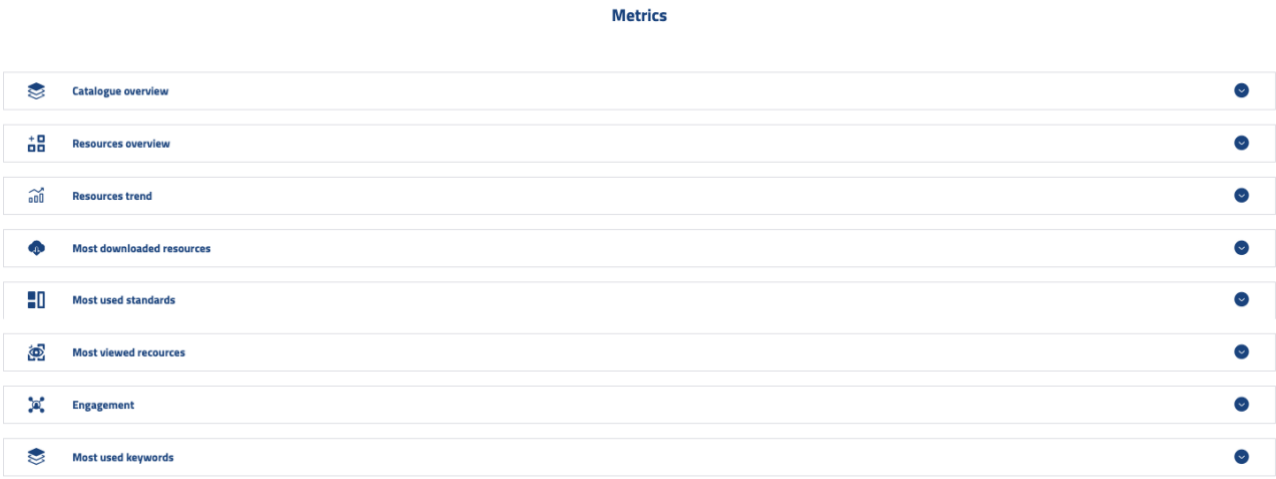

Figure 34. Metrics overview

To access the details, users have to click on the circular button on the right of each metric. This action opens the accordion to display the corresponding information (see Figure 35).

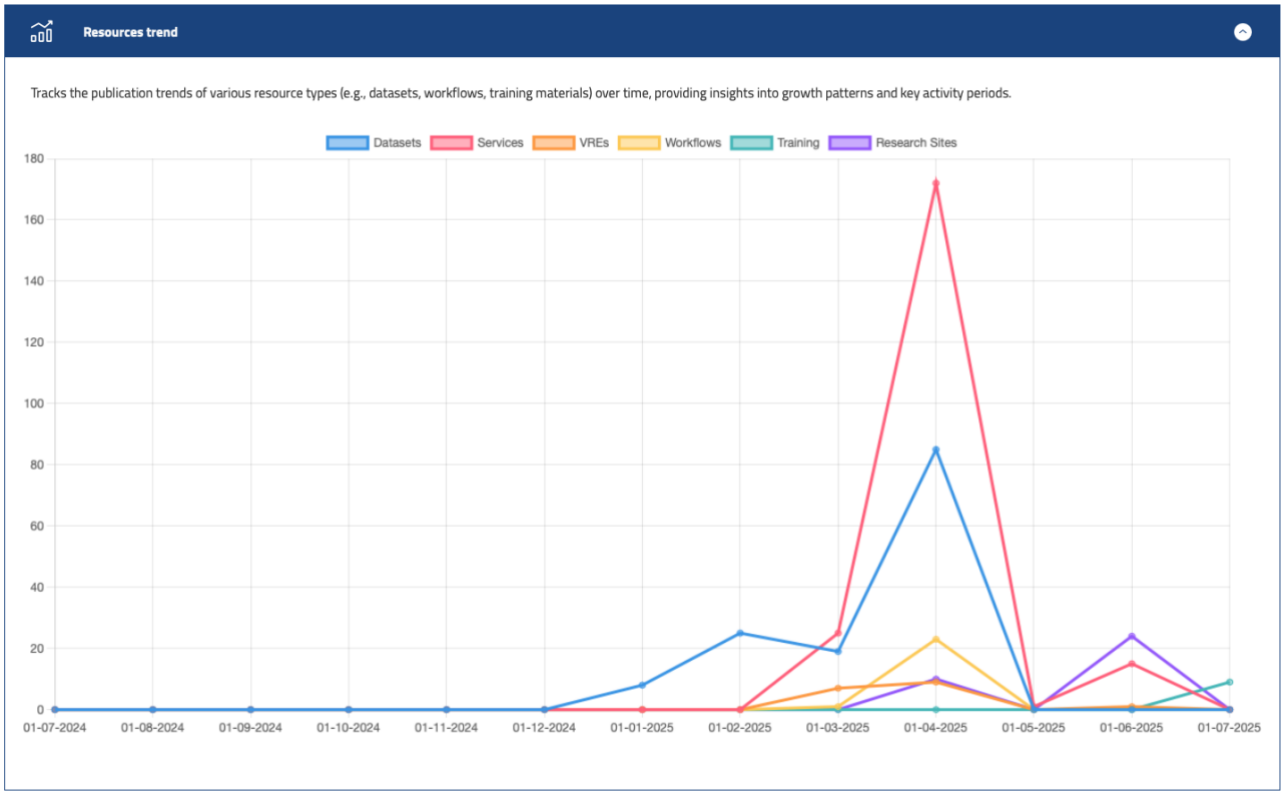

Figure 35. Resources trend metric

12.1 Metrics of a single metadata record

Three types of metrics are available for individual records and they are listed below the resource's title, just before the abstract (see Figure 36). They are:

- downloads: it is the total number of times the record has been downloaded;
- views: it is the total number of times the record's detail page has been viewed (Figure 37);
- citations: it represents the total number of clicks on the "Copy Citation" button, enabled only if the metadata schema used for the resource includes the "How to Cite" configuration.

These metrics are displayed on the metadata record's detail page.

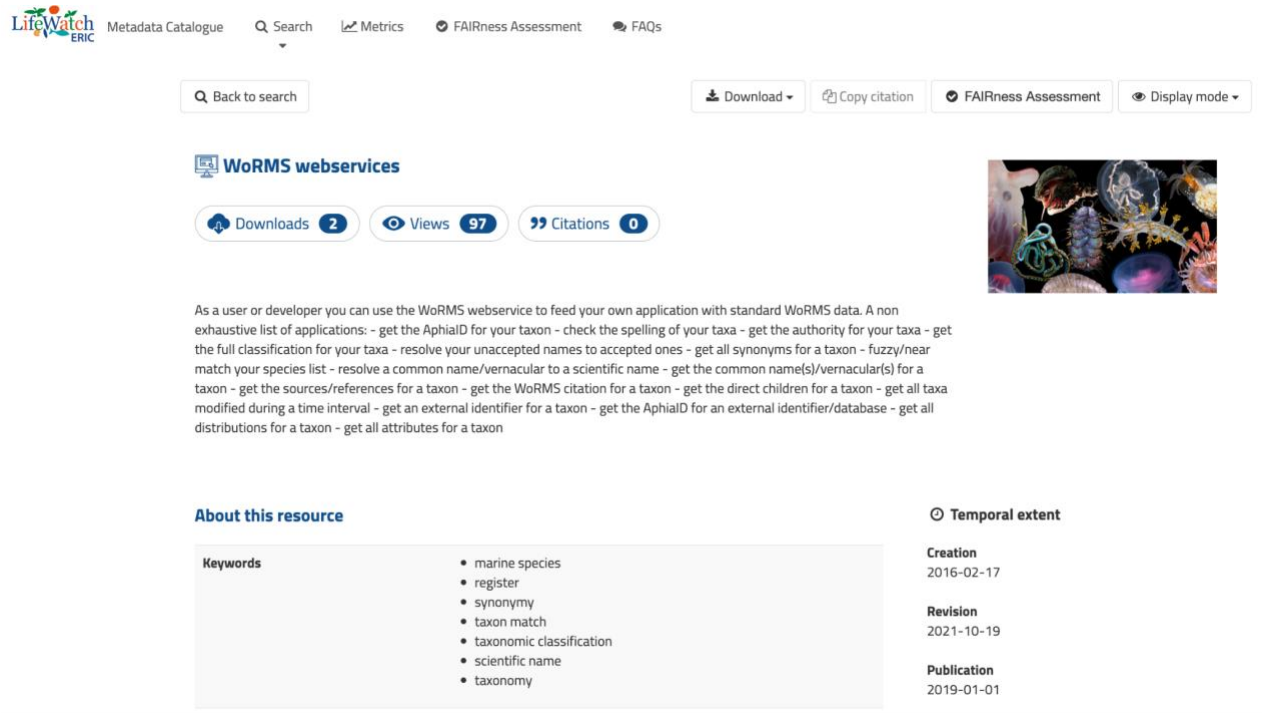

Figure 36. Metrics of a single metadata record

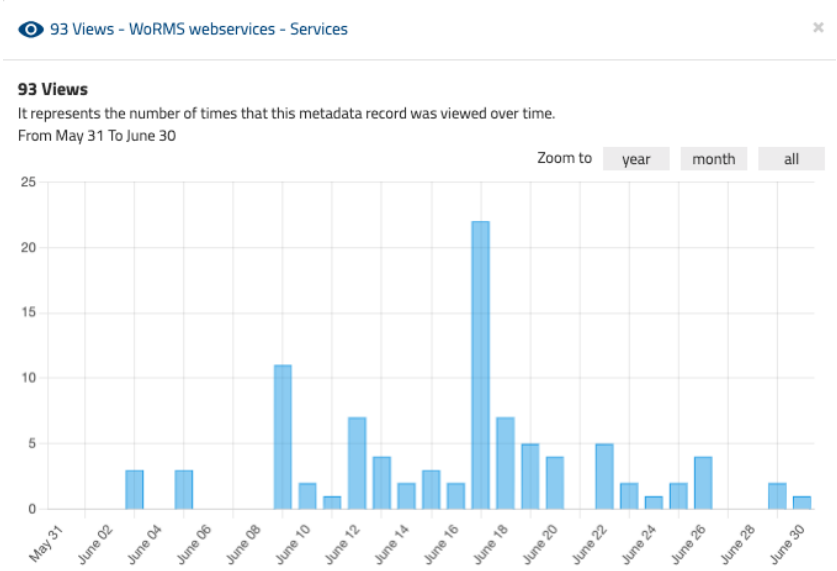

Figure 37. Metrics of a single metadata record - number of views

13. Help and support

13.1 FAQs

The Metadata Catalogue is integrated with the LifeWatch ERIC Help Desk system in order to display FAQs relevant to the catalogue.

To access the FAQs, users have two possibilities:

- via "FAQs" menu item in the header of the catalogue website;
- via "FAQs" link in the footer.

Both options open the FAQs page (see Figure 38).

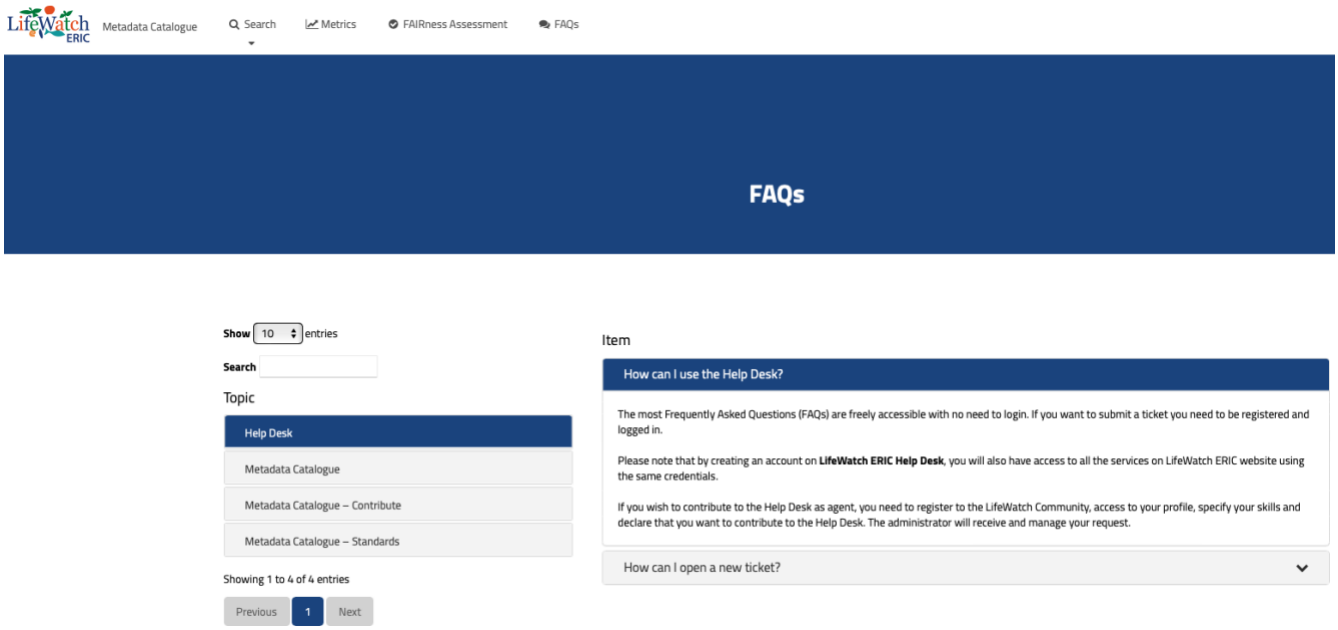

Figure 38. FAQs page

13.2 Help Desk

Users can access the homepage of the LifeWatch ERIC Help Desk by clicking on the "Help Desk" link located in the footer of the application (Figure 39).

The link opens the Help Desk homepage in a new tab.

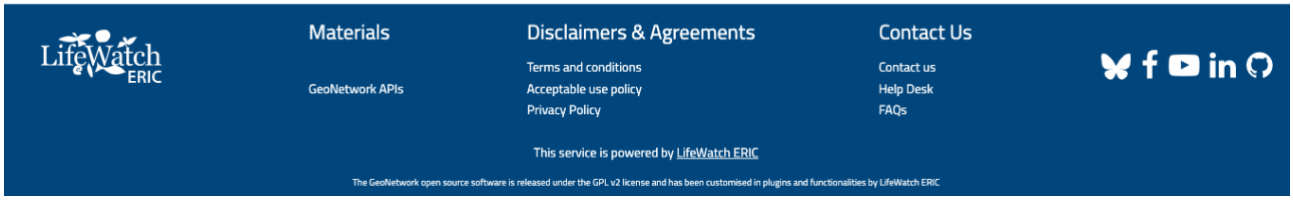

Figure 39. Footer of the catalogue