Progress on the development of the e-MARIS application

PREPARED BY: IOTC SECRETARIAT[1], 26 JANUARY 2021

PURPOSE

To provide participants at the Working Party on the Implementation of Conservation and Management Measures (WPICMM) an update of the development of an Electronic Monitoring and Reporting Information System (e-MARIS) application to support the compliance process of the IOTC.

BACKGROUND

In 2013 the Indian Ocean Tuna Commission (IOTC) Performance Review made two major recommendations related to compliance with data collection, reporting and following up on infringements (IOTC-2016-PRIOTC02-R).

Compliance with data collection and reporting requirements

> Para 102. The Commission, through its Compliance Committee, needs to strengthen its compliance monitoring in relation to the timeliness and accuracy of data submissions. To this end, the performance review recommended: "*b) to facilitate thorough reviews of compliance, the Commission should invest in the development and implementation of an integrated electronic reporting program. This should include automatic integration of data from CPCs into the IOTC Secretariat's databases and automatic cross-referencing obligations and reports for the various obligations, in particular related to the provision of scientific data.*"

Follow-up on infringements

> Para 153. The performance review recommended that:
> "*b) The IOTC **further develop an online reporting tool to facilitate reporting by CPCs** and to support the IOTC Secretariat through the automation of identification of non-compliance.*"

These recommendations were the basis for the development of the e-MARIS initiative. This document reports on the progress of work on the development of the e-MARIS application.

DISCUSSION

The e-MARIS initiative started with the Consultation/Validation workshop on the development of e-MARIS held in South Africa, from 25 to 27 October 2017, with the financial assistance of the FAO Common Oceans/ABNJ Tuna Project.

The e-MARIS project was designed in 3 phases:

> **Phase 1 – ToR technical specifications**
>
> Development of a draft Terms of Reference to be used for the design & implementation of an integrated monitoring and reporting information system for IOTC CPCs, web based system accessible through the IOTC web site, to support the reporting of data & information required by the IOTC Resolutions and the Agreement. Noting the design of e-MARIS should follow a thorough assessment of the current state of the art in close consultations with CPCs.

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Phase 2 – Development of the system

The development of the system includes the development of user manuals, both for internal users (installation, administration, maintenance) and the training of the IOTC CPCs. This would include the organisation of regional training courses and national training courses.

Phase 3 – System performance assessment

Technical assistance to the IT Section of the IOTC Secretariat, including training and assessment of the performance of the system and debugging.

The workshop participants made a series of recommendations related to the development of the application, and at its 15th Session the Compliance Committee (IOTC–2018–CoC15–R) made the following recommendation which was endorsed by the Commission (S22):

105. The CoC **ACKNOWLEDGED** the funds secured by the IOTC Secretariat for e-MARIS and **RECOMMENDED** the Commission endorsed the IOTC Secretariat pursuit of the development of the e-MARIS application.

Following the endorsement of the Commission (S22), the IOTC Secretariat updated and finalised the Terms of Reference, detailed requirements, functional and technical specifications of the e-MARIS application incorporating the recommendations of the workshop, and the Phase 2 "Development of the system" started on 15 May 2019 with the financial assistance of the World Bank (SWIOFISH 2 project) and the recruitment of four IT consultants, expert in applications development.

The work plan of the 2nd development phase is presented below in chronological order, by Work Package (WP). Displays of the functionalities and features of the application are available at Annexes 1 and 2 for illustration purpose.

WP1: Inception	**(IMPLEMENTED)**
SEPTEMBER 2021 (1 Month)	
The technical and development infrastructure of e-Maris is revised and improved based on the feedback collected throughout Phase I, with a particular emphasis to the shift required from a development and staging regime to target production regimes. The activity subsumes onboarding of new team members. A Kick-Off Meeting with IOTC Secretariat scheduled to overview, organize, and validate activities in the WPs that follow, particularly in relation to the organisation of the Workshops in the Pilot WPs.	
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes.

WP2: Pilot 1	**(IMPLEMENTED)**
October 2021 – December 2021 (3 Months)	
A pilot test of the e-Maris system provides the first round of feedback from its target users. The pilot focuses on the use of the system during a yearly cycle of data collection and compliance assessment. The pilot targets two user groups. • First and foremost the IOTC Compliance section, with the design of the data collection campaign but also its day-to-day operations. The emphasis is on small-to-medium-scale testing of both system functionality and usability, while the use cases, the workflows, and the data are real-world. • Second, a few users from select volunteer CPCs (3-4) interact with the system as configured and run by the IOTC users, submit their information, receive feedback etc. The pilot takes places during a Workshop which blends training, task simulation, and retrospective activities. The mode of delivery, the duration, and the overall structure of the Workshop follow a plan defined and agreed upon during the Kick-Off Meeting of WP1 (it could be split in two sessions, a first one for IOTC Secretariat and a second one for participating CPCs). Preparation activities include workflow design, data staging, training materials, and the provision of a dedicated runtime environment in the e-Maris staging Cloud.	

This Pilot 1 allows to collect valuable feedback on the application from both sides (IOTC Secretariat and CPCs). Based on this, he Release Candidate of the system that was delivered at the end of Phase 1 undergoes a development iteration to ensure coverage and correctness of all the functionality exercised by the targeted workflows. This yields an Incremental Release of the system.	
Deliverable	Pilot 1 Test & Workshop (e-Maris is open to IOTC and select CPCs)
Deliverable	Incremental e-Maris System Release
Deliverable	Documentation Incremental Update
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes.

WP4: e-MARIS Upgrade	**(IMPLEMENTED)**
December 2021 – January 2022 (2 Months)	
Based on the feedback collected from the Pilot 1, the e-Maris system is further refined through a continuous cycle of development iterations that include backend integration, frontend development, and Quality Assurance activities. The outcome of this is an Incremental Release of the system. User-level documentation is also updated to match the latest release.	
Deliverable	Incremental e-Maris System Release
Deliverable	User Documentation Incremental Update
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes

Onboarding of Software Expert 1	**(IMPLEMENTED)**
JANUARY-FEBRUARY 2022 (2 Months)	
The newly recruited Software Expert 1 is onboarded to work on the Record of Authorized Vessels (RAV) and e-Maris systems. The process covers toolchain installation, development workflows, deployment and operation procedures. It also includes domain knowledge, system requirements and objectives, current features and future roadmap. The emphasis here is on the RAV, though an overall understanding of e-Maris ensures support in rollout phases to follow.	
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes

WP3: RAV Construction I	
February 2022– May 2022 (4 Months)	
The RAV Minimum Viable Product (MVP) delivered at the end of Phase 1 is fleshed out and expanded in a continuous cycle of development iterations. Iterations include backend integration and frontend development, and lightweight Quality Assurance activities. Deployments and QA tests target a dedicated staging environment in the Cloud, and rely on principles and mechanisms already adopted for the e-Maris system. The main outcome of this package is a Beta Release of the system, where the functionality of the MVP is expanded and supported with backend components. Testing remains small-scale and lightweight, focusing on the design individual functionalities rather than complete user-level workflows.	
Deliverable	RAV Beta Release
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes.

WP5: Pilot 2

March 2022 – May 2022 (3 Months)

A second pilot test of the e-Maris system provides an additional round of feedback from its target users. The pilot continues to revolve on the use of the system during a yearly cycle of data collection and compliance assessment, but the goal now is to onboard as many volunteer CPCs as possible.

For this, all CPCs are invited to join the Pilot, alongside a representative subset of IOTC users. Again, the focus pragmatically remains on small-to-medium-scale, with use cases, workflows, and data from the real-world.

Like the previous pilot in WP2, this pilot takes places during a Workshop which blends training, task simulation, and retrospective activities. Mode of delivery, duration, and overall structure are modified only to the extent suggested by feedback on the previous pilot.

Again, preparation activities include workflow design, data staging, training materials, and the provision of a dedicated runtime environment in the e-Maris staging Cloud.

This Pilot 2 allows to further collect valuable feedback on the application from both sides (IOTC Secretariat and CPCs), as well as on a larger scale. Based on this, the e-Maris system undergoes a development iteration to ensure coverage and correctness of all the functionality exercised by the targeted workflows. This yields another Incremental Release of the system. User-level documentation is also updated to match the latest release.

Deliverable	Pilot 2 Test & Workshop (e-MARIS is open to all interested CPCs)
Deliverable	Incremental e-Maris System Release
Deliverable	User Documentation Incremental Update
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes

WP7: e-Maris Rollout

June 2022 – August 2022 (3 Months)

Based on feedback collected during Pilot 2, e-Maris is further refined through a continuous cycle of development iterations that include Backend Integration, Frontend Development, and Quality Assurance activities.

A first outcome of this package is an Incremental Release of e-Maris. This release is deployed onto a new runtime environment in the Cloud entirely dedicated to Production. As a second outcome of this package, user-level documentation is updated to remain in sync with the latest release.

e-Maris is staged in the Production environment. This includes various forms of application-level configuration, a seeding of the full range of CPCs, an initial staging of their initial users, and mostly the design of the upcoming data collection campaign based on the 2022-2023 reporting requirements, with all its report layout definitions and temporal aspects.

At the end of this WP, the application is fully functional and open for the real-life 2022-2023 Compliance Assessment cycle.

Deliverable	e-Maris Incremental Release
Deliverable	User Documentation Incremental Update
Deliverable	Midway meeting
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes

WP6: RAV Construction II	
September 2022 – November 2022 (3 Months)	
The RAV Beta Release delivered at the end of WP3 is fleshed out and expanded in a continuous cycle of development iterations that include Backend Integration, Frontend Development, and QA activities. The main outcome of this phase is a Candidate Release of the system, ready as a basis for a rollout process.	
Deliverable	RAV Candidate Release.
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes.

WP8: e-Maris Support & Operations	
September 2022 – August 2023 (12 Months)	
The e-Maris system enters a regime of observation and on-demand support, with an expectation of intensive activity for the first three months, as well as at peak reporting times in the data collection campaign. Besides incident resolution and ticket processing, the system undergoes as many short-lived iterations as required for bug fixing and unanticipated, high-priority enhancements. These activities result in Incremental Releases of the system. User-level documentation is updated as required so as to remain in sync with the latest release. This WP is divided in three phases: Active maintenance 1 (September 2022-November 2022) & Active maintenance 2 (December 2022-February 2023) where most of the effort takes place, and Passive maintenance (March 2023-August 2023), where work only happens when an issue is identified.	
Deliverable	e-Maris Incremental Releases (as required)
Deliverable	User Documentation Incremental Updates (as required)

WP9: RAV Construction III & RAV Rollout	
December 2022 – March 2023 (4 Months)	
The Candidate Release delivered in WP6 is further refined into a Stable Release, which is deployed onto a new runtime environment in the Cloud entirely dedicated to Production. The historical record of data accumulated in the legacy generation of the system is transformed and ingested in the new system. The system is staged in Production, a task that includes various forms of application-level configuration, as well as a seeding of the full range of CPCs, an initial staging of their initial users.	
Deliverable	RAV Stable Release
Deliverable	RAV rollout
Deliverable	RAV Data Migration
Deliverable	RAV User Documentation
Deliverable	WP Report: Summary and Assessment of Activities, Events and Outcomes

WP10: RAV Support & Operations
April 2023 – August 2023 (6 Months)
The RAV system enters a regime of observation and on-demand support, with an expectation of intensive activity for the first three months after the rollout in WP9.

Besides incident resolution and ticket processing, the system undergoes as many short-lived iterations as required for bug fixing and for unanticipated, high-priority enhancements. These activities result in Incremental Releases of the system. User-level documentation is updated as required so as to remain in sync with the latest release. This WP is divided in two phases: Active maintenance (April-May 2023) where most of the effort takes place, and Passive maintenance (July-August 2023), where work only happens when an issue is identified.	
Deliverable	RAV Incremental Releases (as required)
Deliverable	User Documentation Incremental Updates (as required)

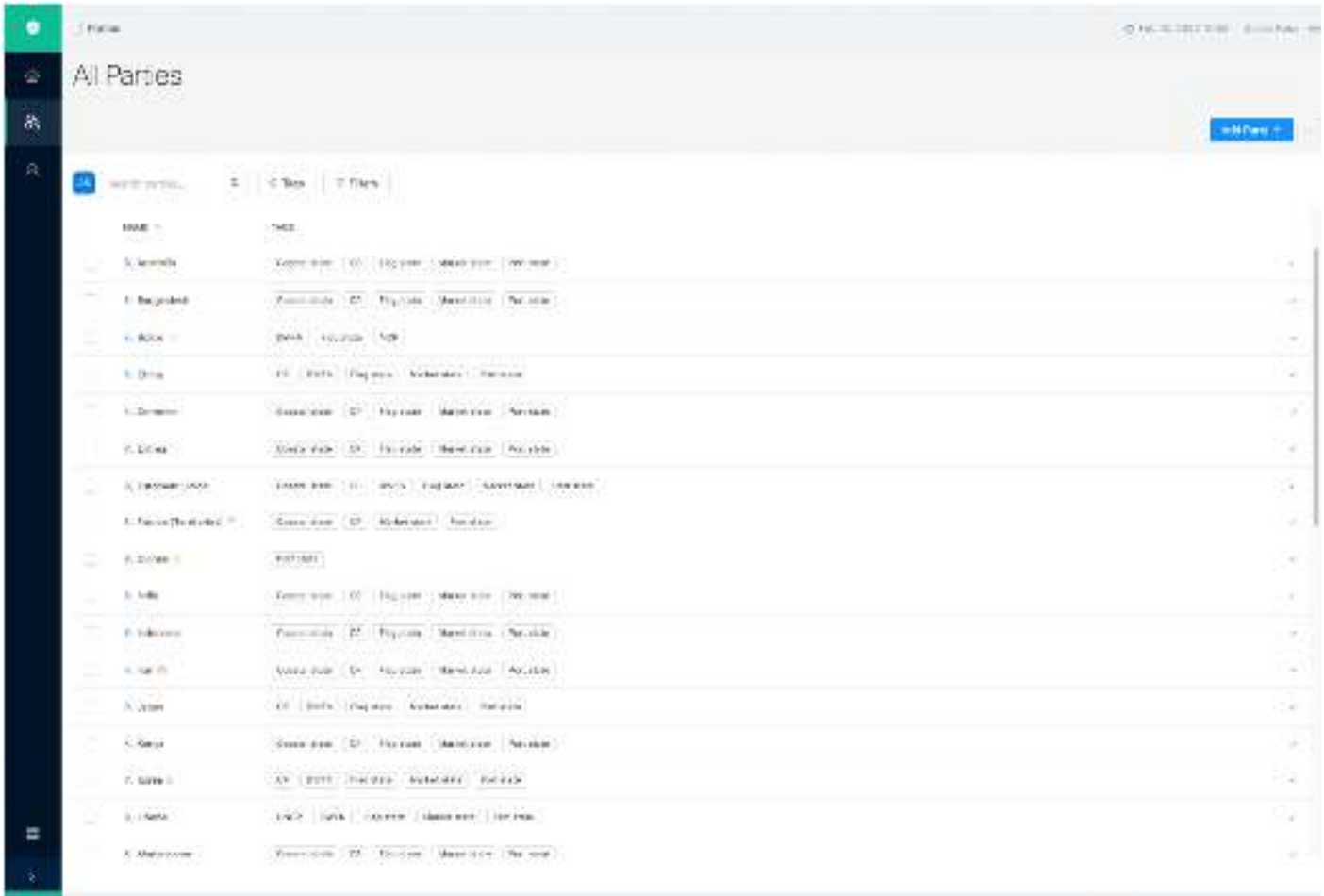
RECOMMENDATION/S

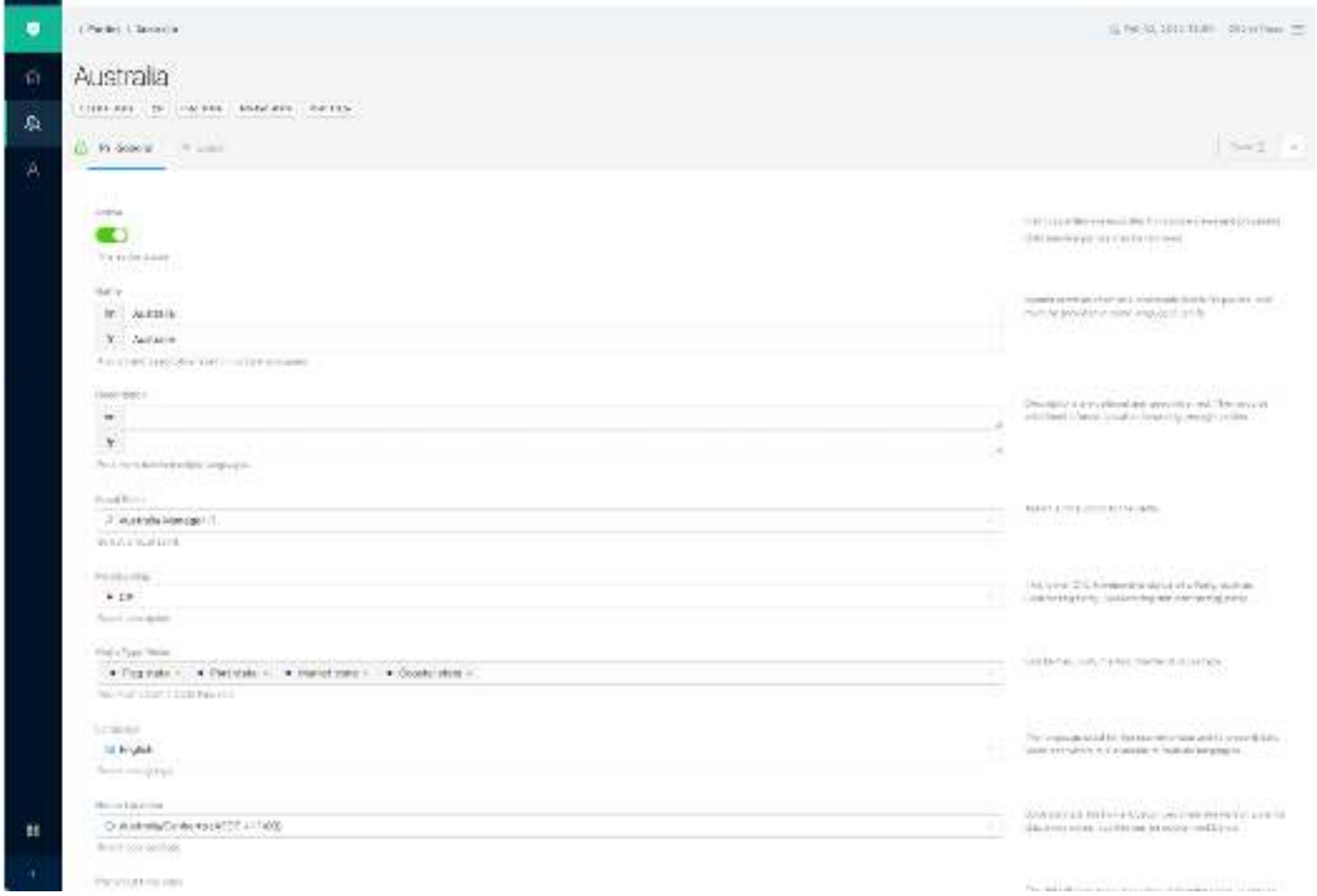
That the WPICMM05:

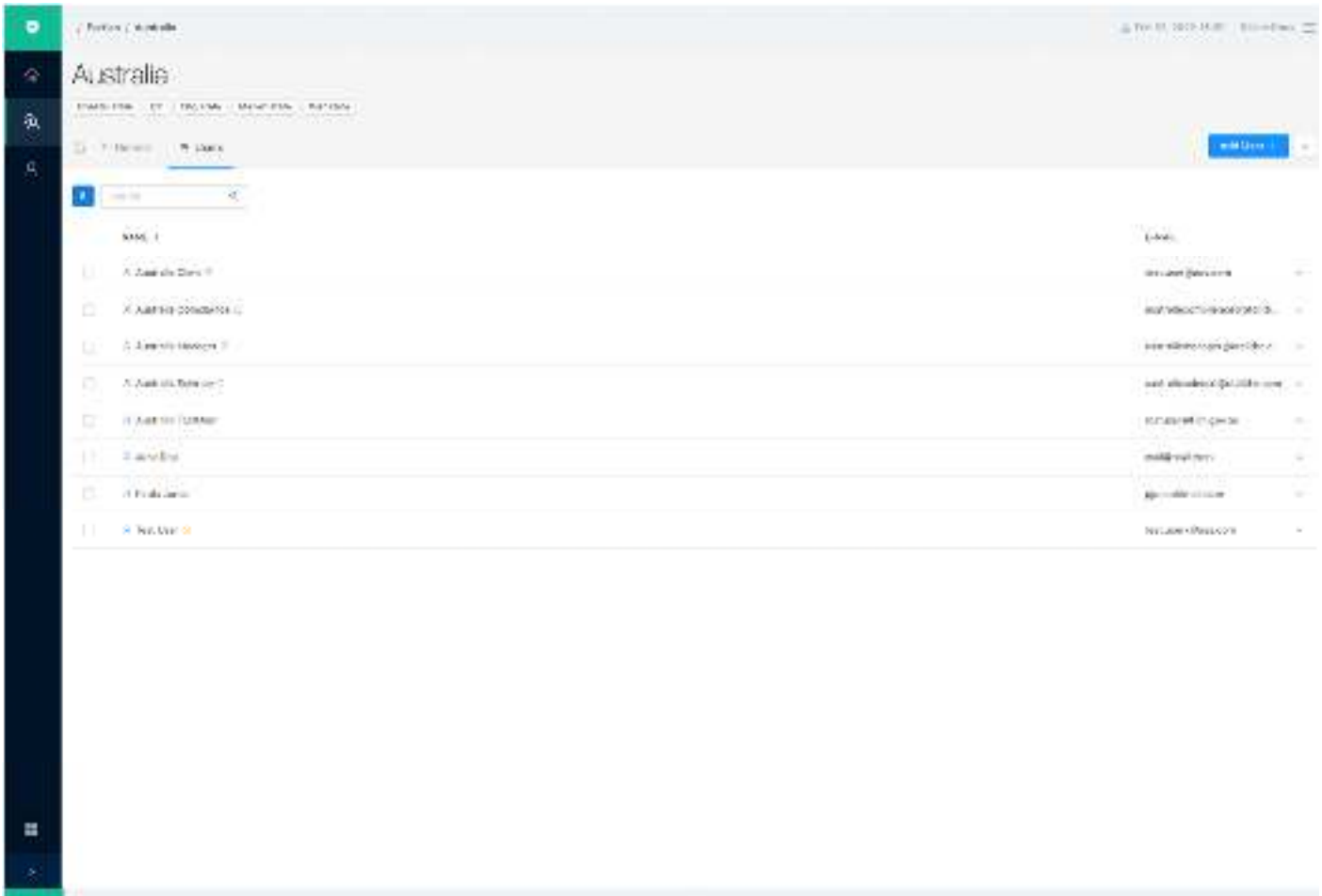
1) **NOTE** paper IOTC–2022–WPICMM05–10.
2) **NOTE** the progress made for the development of the e-MARIS application and the RAV online and the work plan for 2022 and 2023.
3) **RECOMMEND** that CPC wishing to participate to the Pilot training 2 of e-MARIS (Work Package 5 from March 2022 – May 2022) contact the IOTC Secretariat, latest by 28 February 2022.
4) **RECOMMEND** that the e-MARIS application enter into production for the next compliance assessment of the 2023 Compliance Committee meeting (CoC20).

Annex 1

MANAGEMENT & ADMININSTRATION CONSOLES (IOTC SECRATARIAT)



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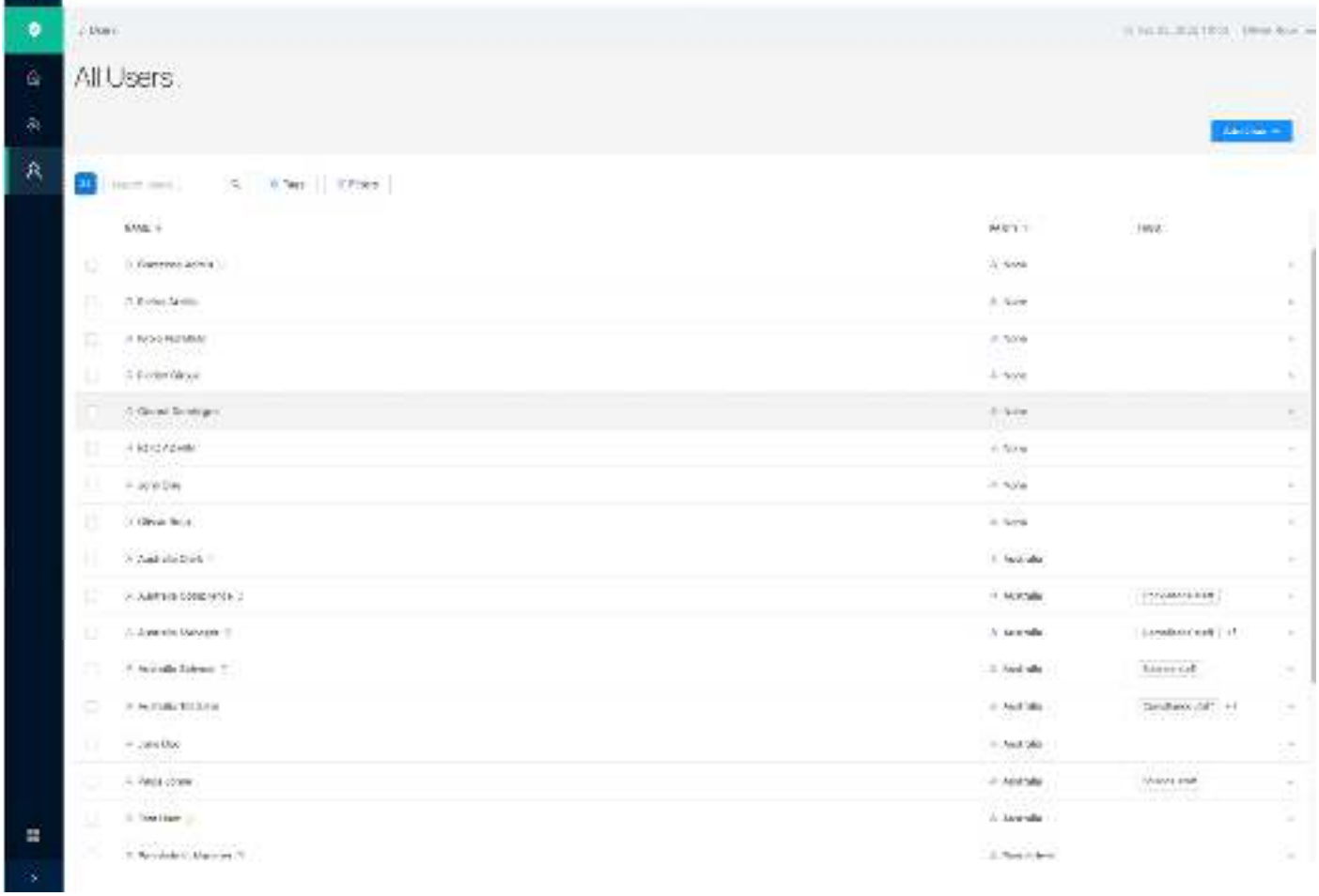
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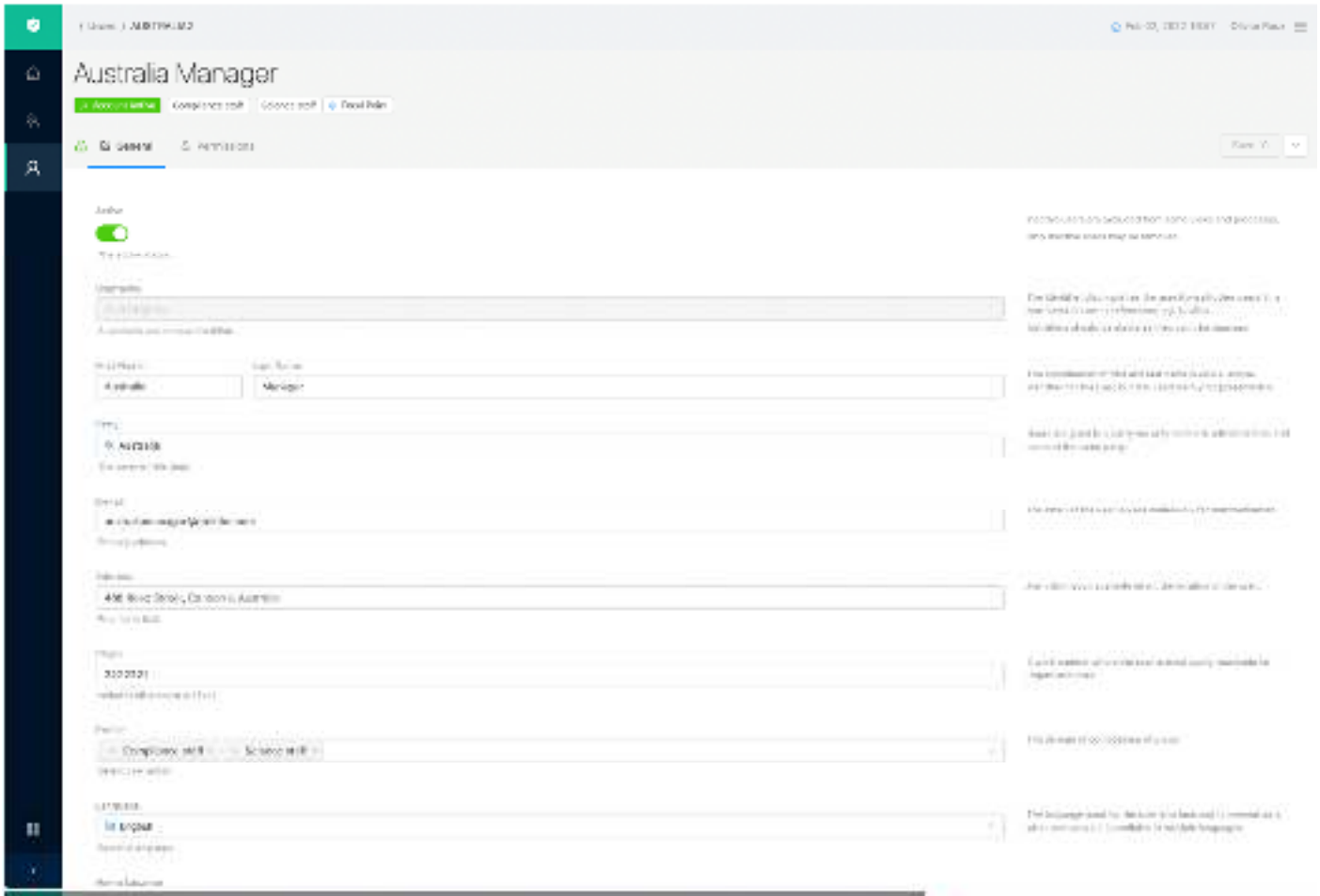
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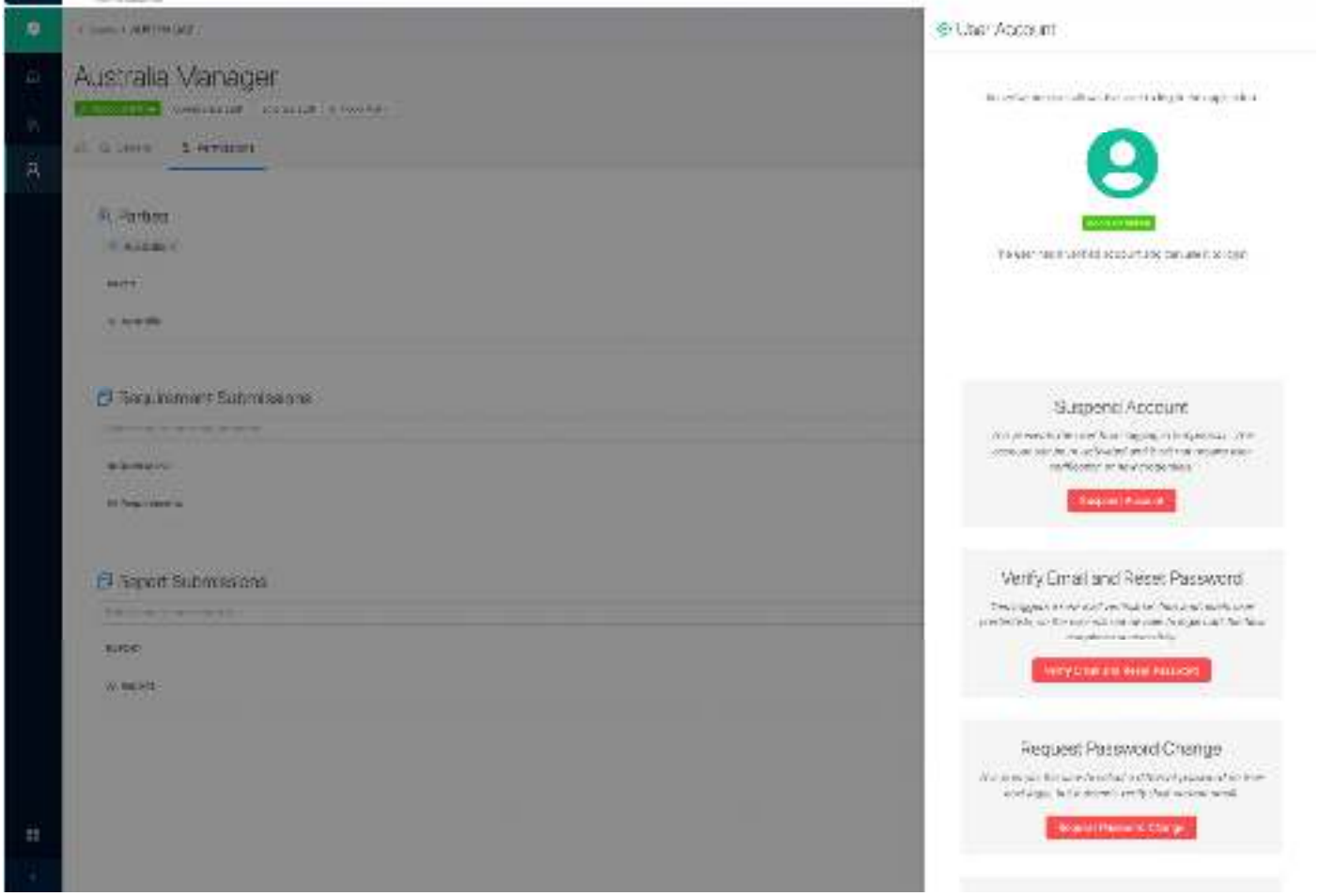
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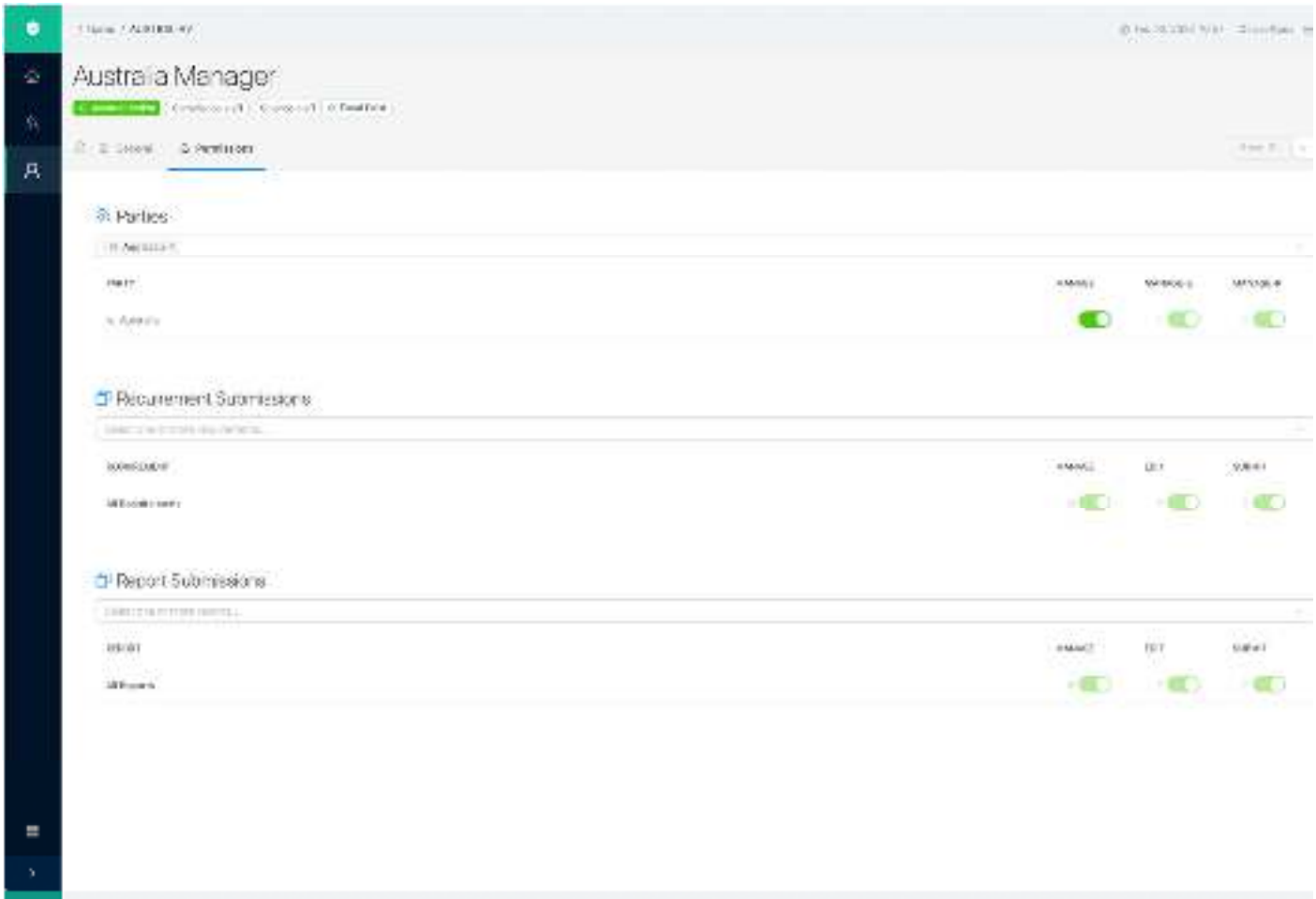
User Account
Suspend Account
Verify Email and Reset Password
Request Password Change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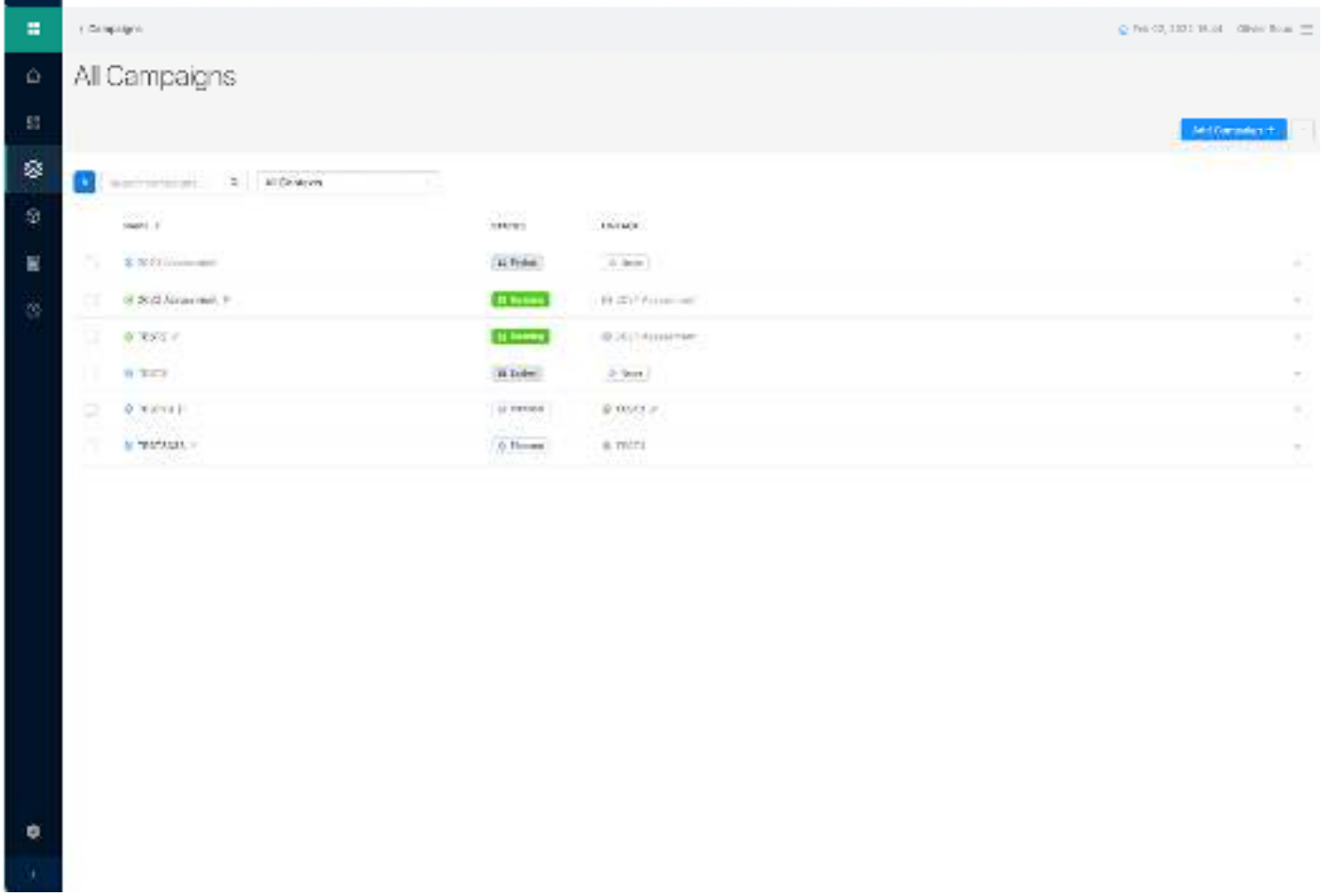
Recurement Submissions
Report Submissions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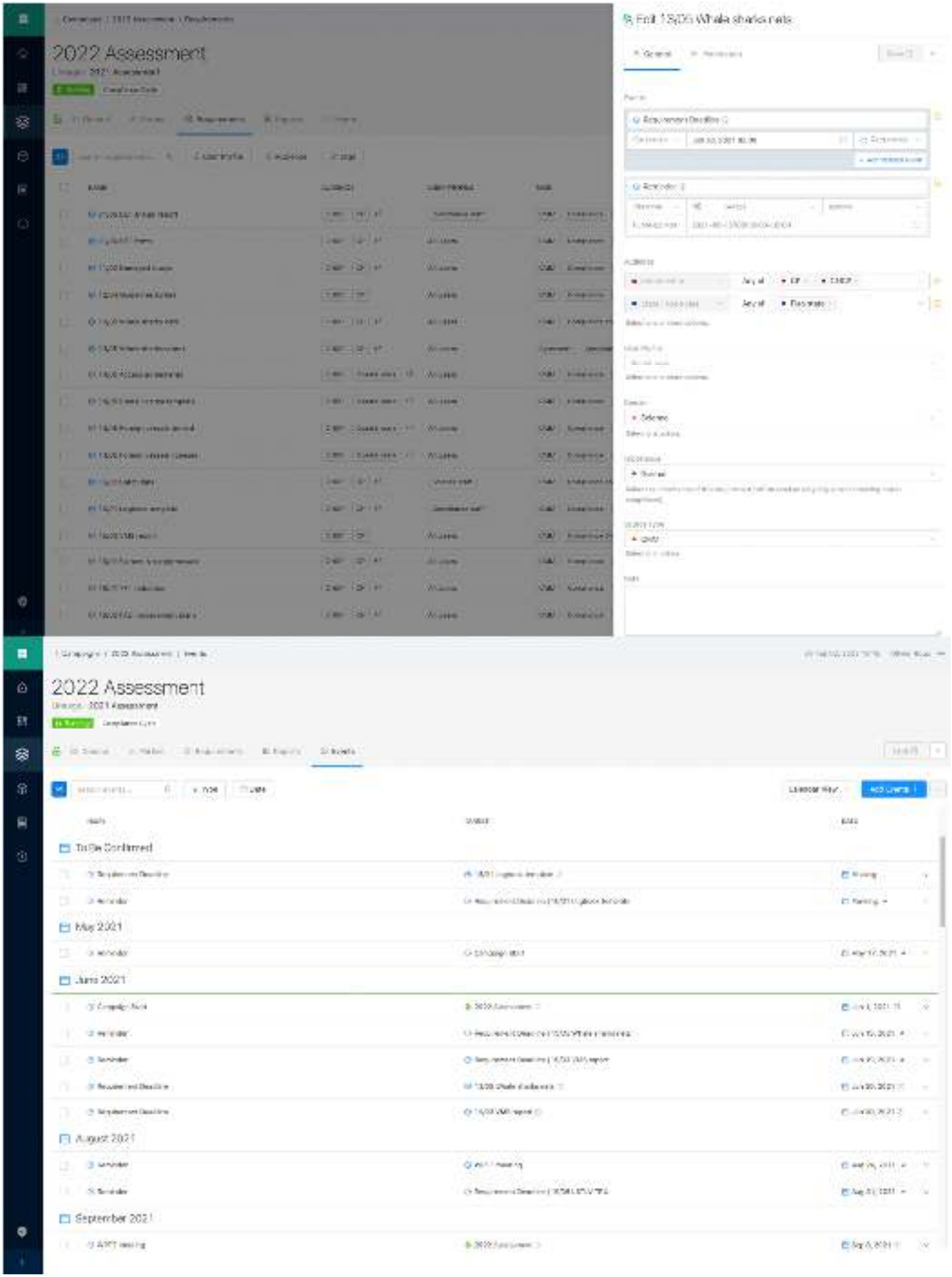
2022 Assessment
2022 Assessment
To Be Confirmed
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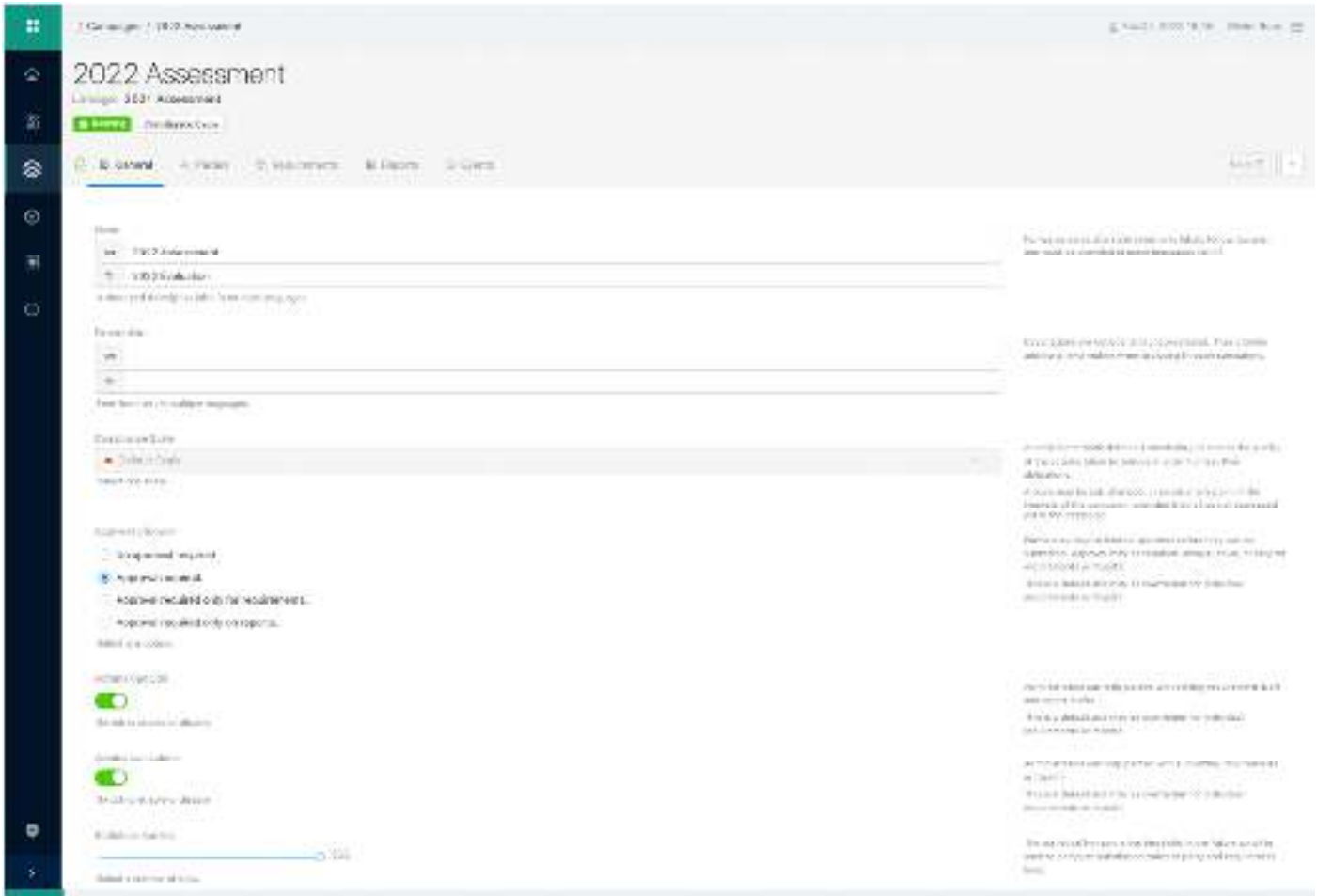
June 2021
August 2021
September 2021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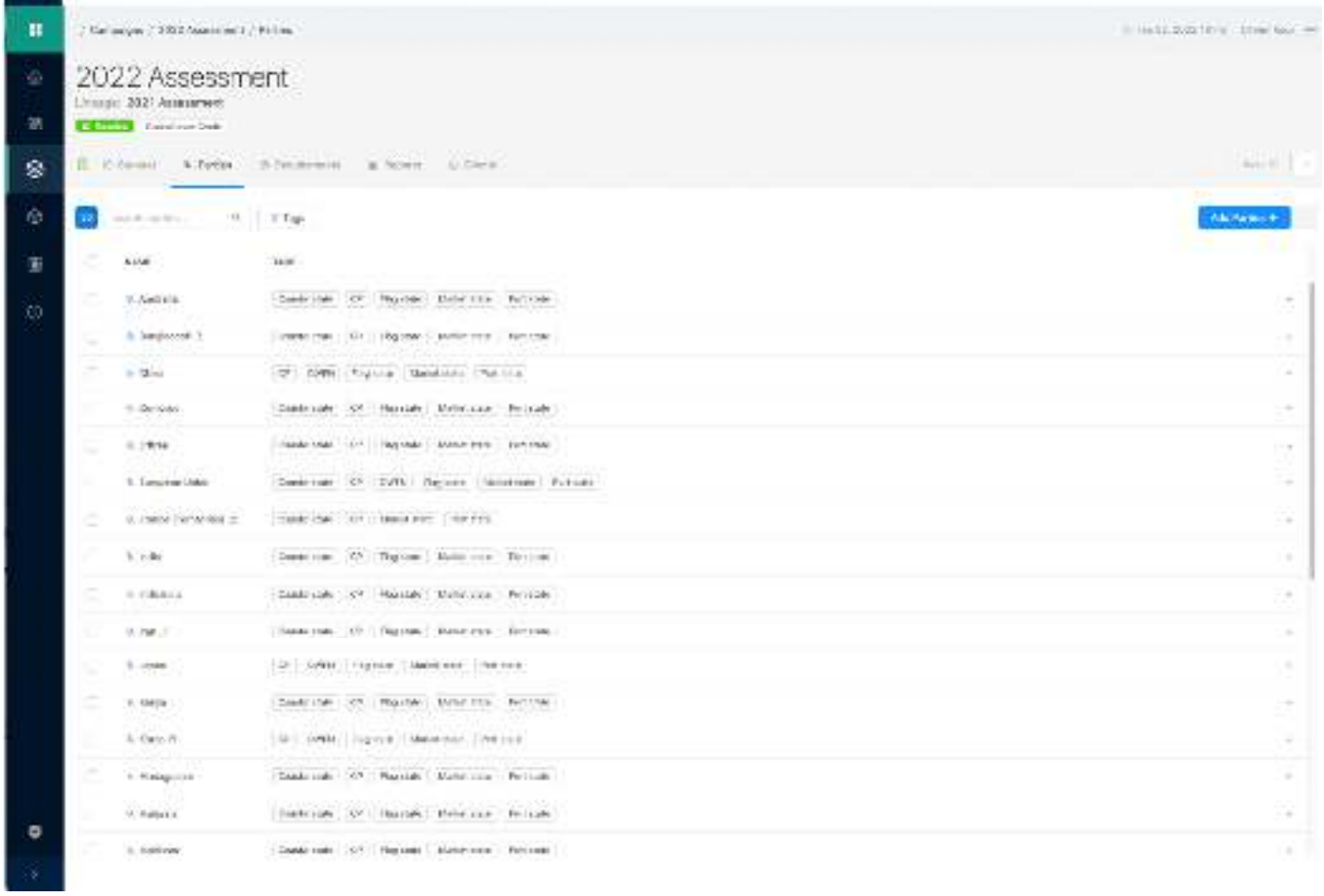
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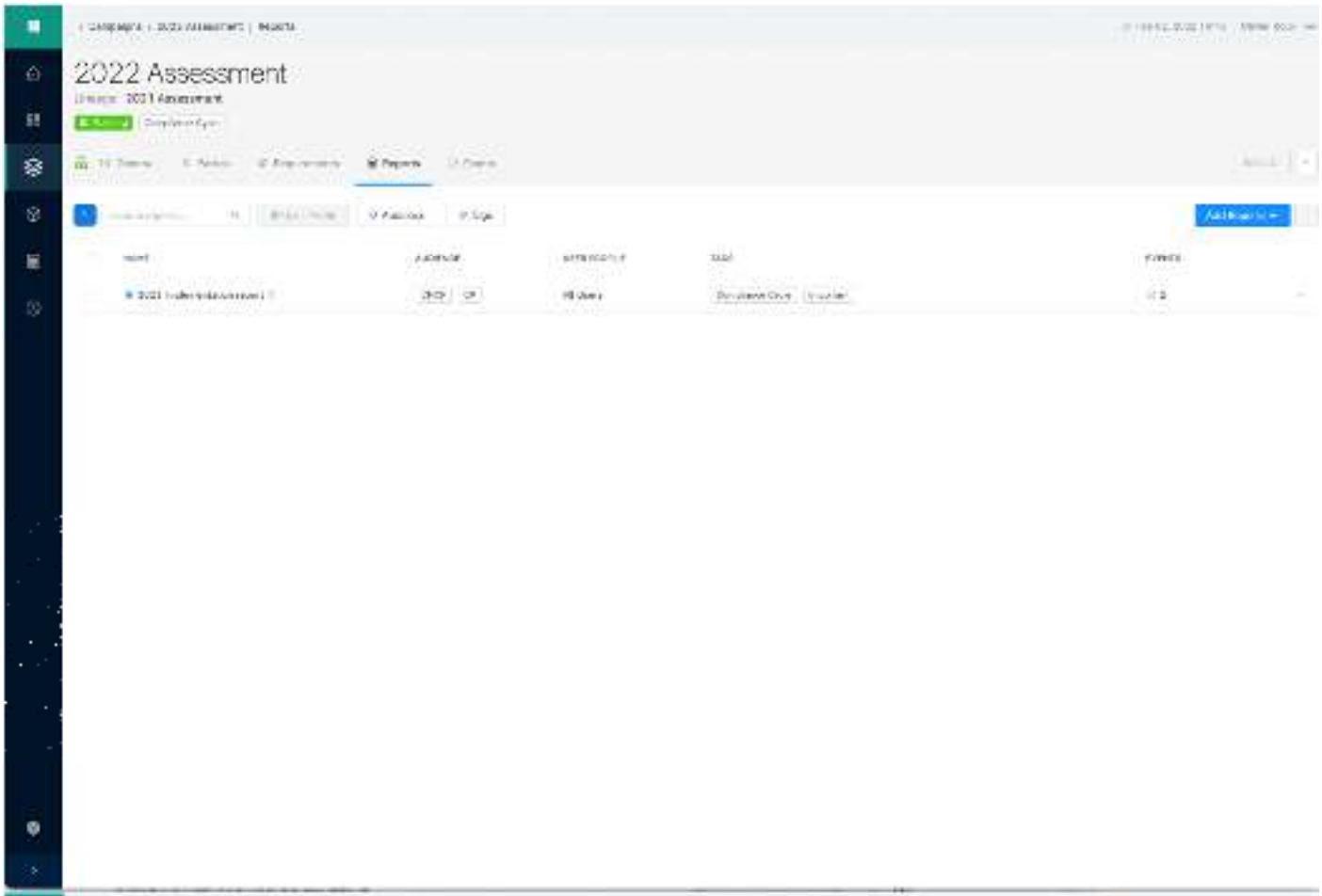
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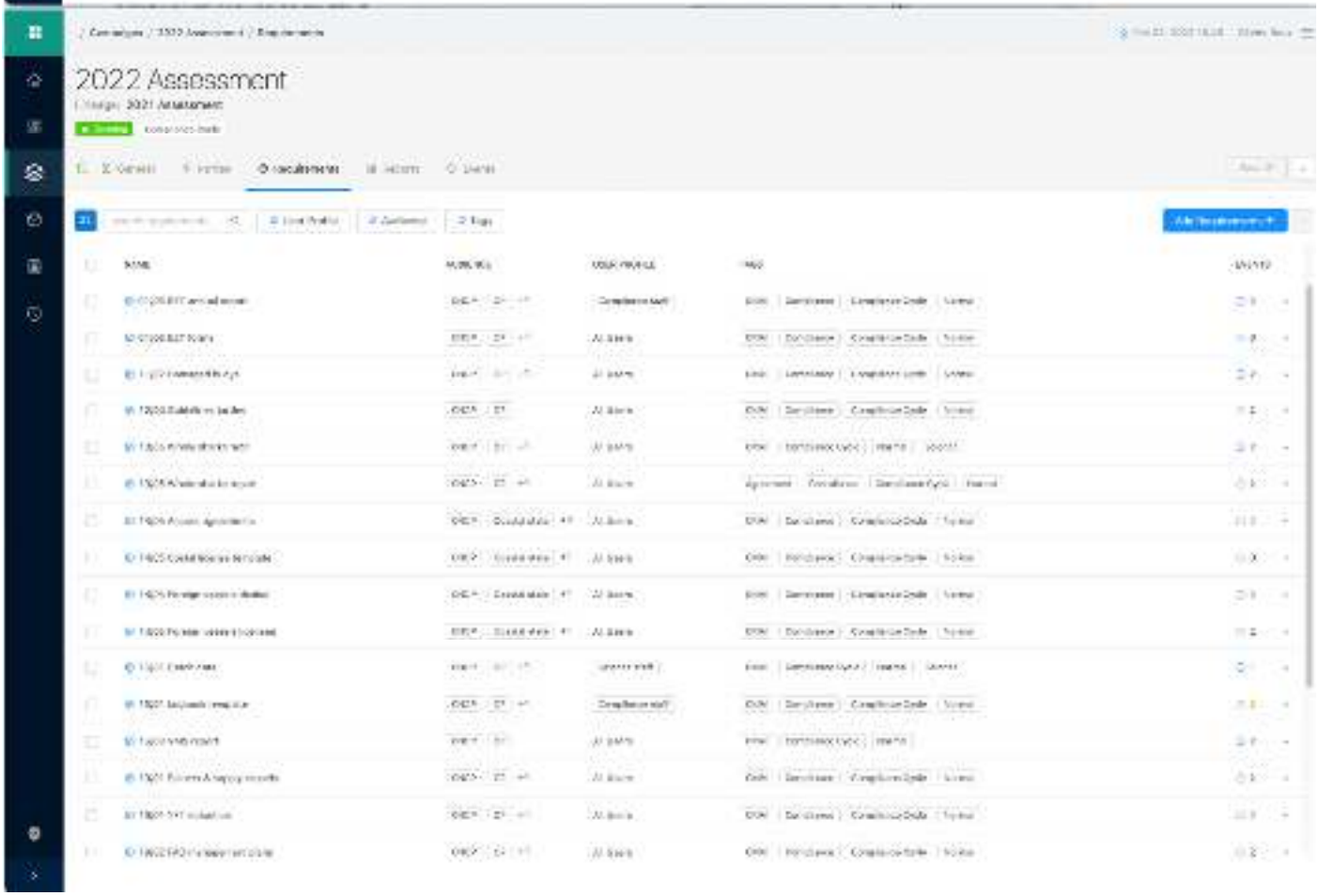
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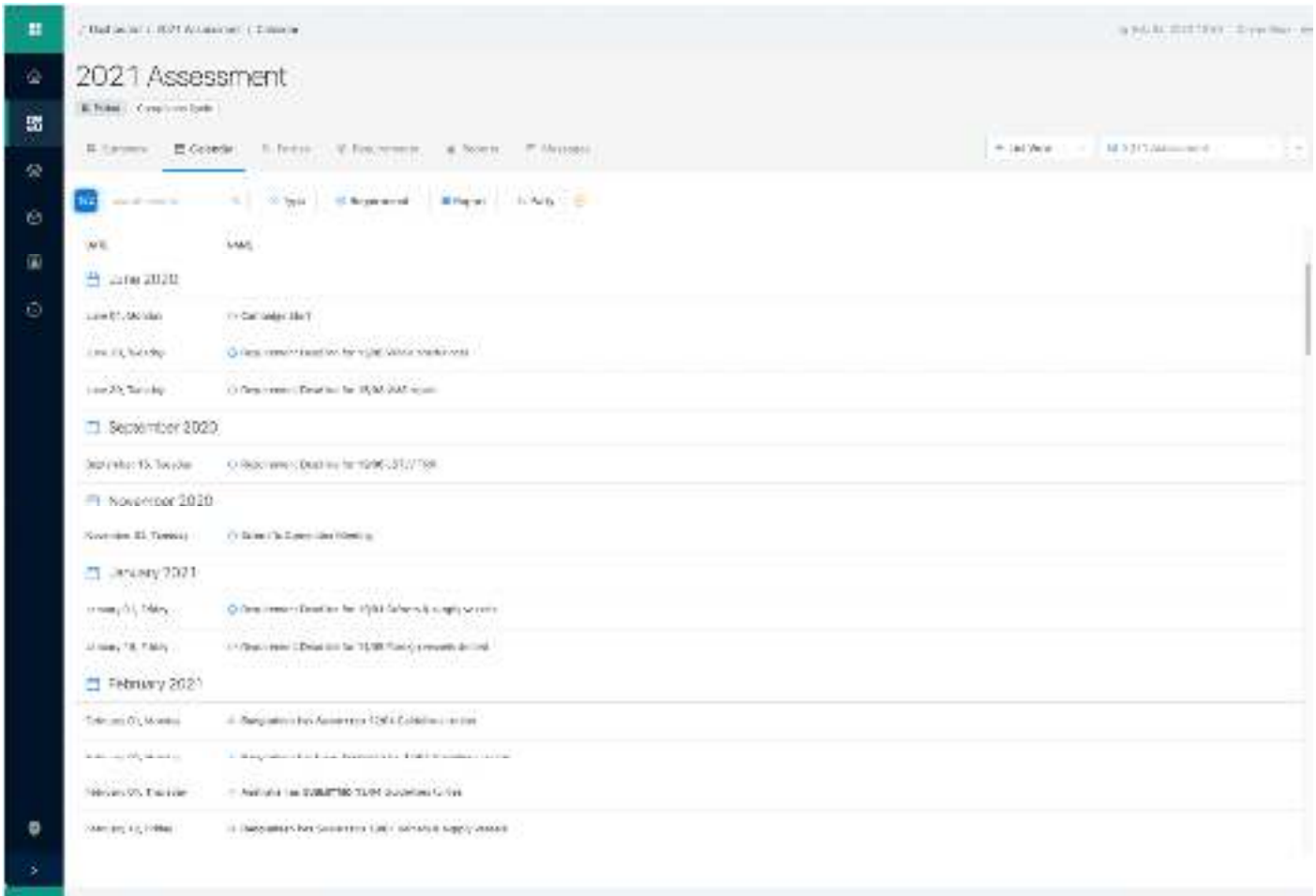
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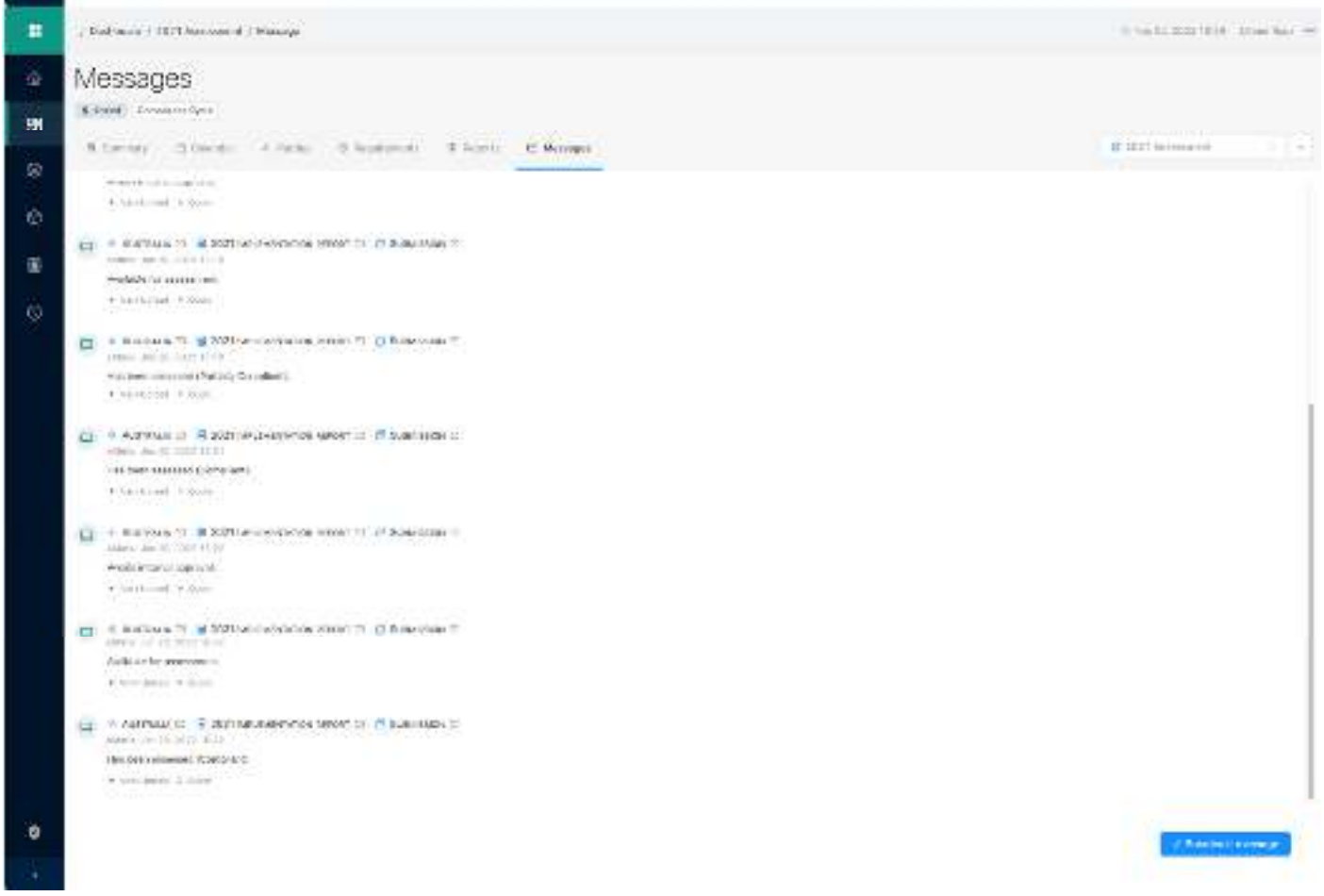
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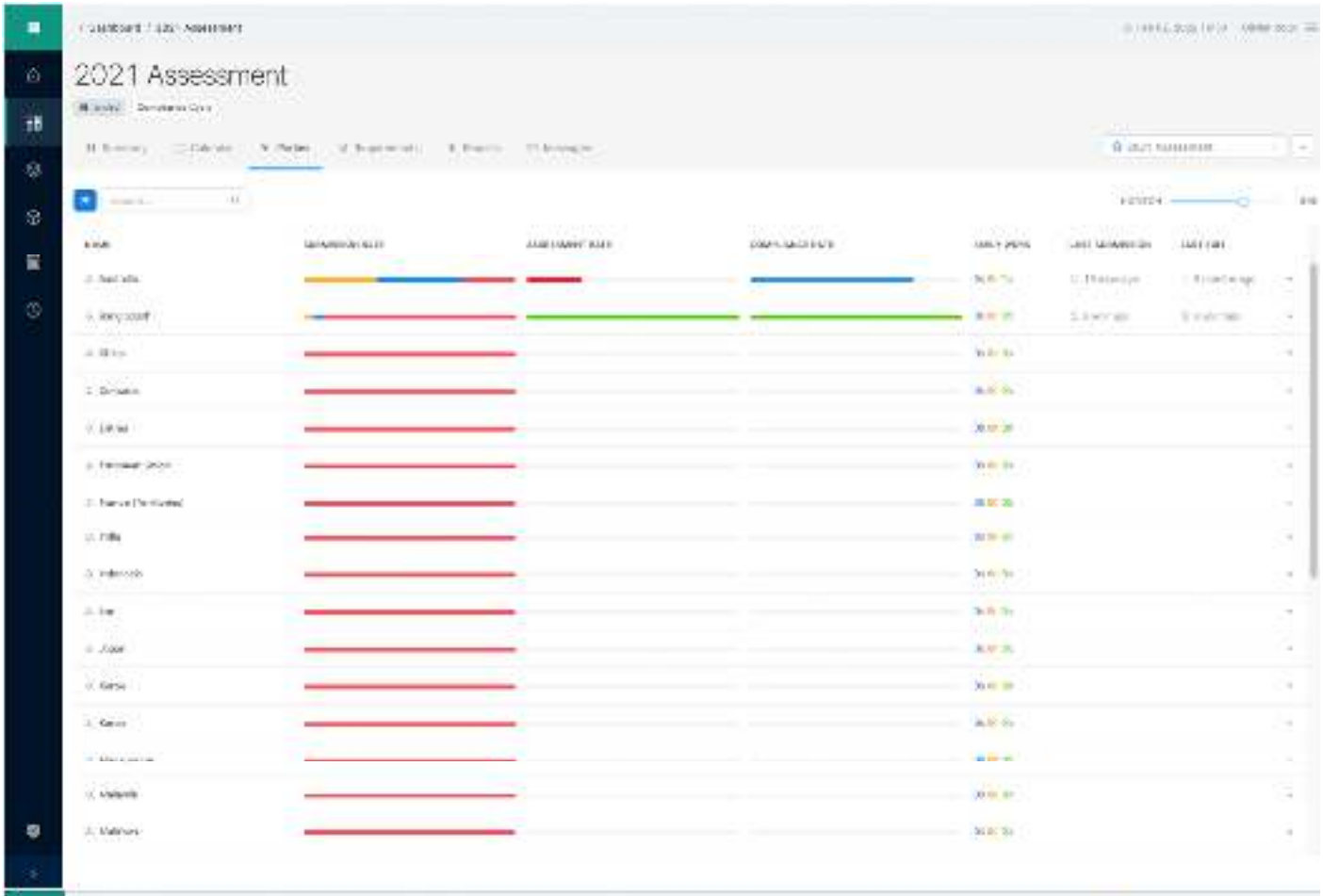
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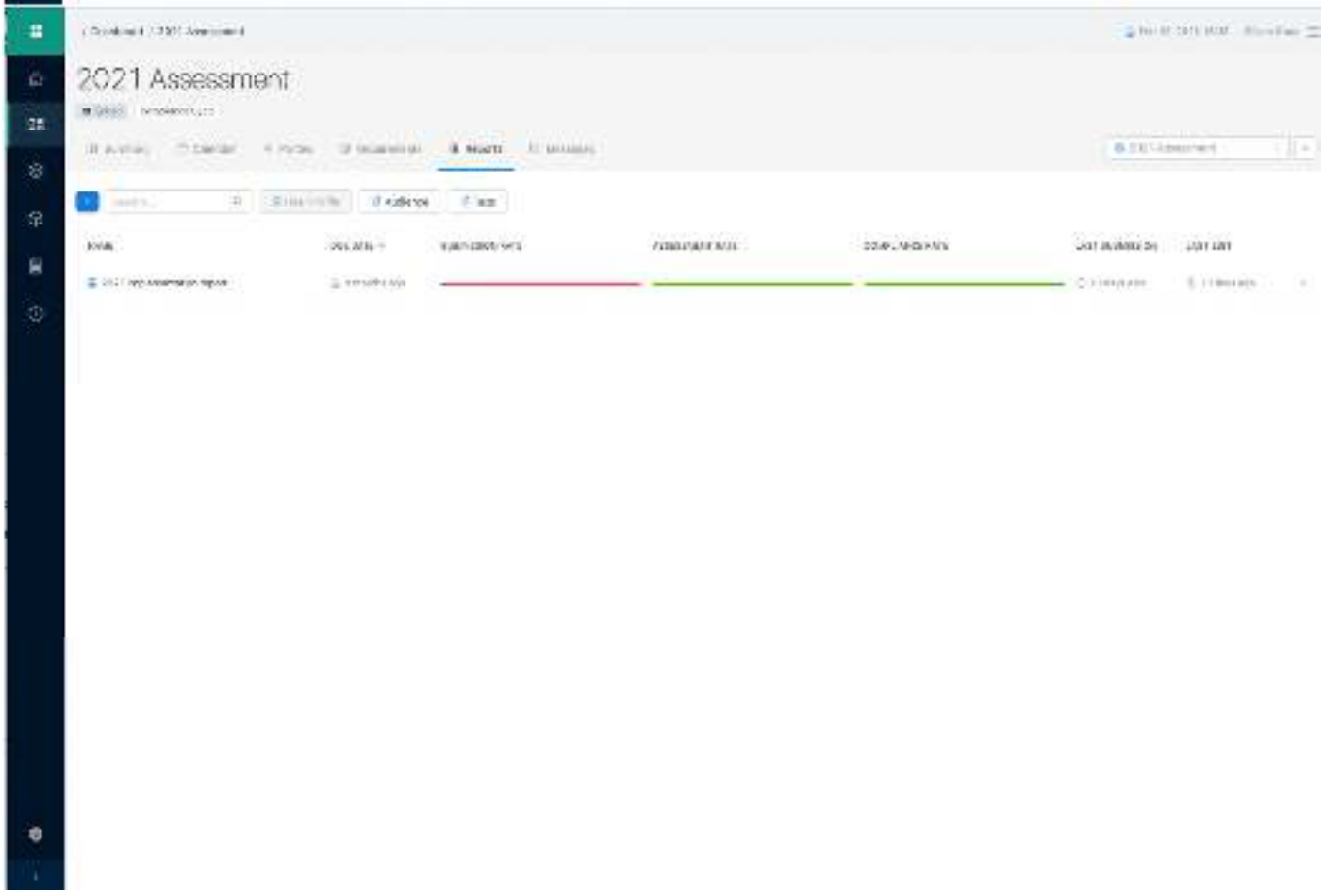
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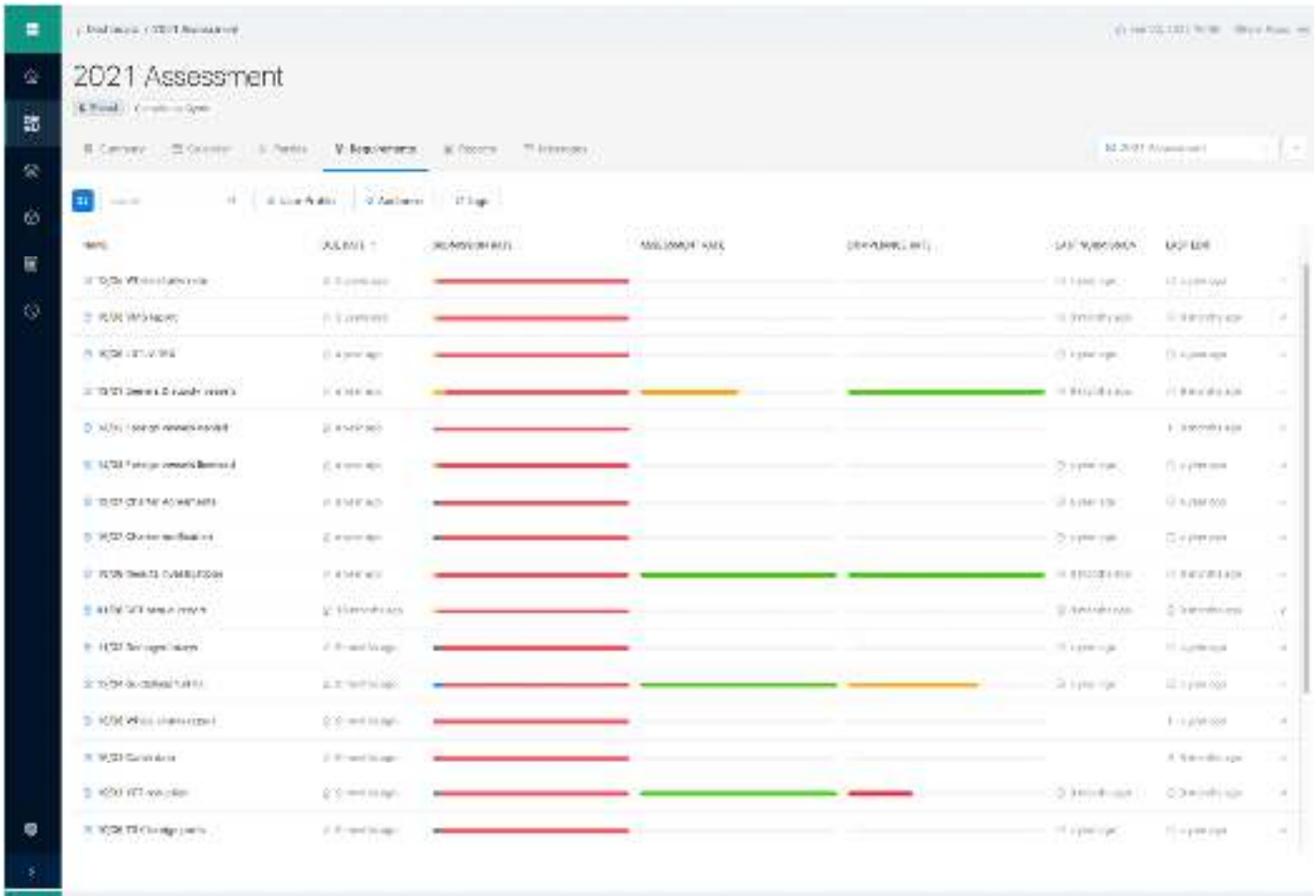
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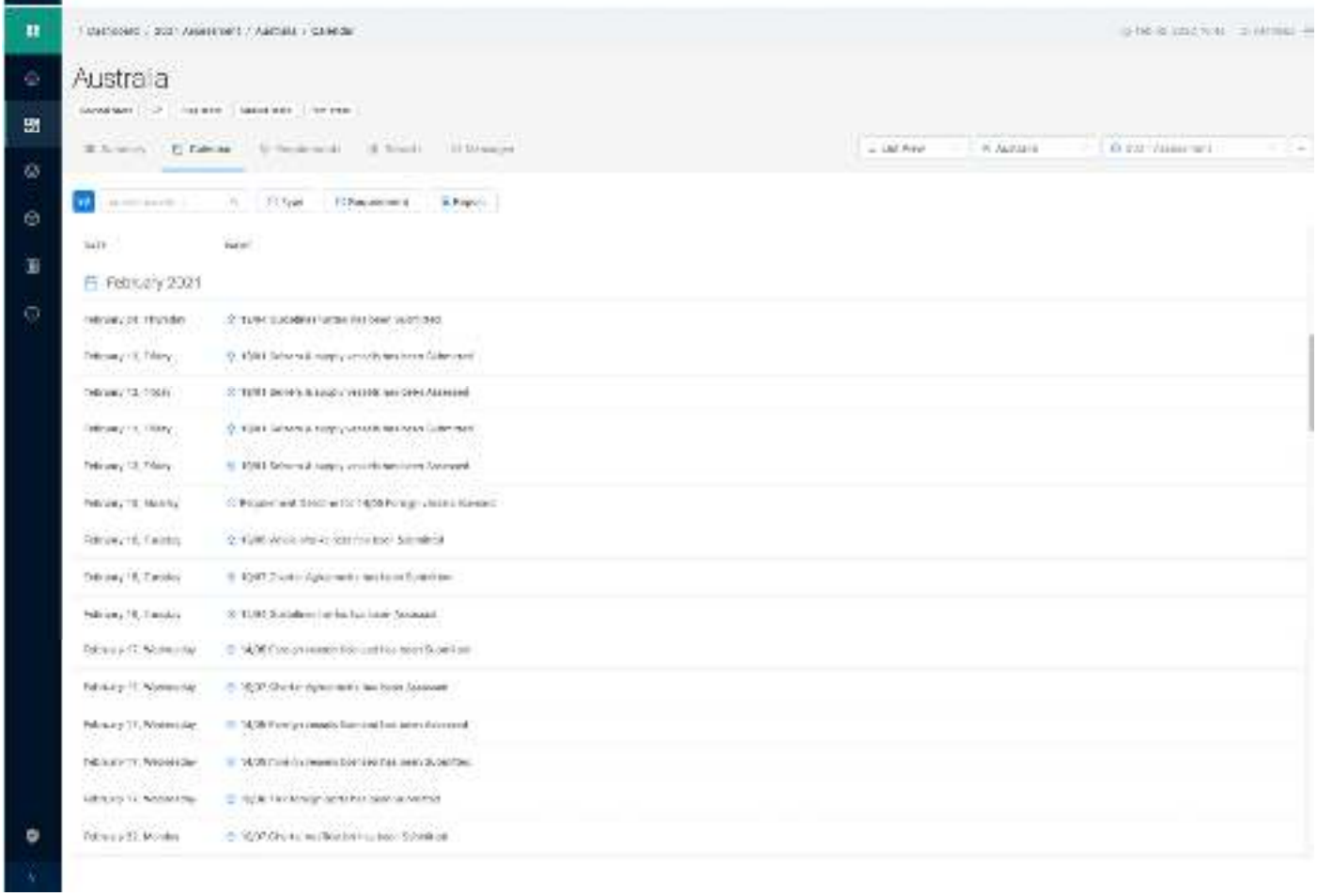
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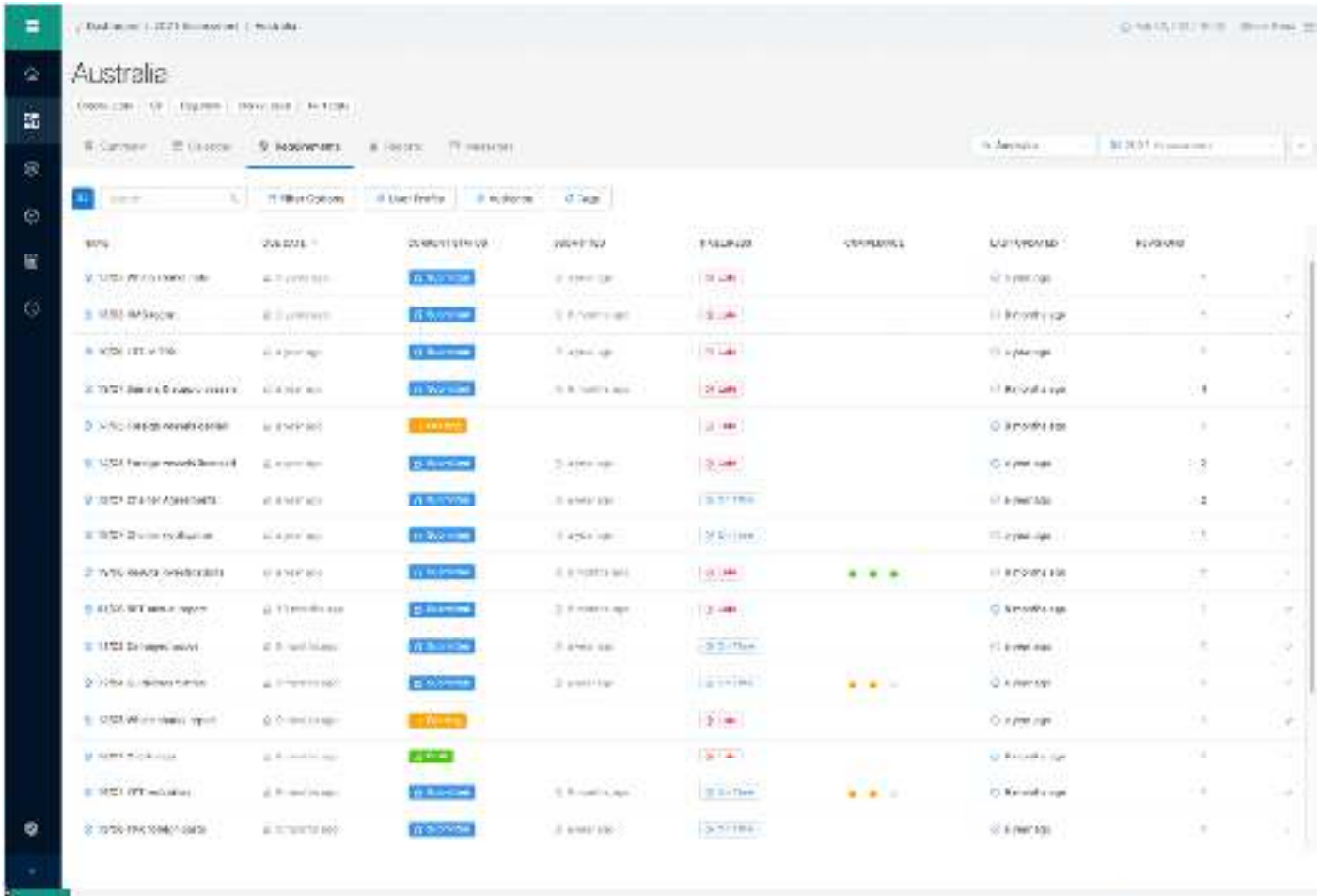
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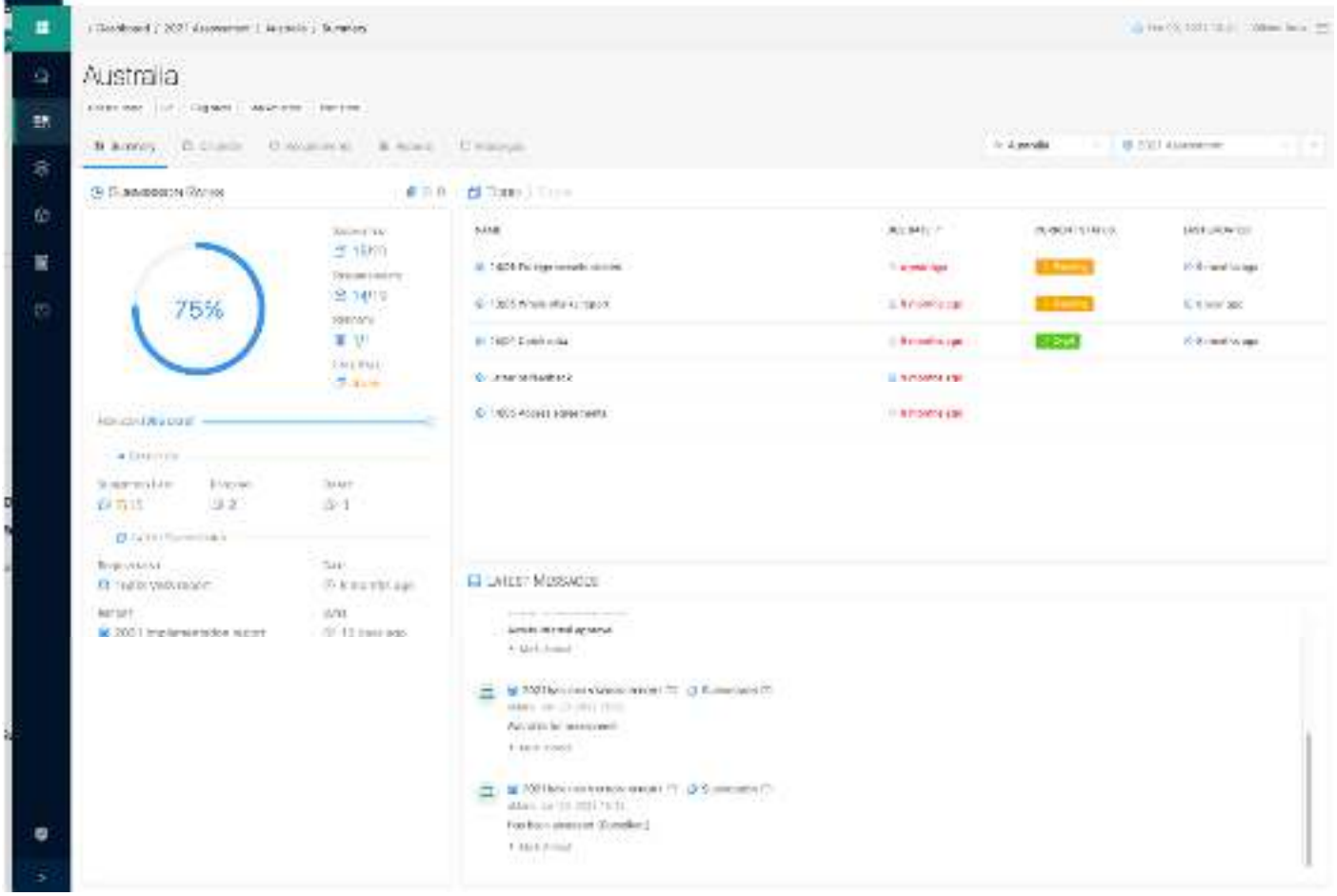
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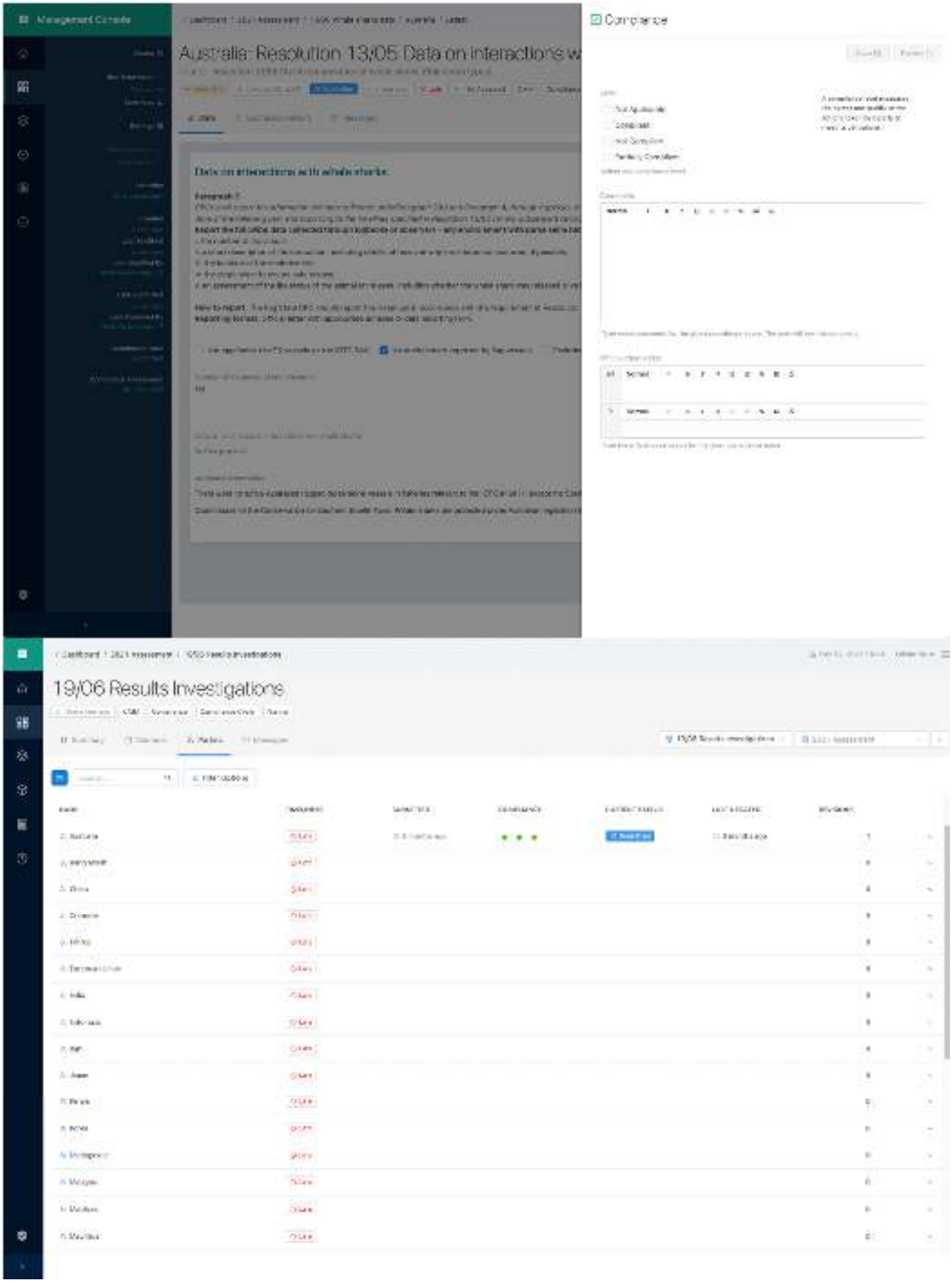
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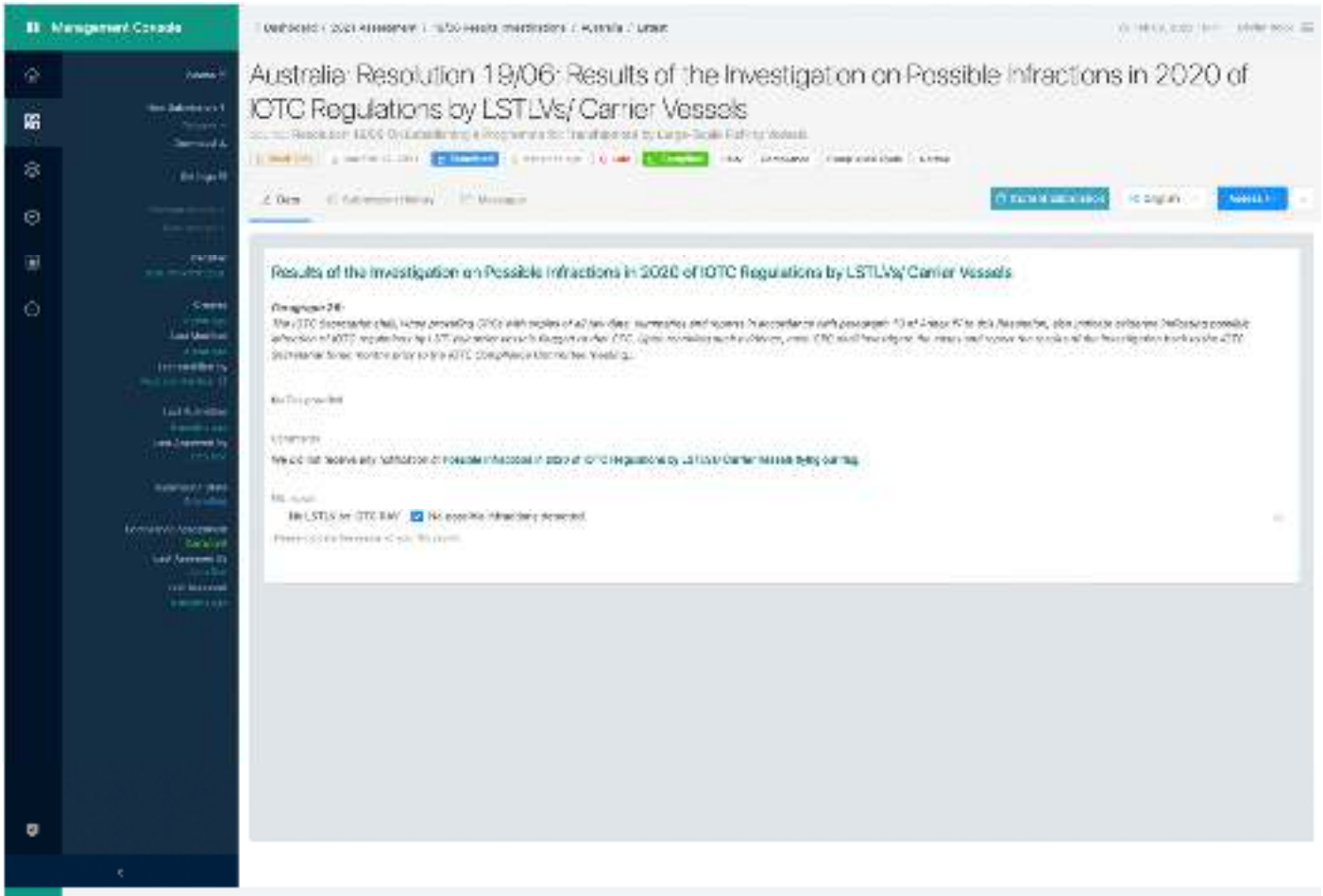
Compliance
19/06 Results Investigations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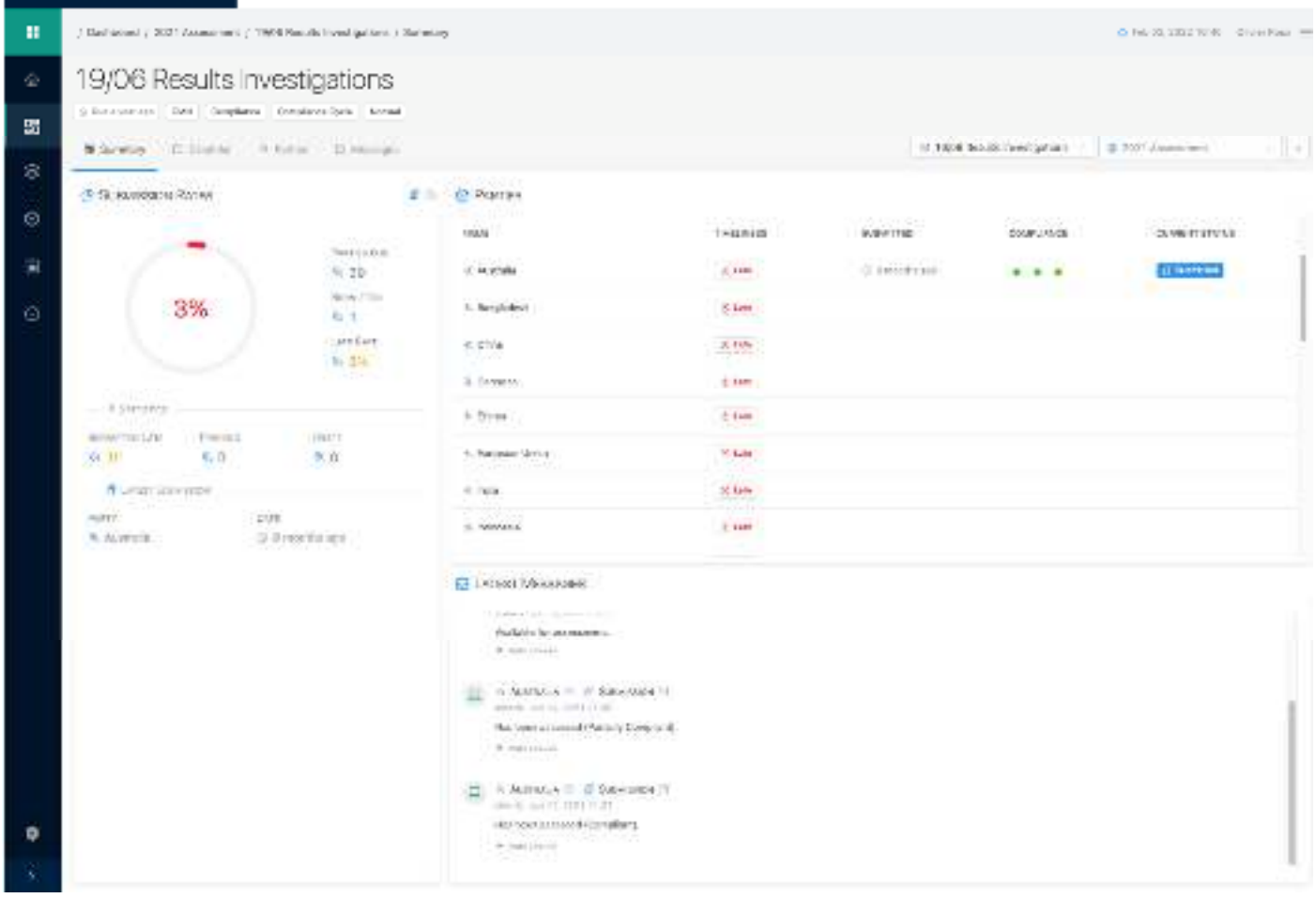
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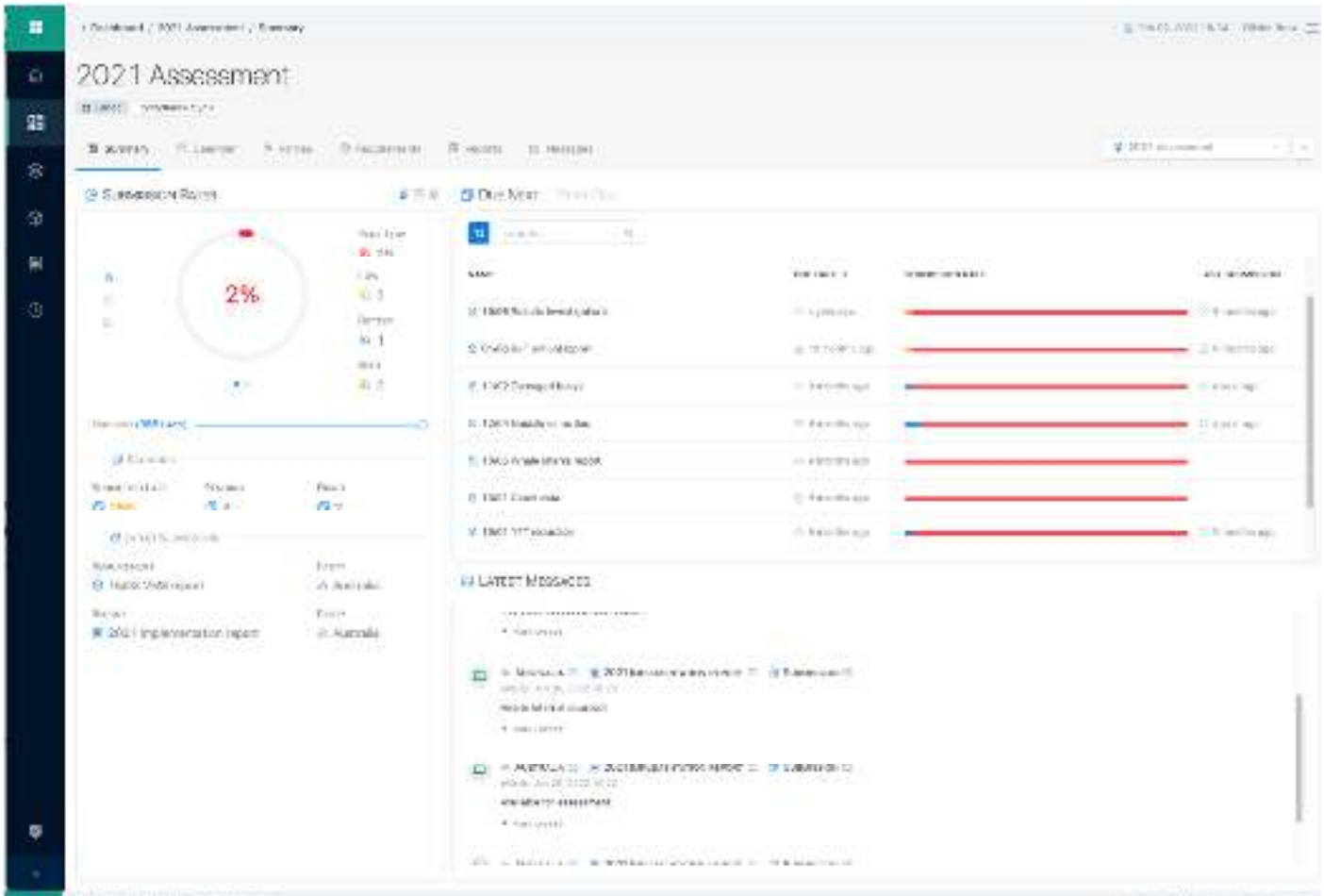
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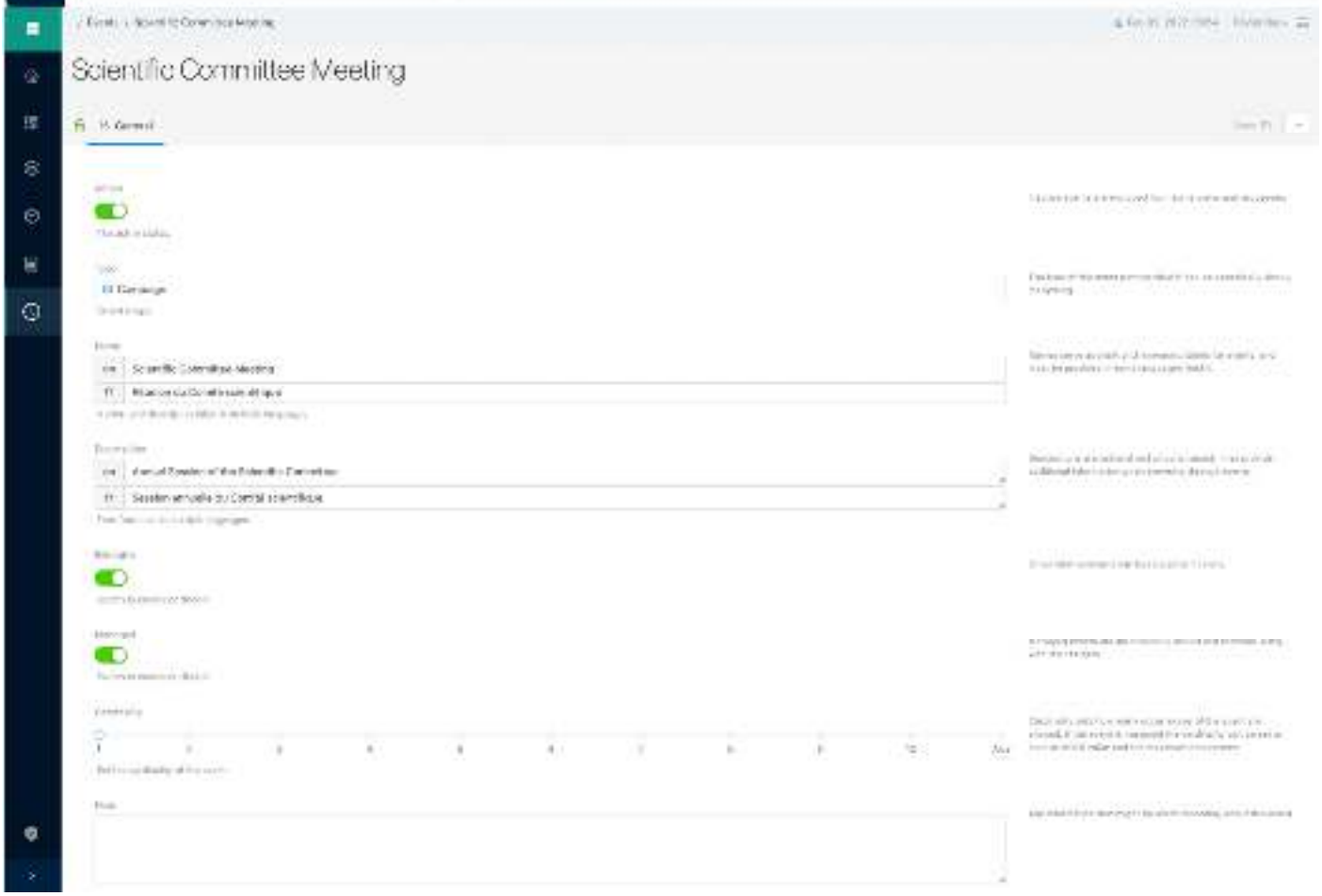
LATEST MESSAGES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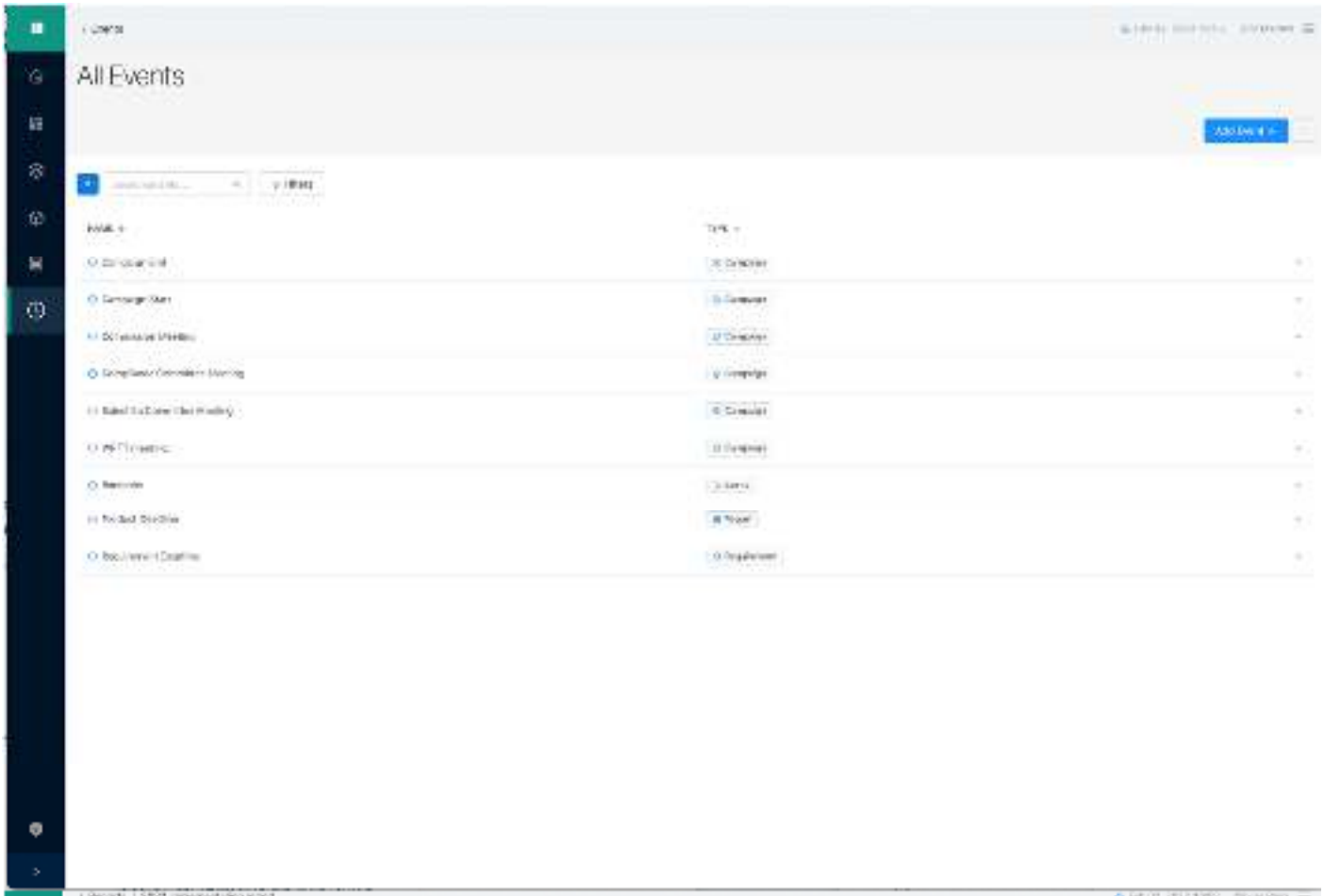
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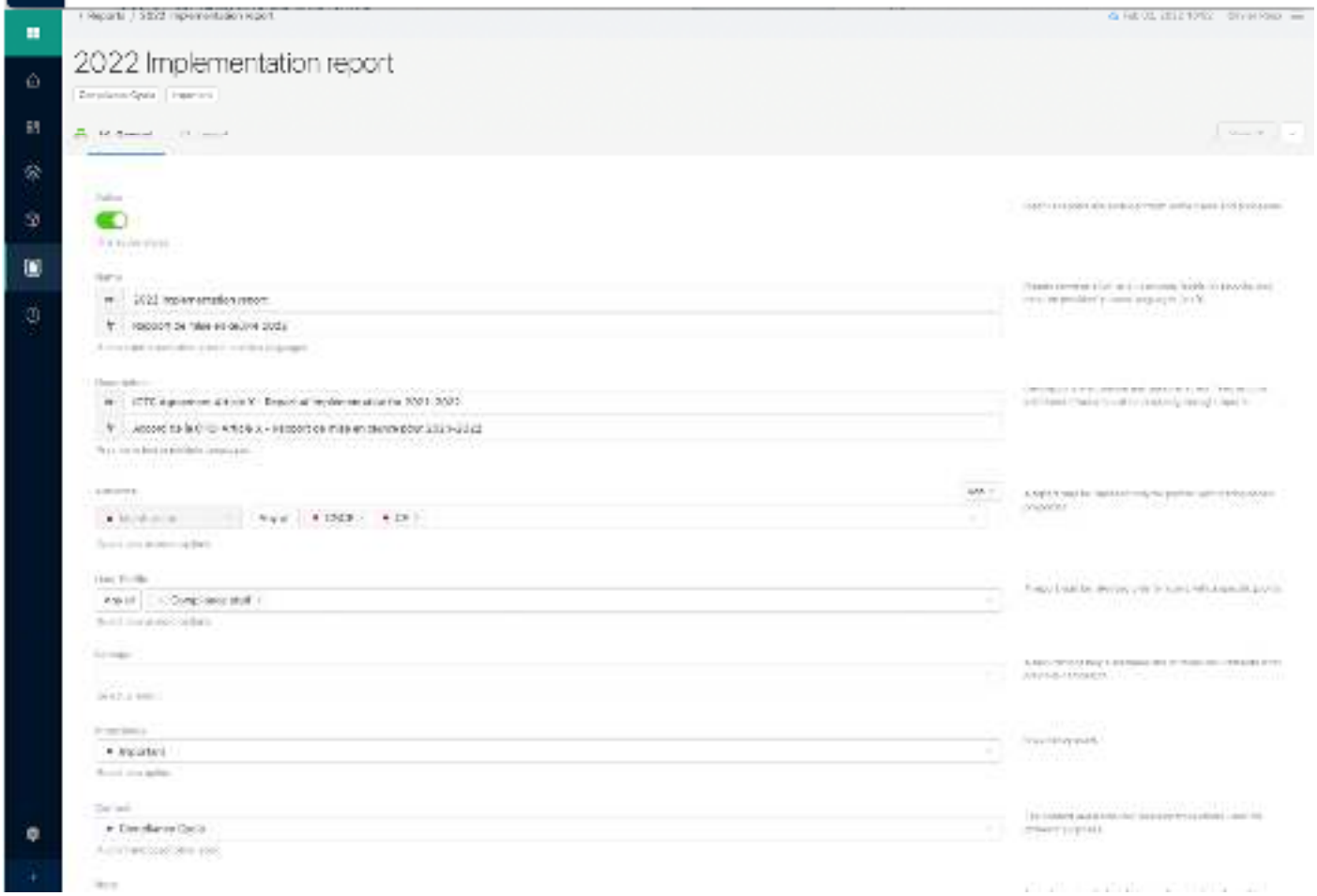
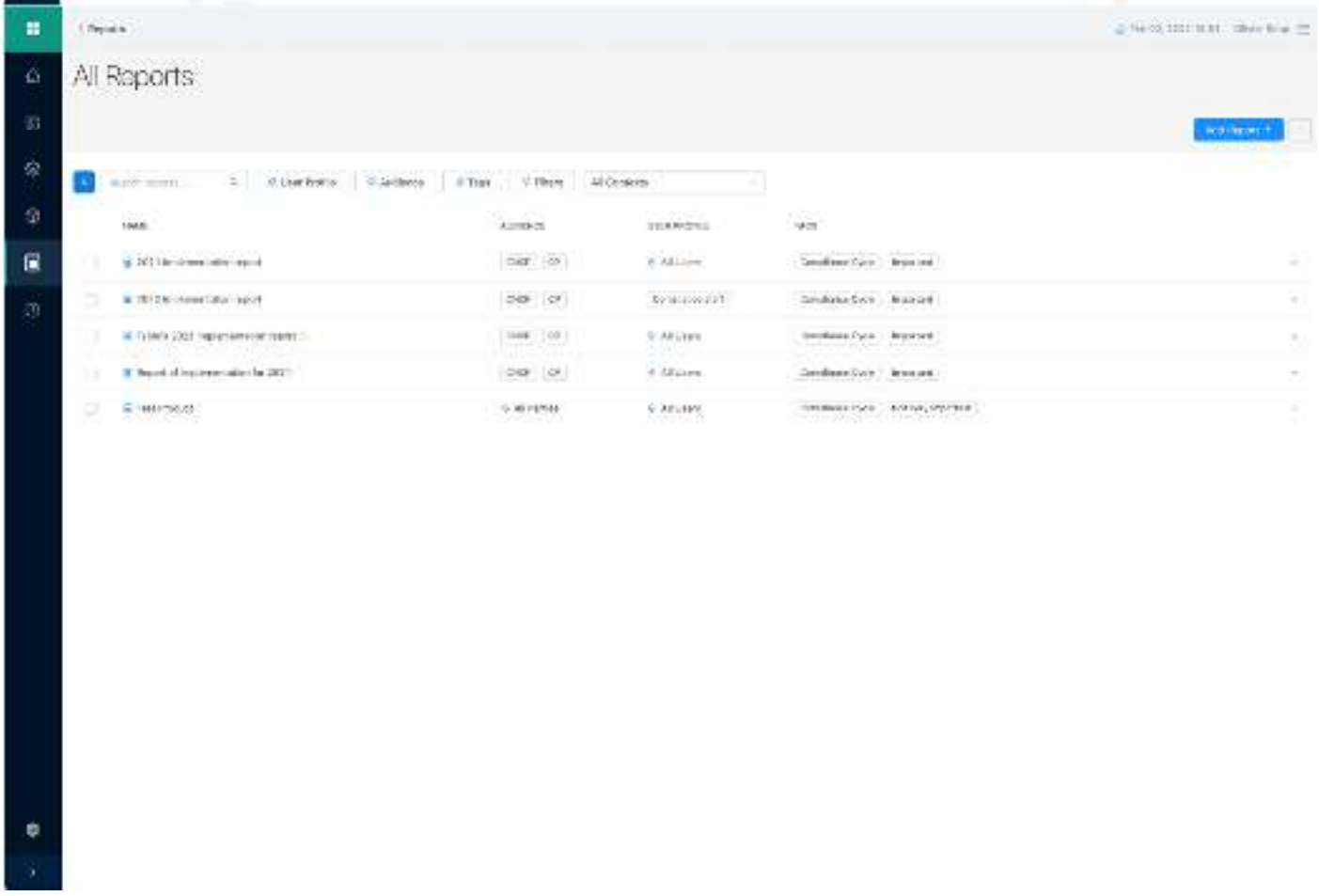
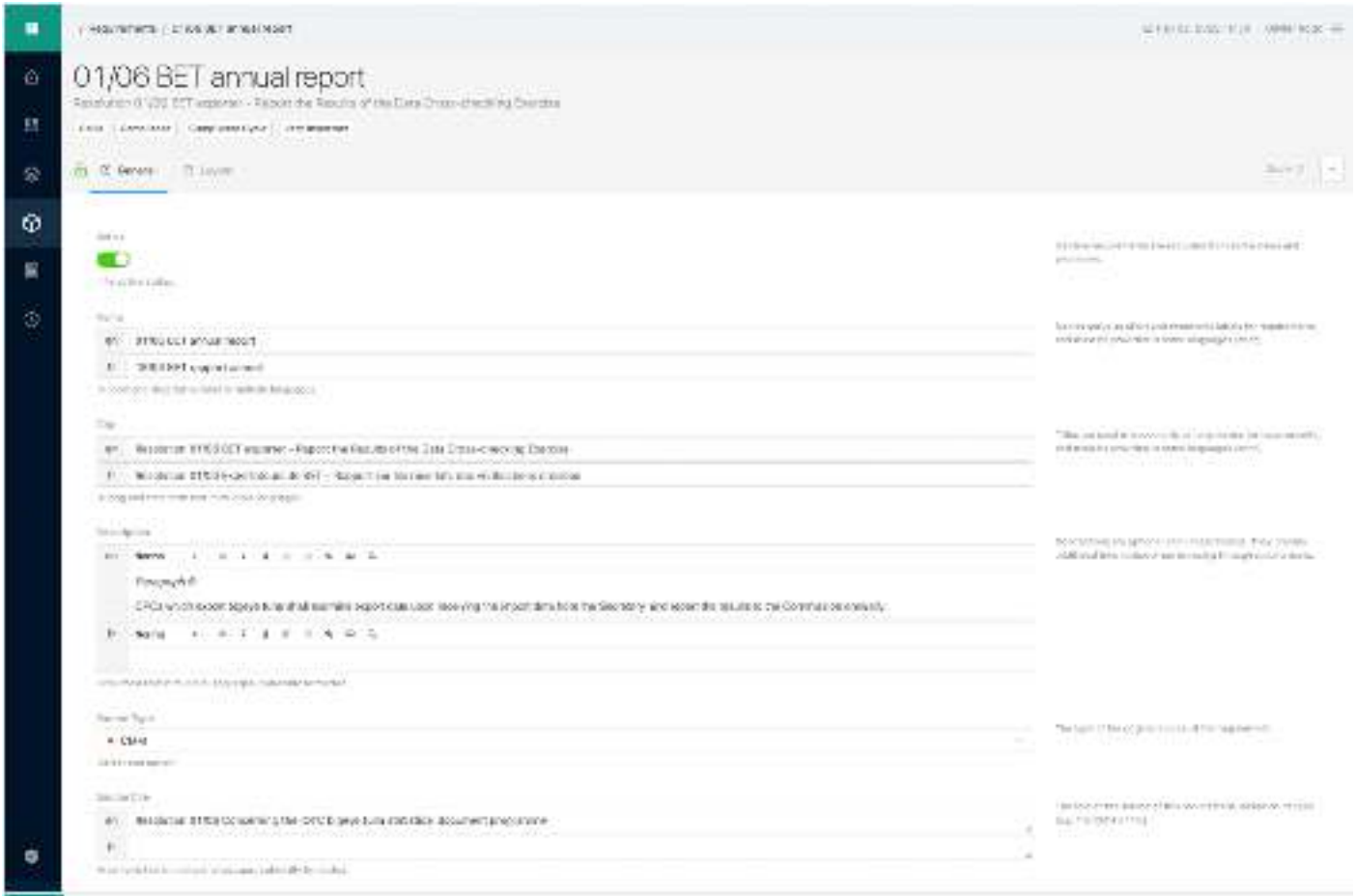
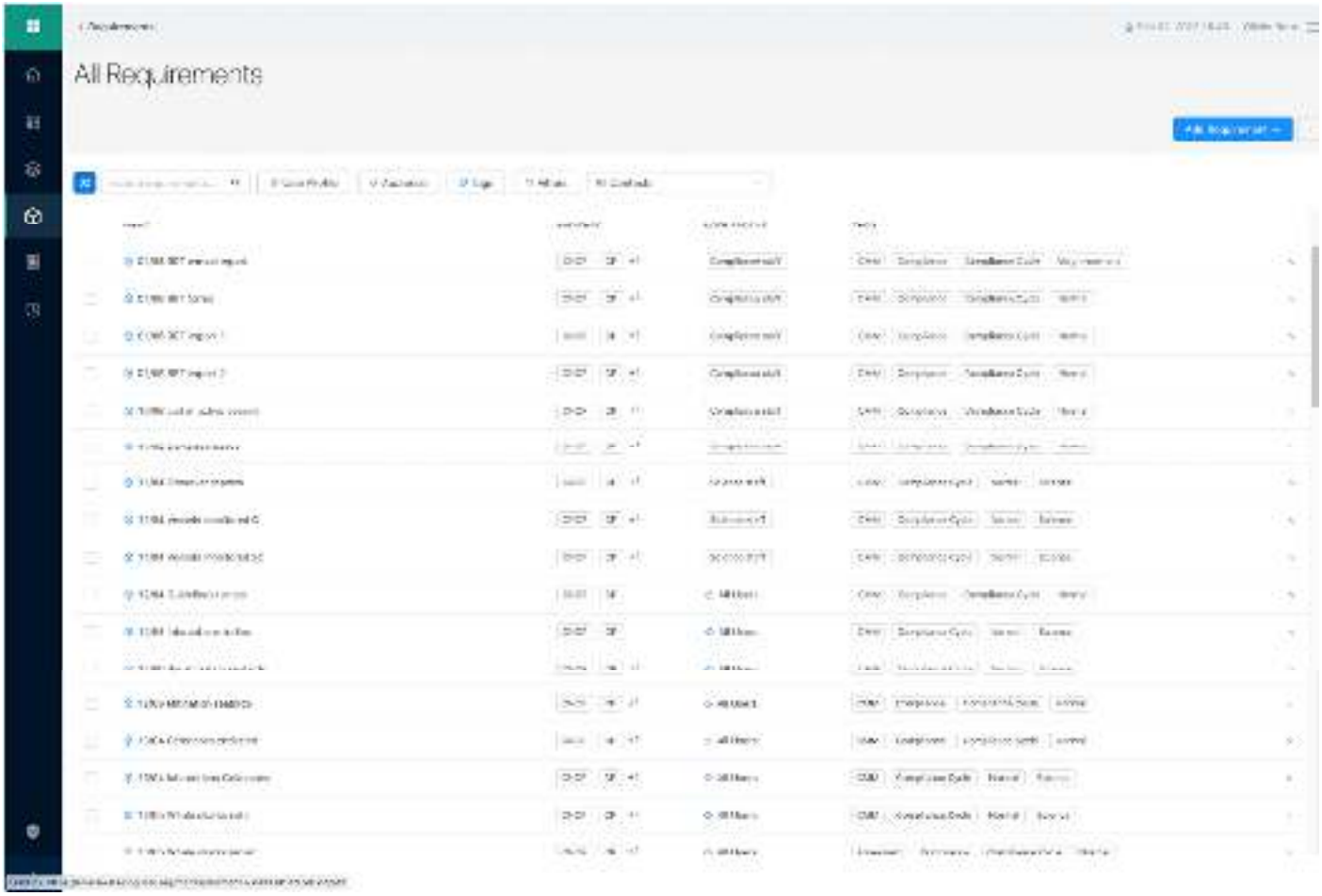

2022 Implementation report

2022 Implementation report
Food and Agriculture Organization of the United Nations
Indian Ocean Tuna Commission
IOTC Agreement Article X
Report of Implementation for the year 2022
This is an explanation of the report

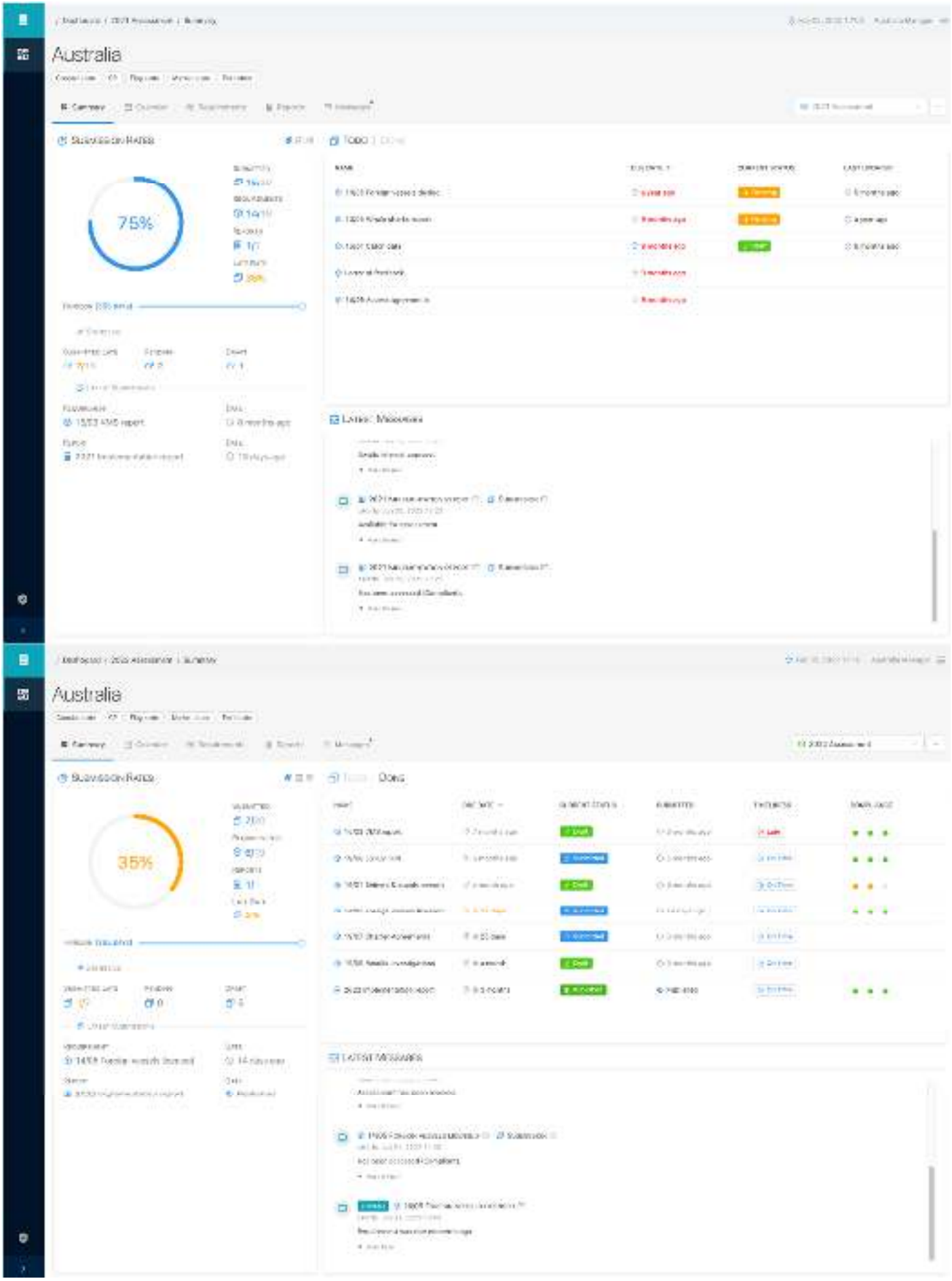

All Reports

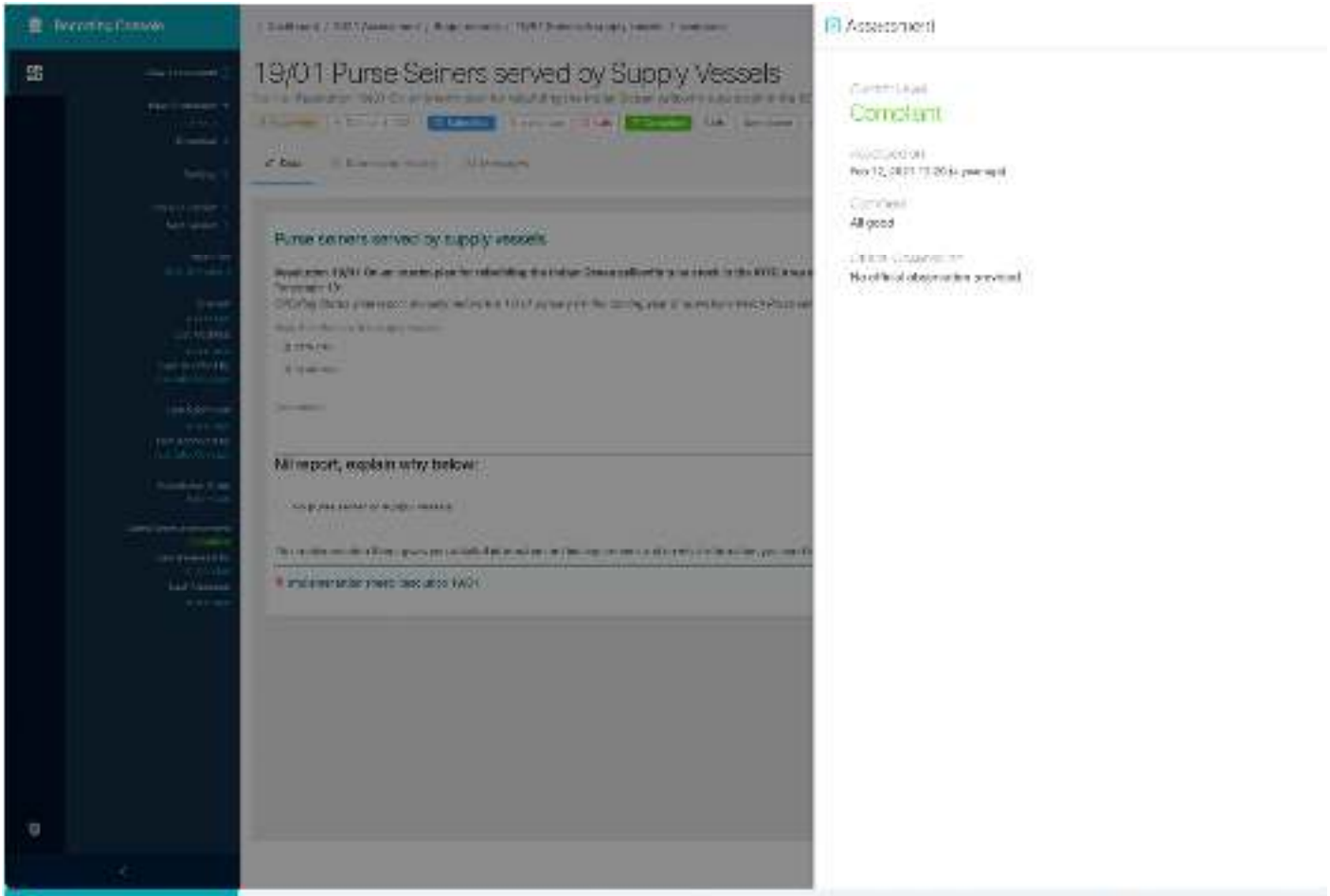

01/06 BET annual report
Paragraph 6:

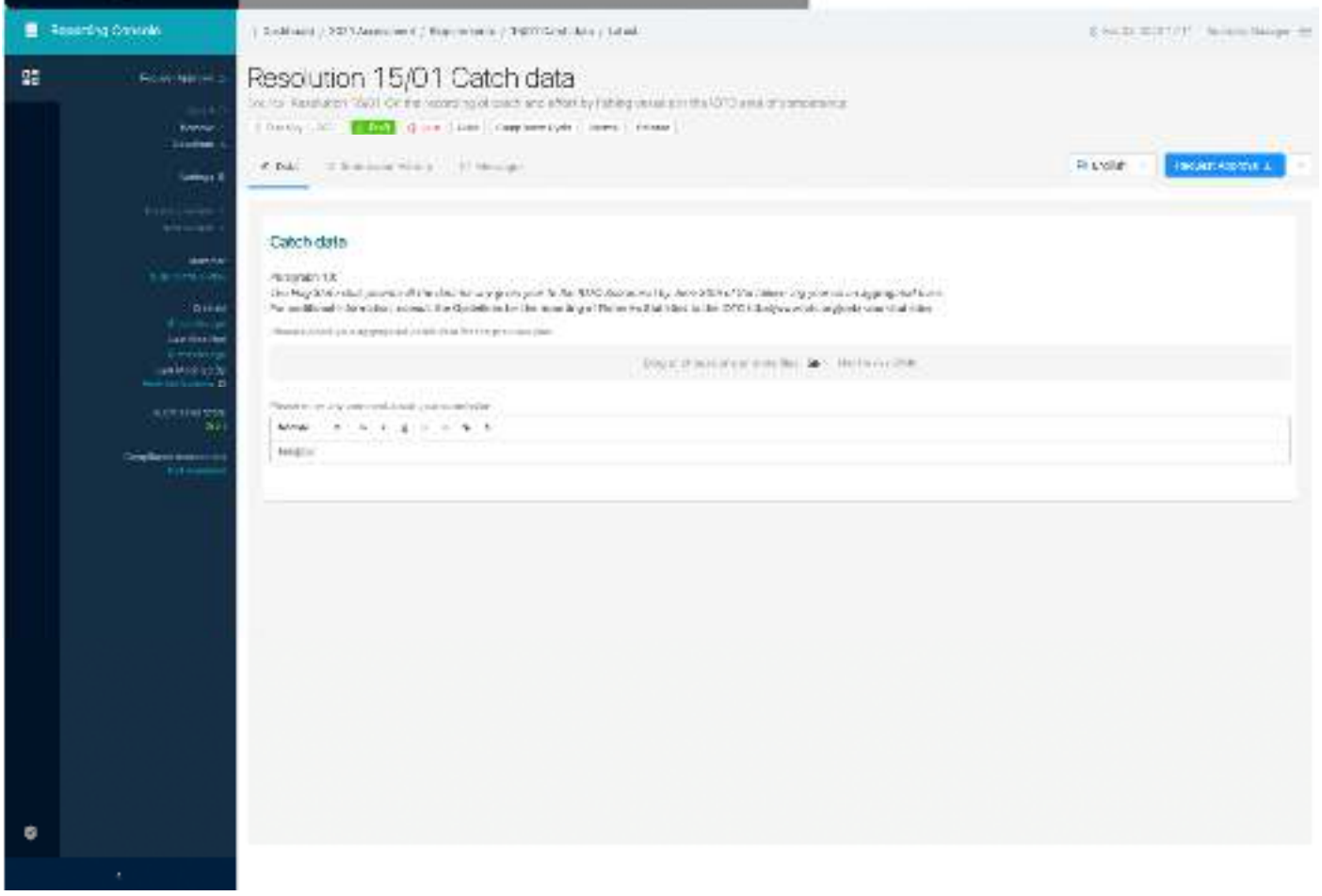

All Requirements

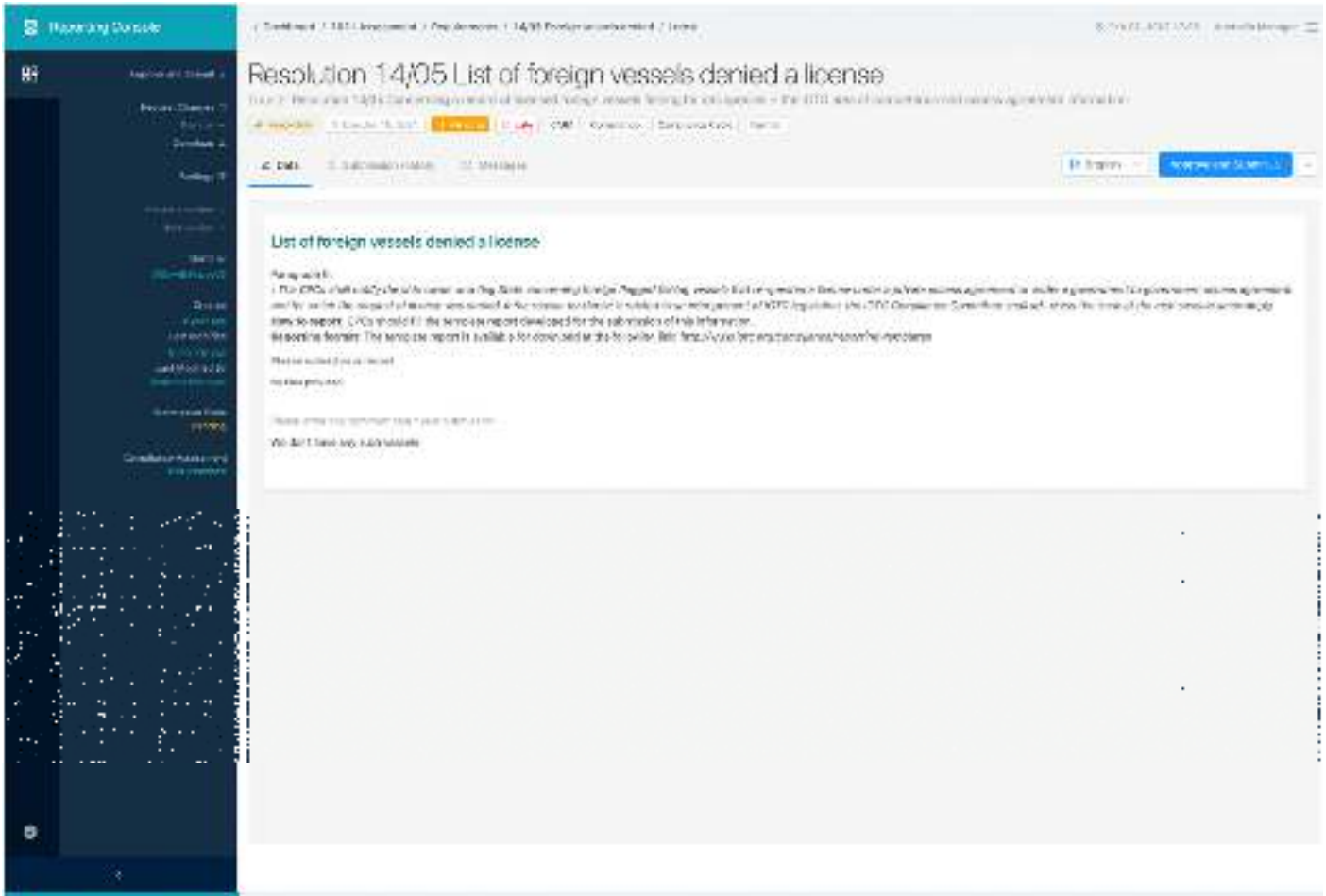
Annex 2

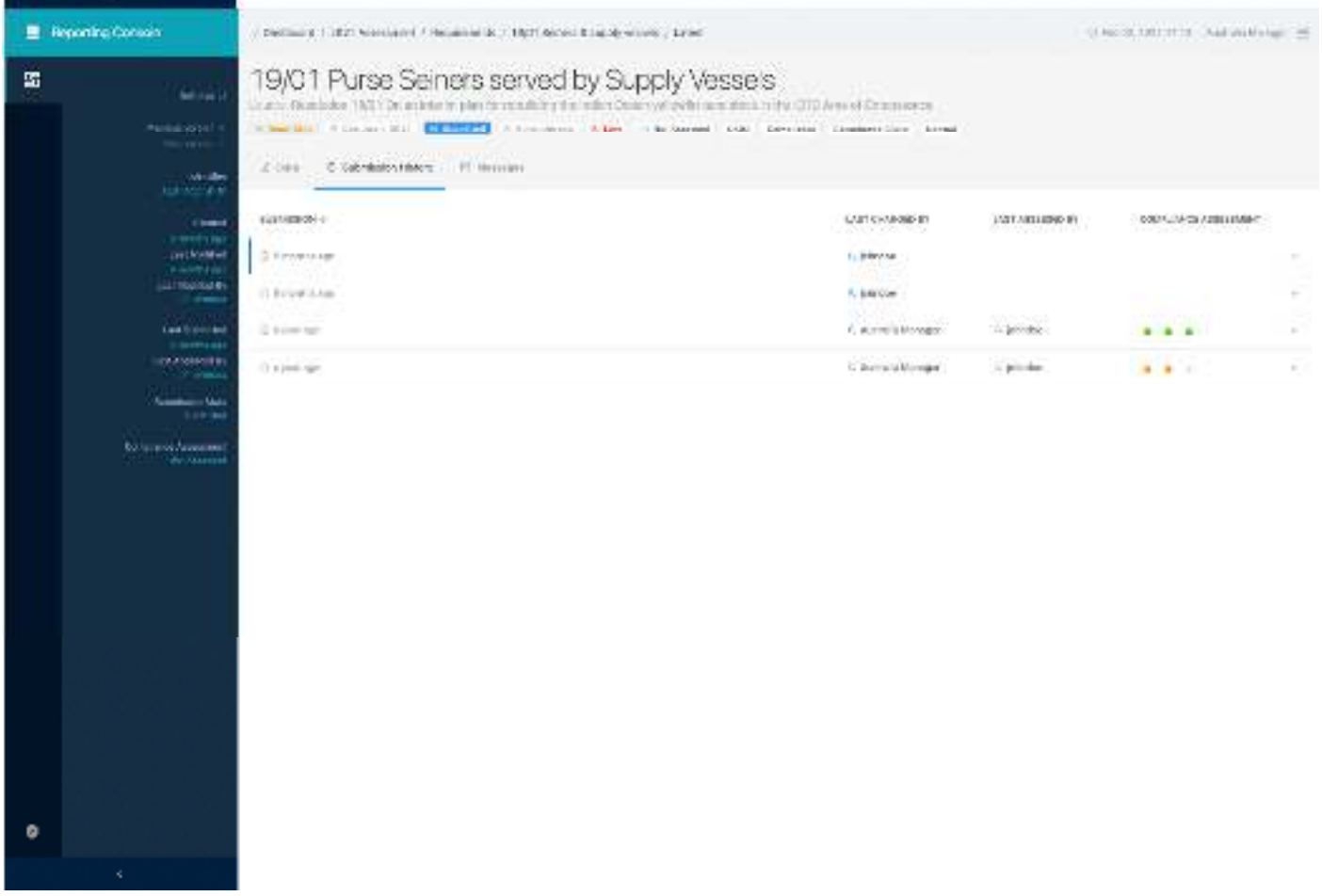
REPORTING & ADMININISTRATION CONSOLES (CPC)

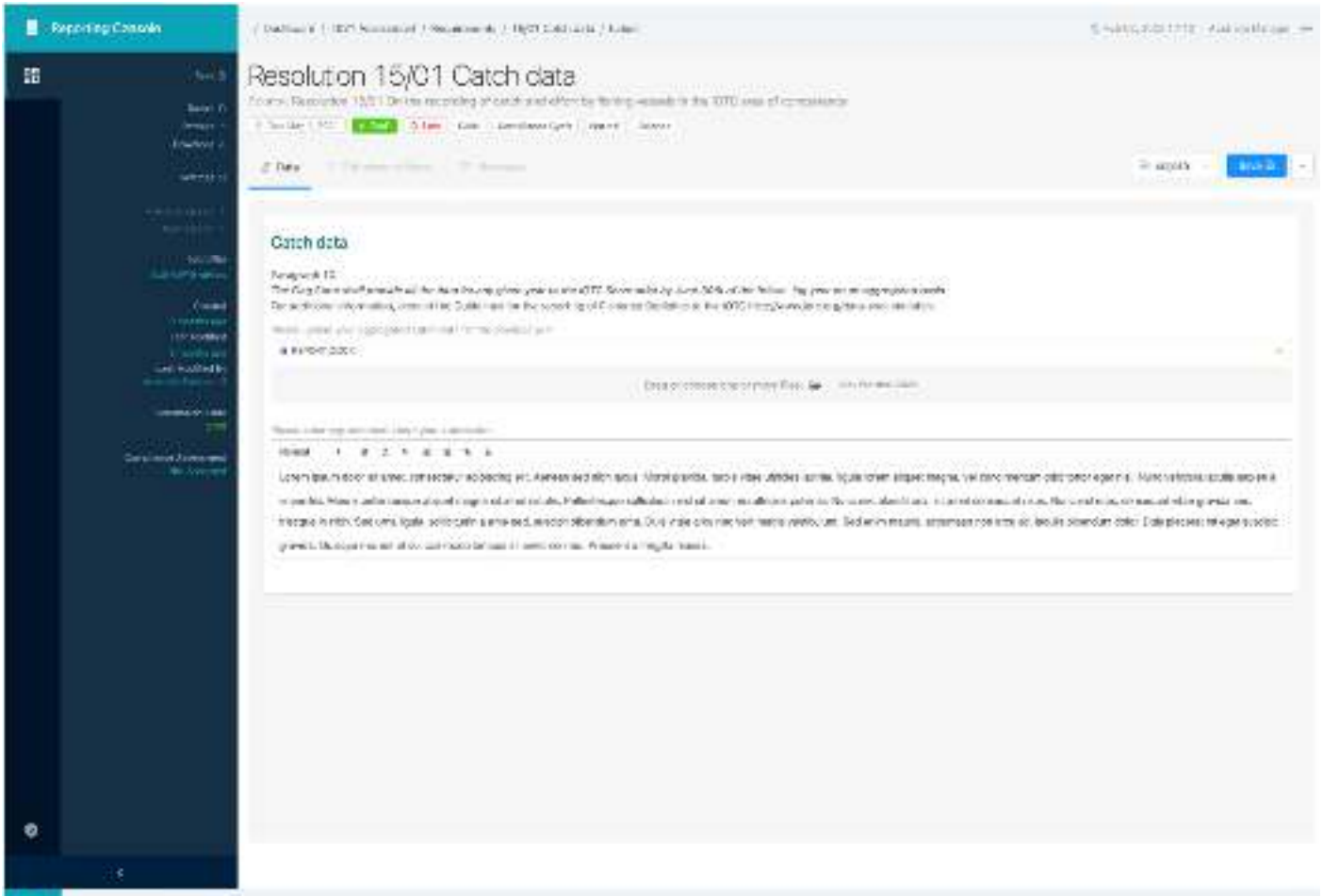


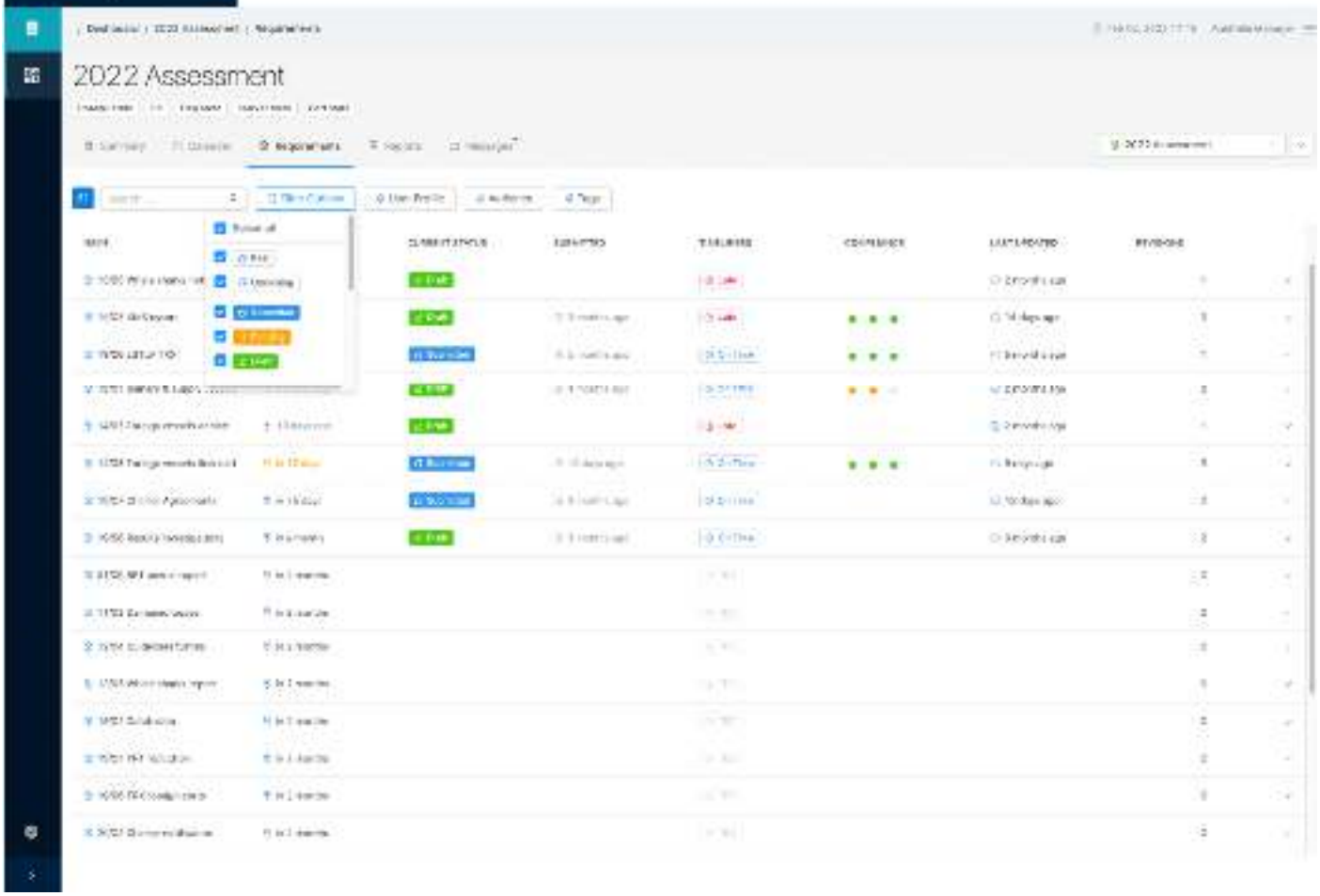

19/01 Purse Seiners served by Supply Vessels
Purse seiners served by supply vessels
Assessment
Compliant
All good

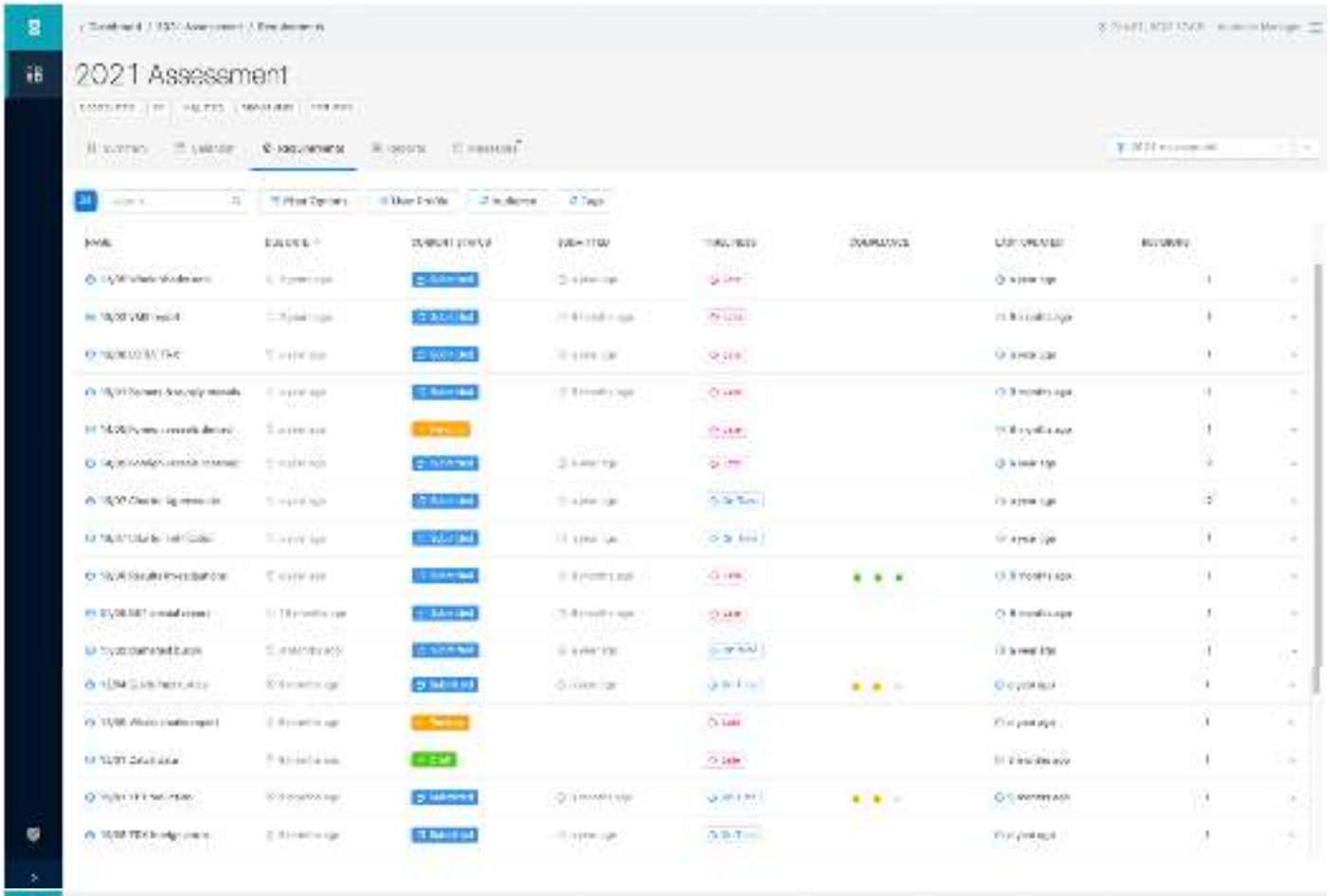

Resolution 15/01 Catch data
Catch data


Resolution 14/05 List of foreign vessels denied a license
List of foreign vessels denied a license


19/01 Purse Seiners served by Supply Vessels


Resolution 15/01 Catch data
Catch data


2022 Assessment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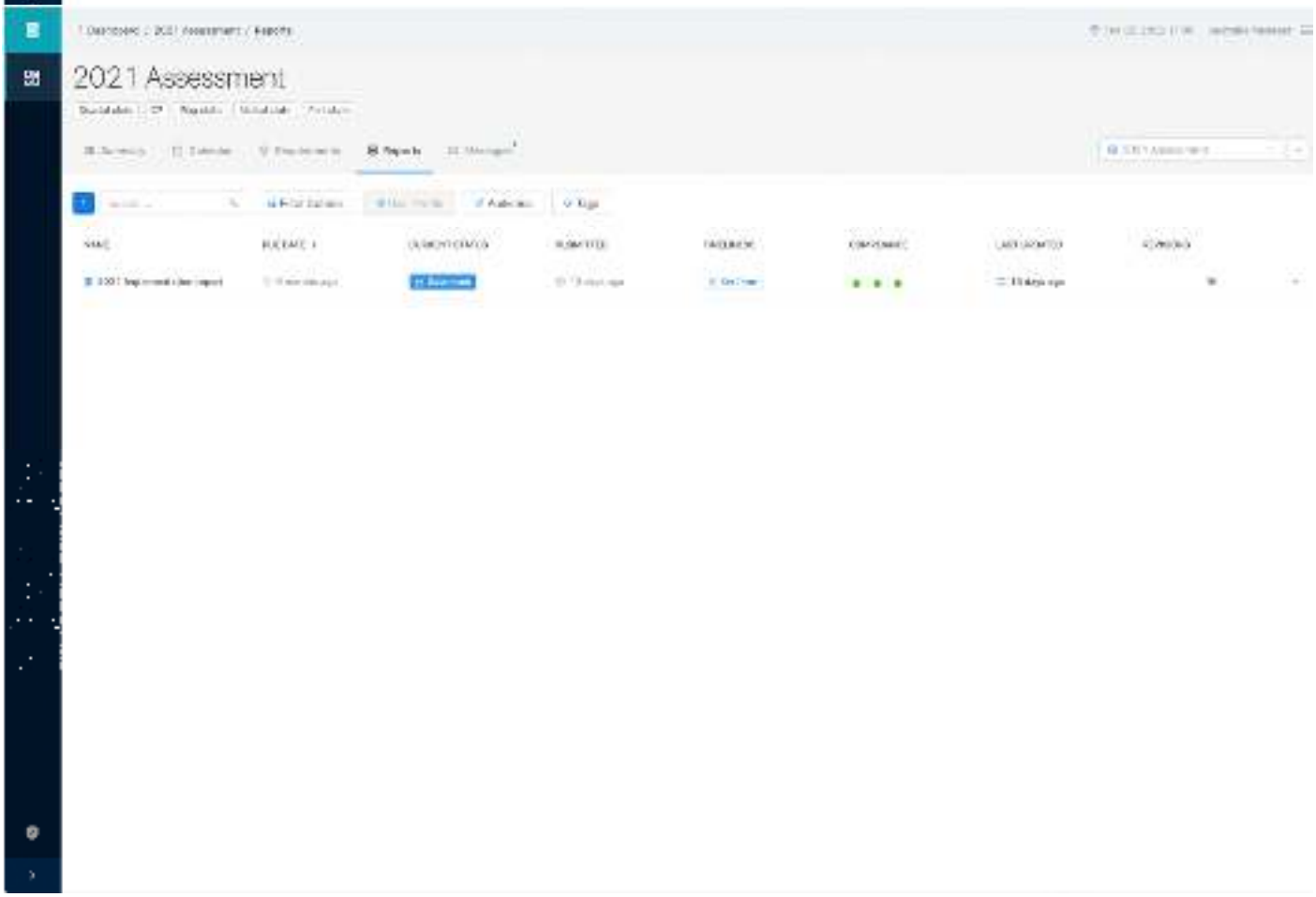
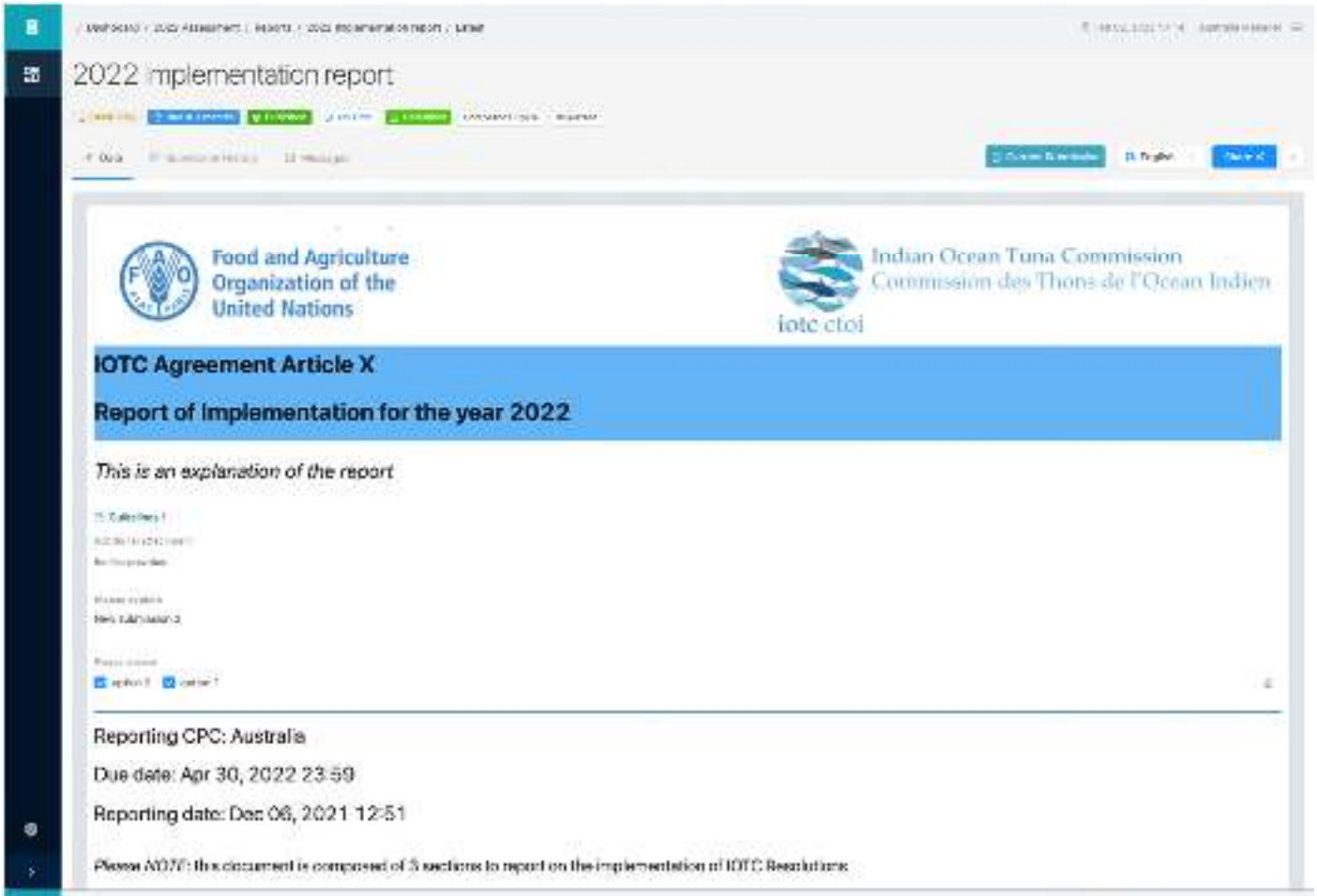
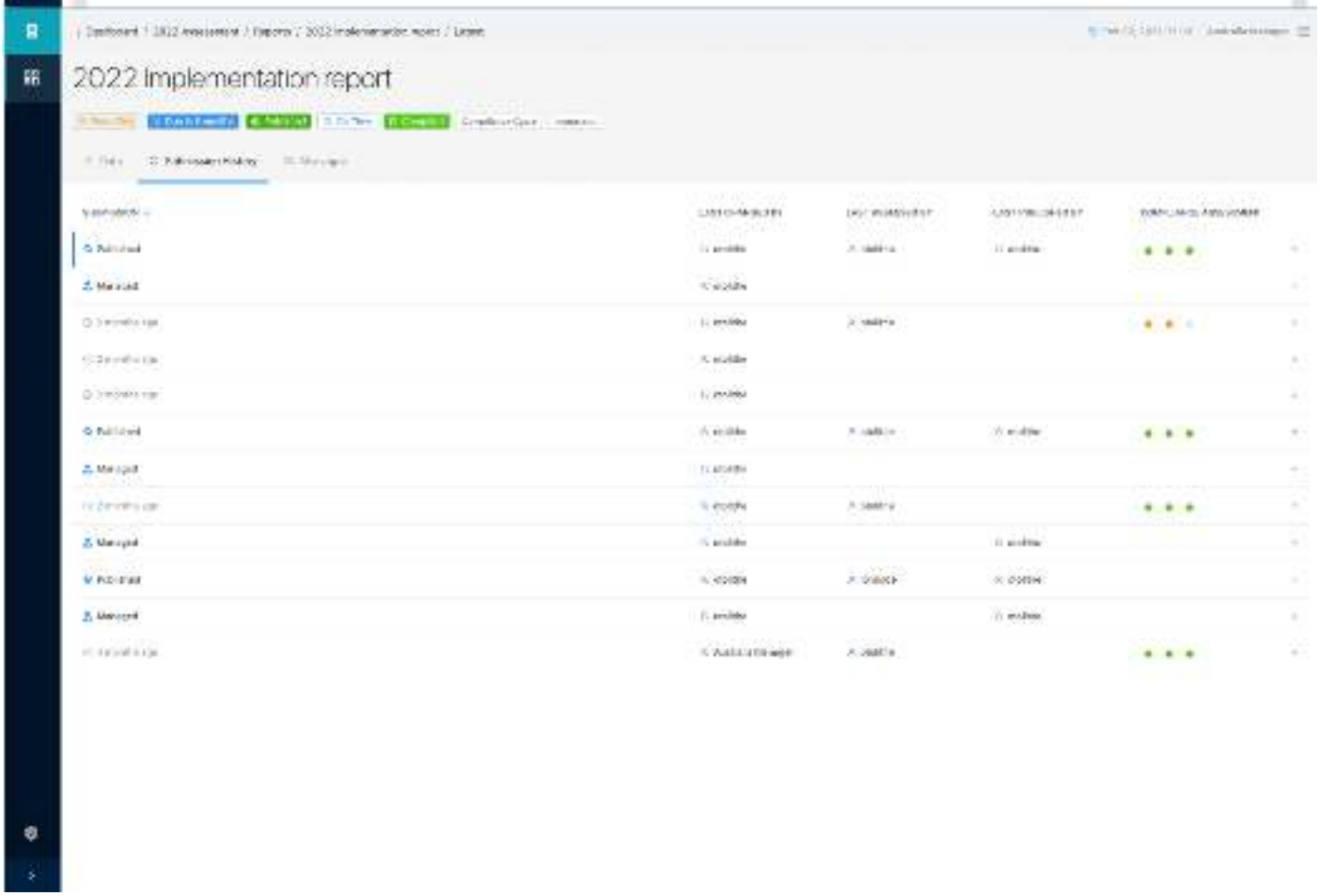
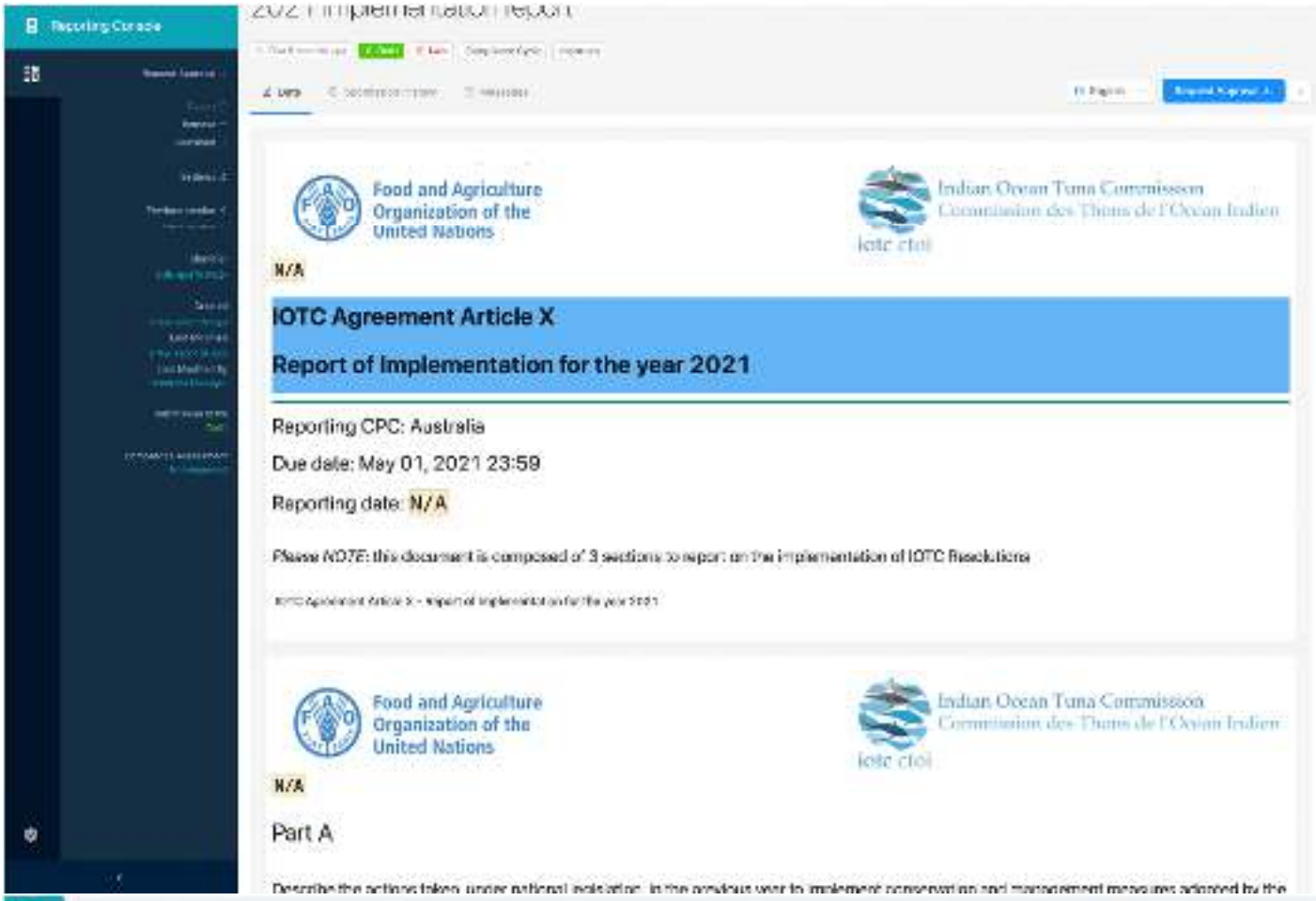

2021 Assessment


2022 implementation report
Food and Agriculture Organization of the United Nations
Indian Ocean Tuna Commission
Commission des Thons de l'Ocean Indien
iotc ctoi
IOTC Agreement Article X
Report of Implementation for the year 2022
This is an explanation of the report
Reporting CPC: Australia
Due date: Apr 30, 2022 23:59
Reporting date: Dec 06, 2021 12:51
Please NOTE: this document is composed of 5 sections to report on the implementation of IOTC Resolutions


2022 Implementation report



Food and Agriculture Organization of the United Nations

Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien

N/A

IOTC Agreement Article X

Report of Implementation for the year 2021

Reporting CPC: Australia

Due date: May 01, 2021 23:59

Reporting date: N/A

Please NOTE: this document is composed of 3 sections to report on the implementation of IOTC Resolutions

IOTC Agreement Article X - report of implementation for the year 2021

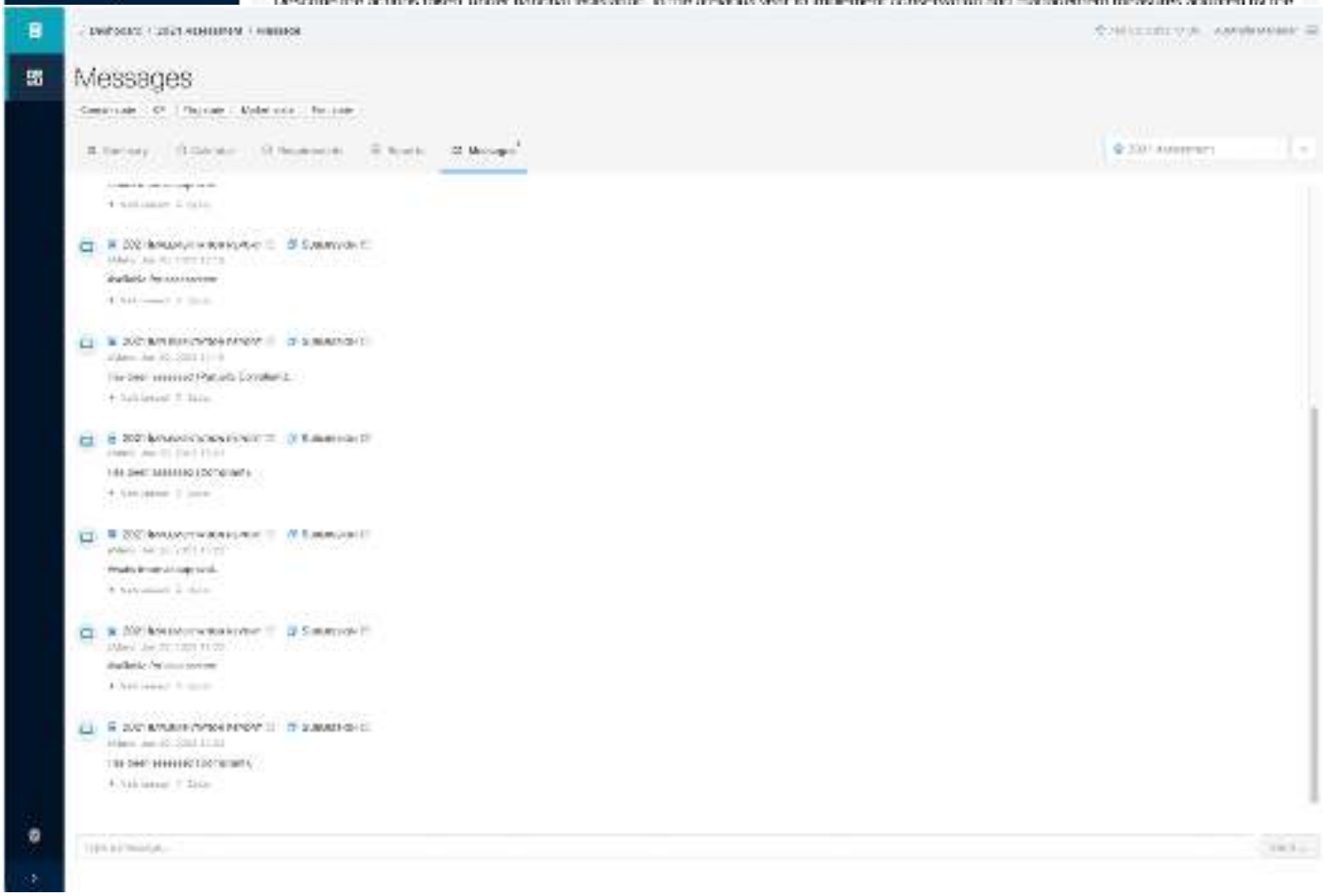
Food and Agriculture Organization of the United Nations

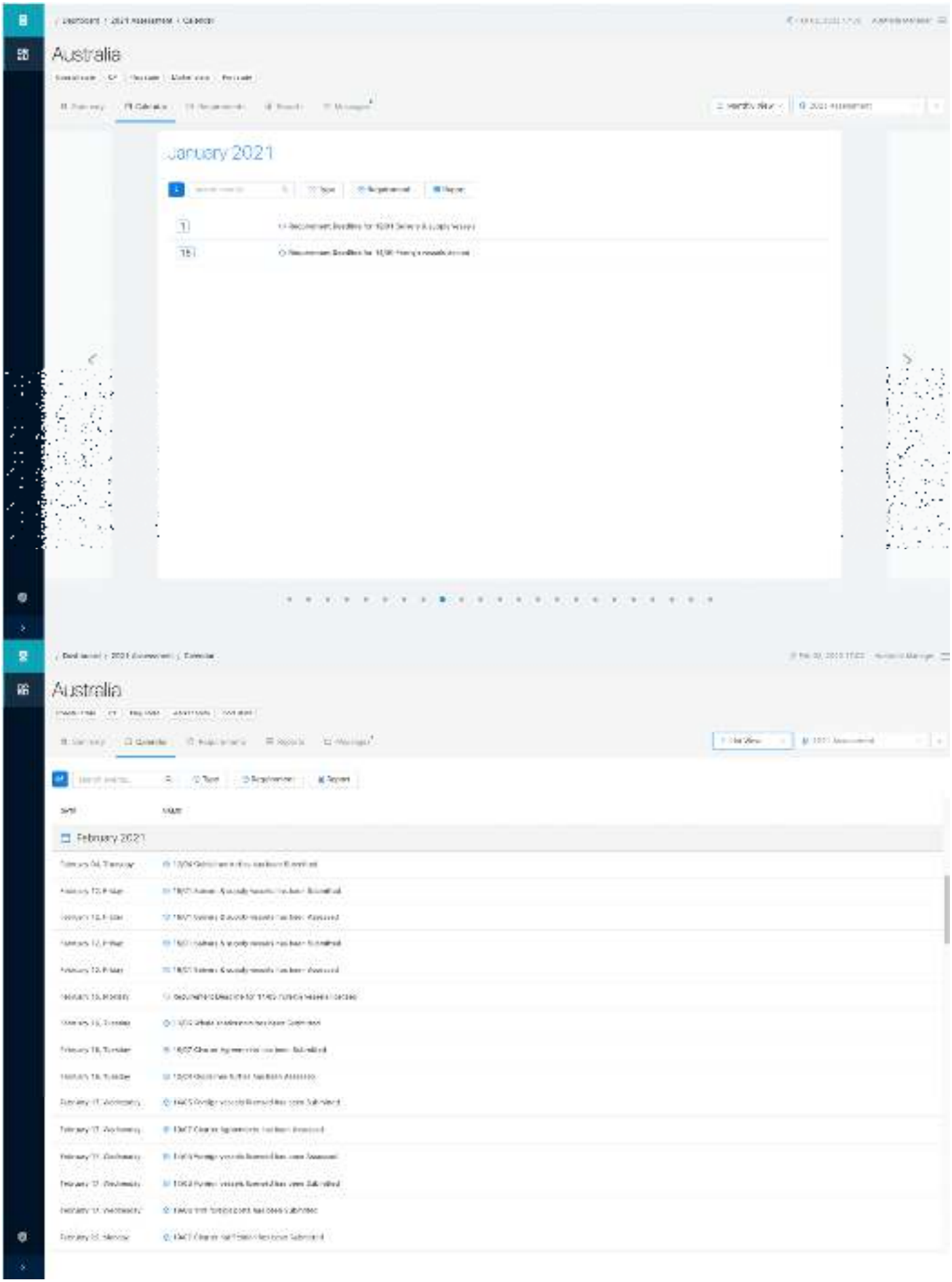
Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien

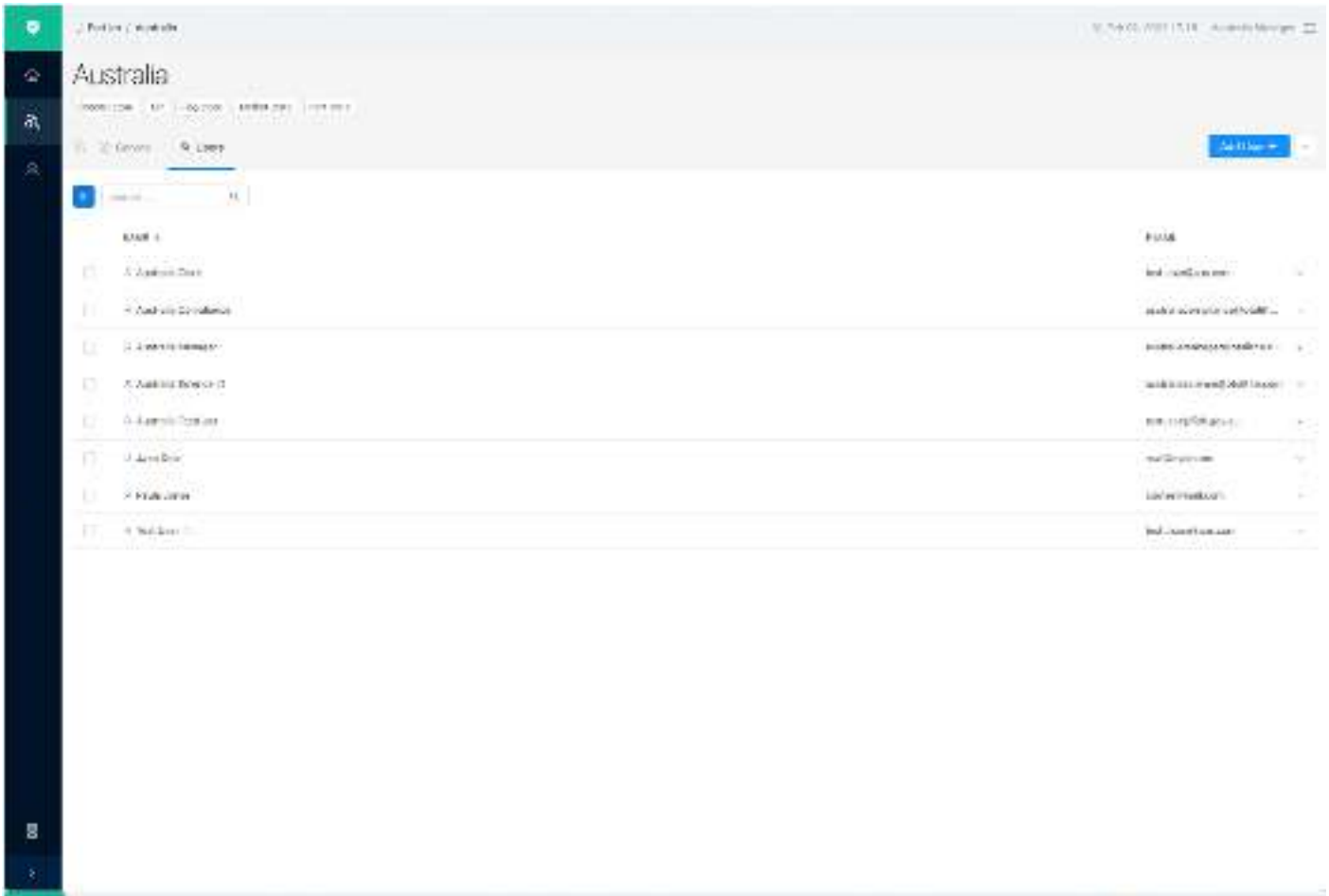
N/A

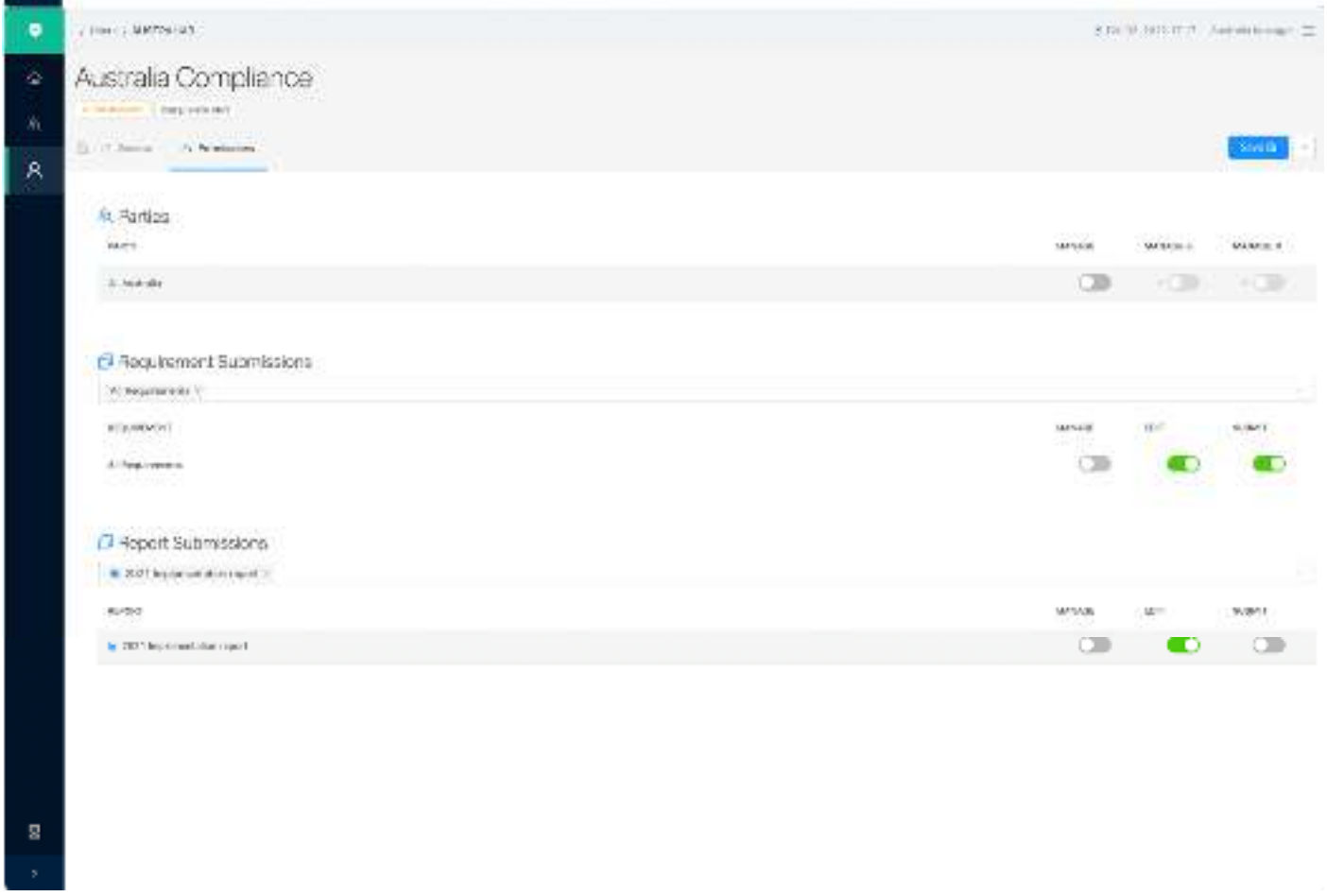
Part A

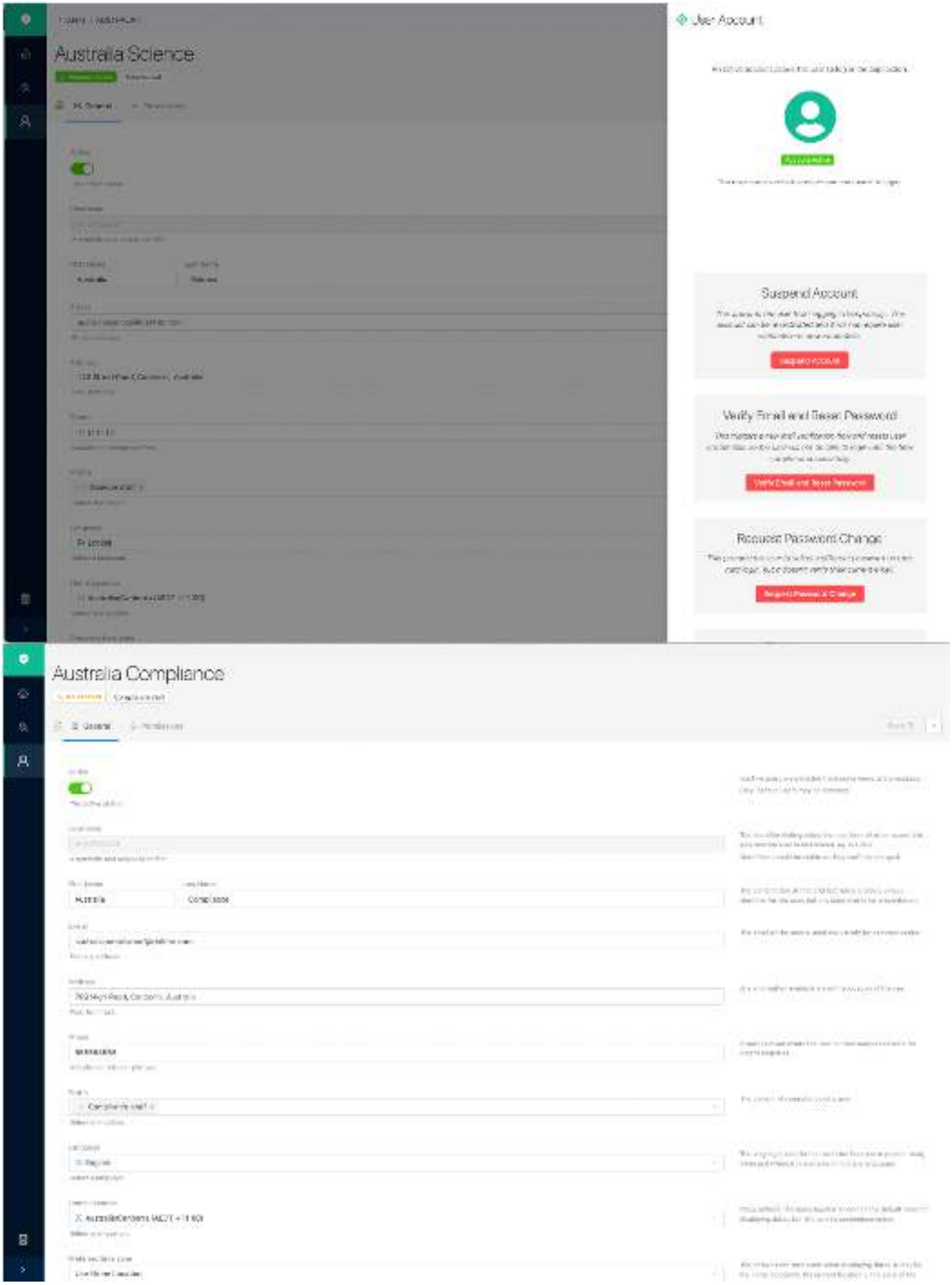
Describe the actions taken, under national legislation, in the previous year to implement conservation and management measures adopted by the

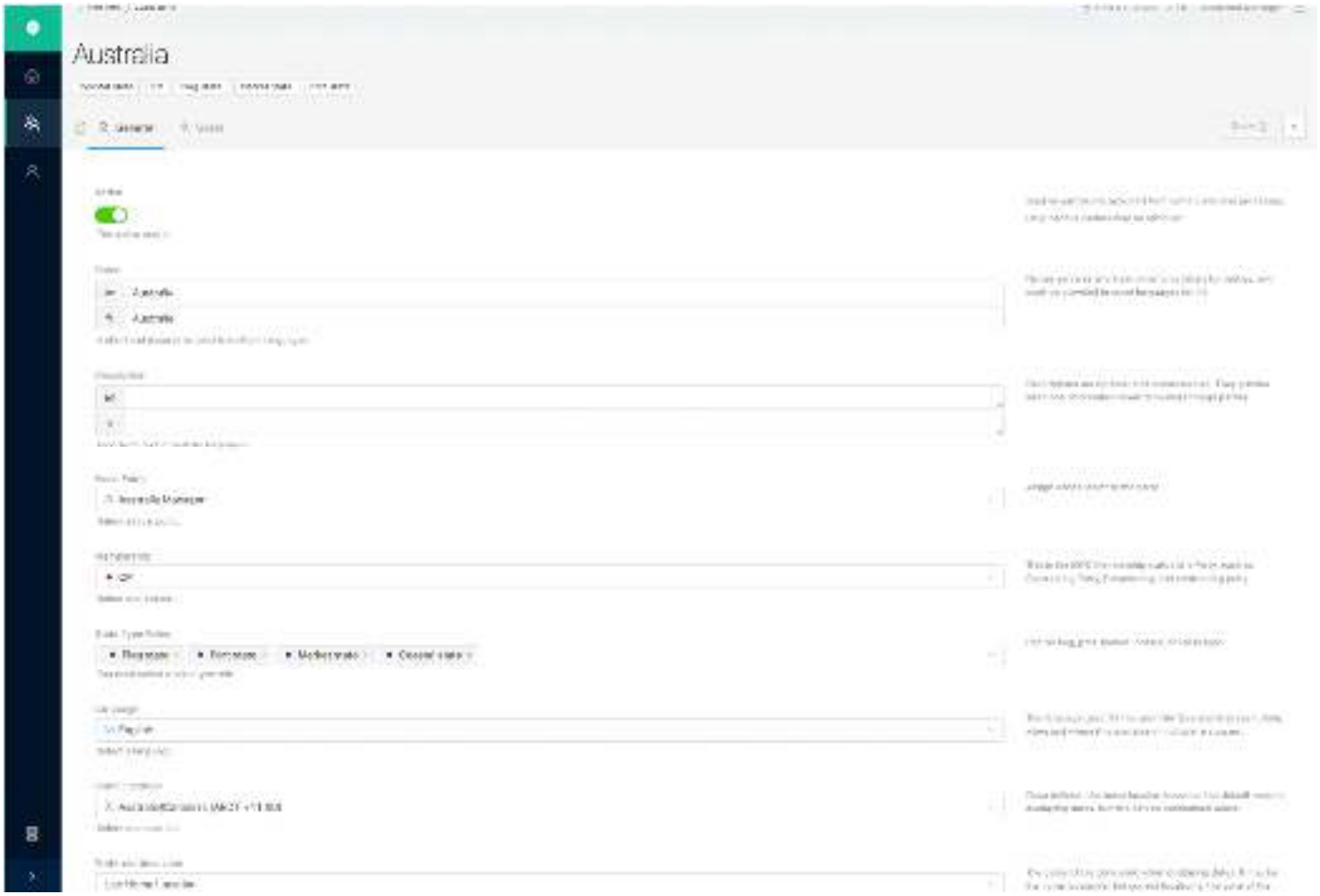



Australia
January 2021
Australia
February 2021


Australia


Australia Compliance
Parties
Requirement Submissions
Report Submissions


Australia Science
User Account
Suspend Account
Verify Email and Reset Password
Request Password Change
Australia Compliance


Australia