



FishInfo

FAO FISHERIES AND AQUACULTURE KNOWLEDGE BASE

Calipseo Information System

An IT solution to integrate and streamline fisheries data along the national data supply chain.

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صحيفة وقائع

Sujets

情况说明

Mapas

12
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Outline



- Introduction by Marc Taconet
- Needs for Capacity Development of FAO Members and NFI offers
- Calipseo platform approach and architecture
- Calipseo Modules
- Deployed Calipseo Instances and future plan
- Business for Calipseo long term maintenance
- Demo

Needs for Capacity Development of FAO Members

- FAO Members request the Organization for support in the **production of fisheries statistics**: from data collection to reporting in support to national policy making, to stocks assessment, to fulfil reporting obligation to RFMOs / FAO.
- Any support from NFI has to answer Members needs, usually based on project
- The project approach to support has a strong constraint:

end of the project = the end of the support

→ Capacity development in NFI is a holistic approach with **needs assessment**, **proposal for methodologies** and **tools** most adapted to Member, to reinforce its capacities to produce statistics, with a long-term maintenance of the tool

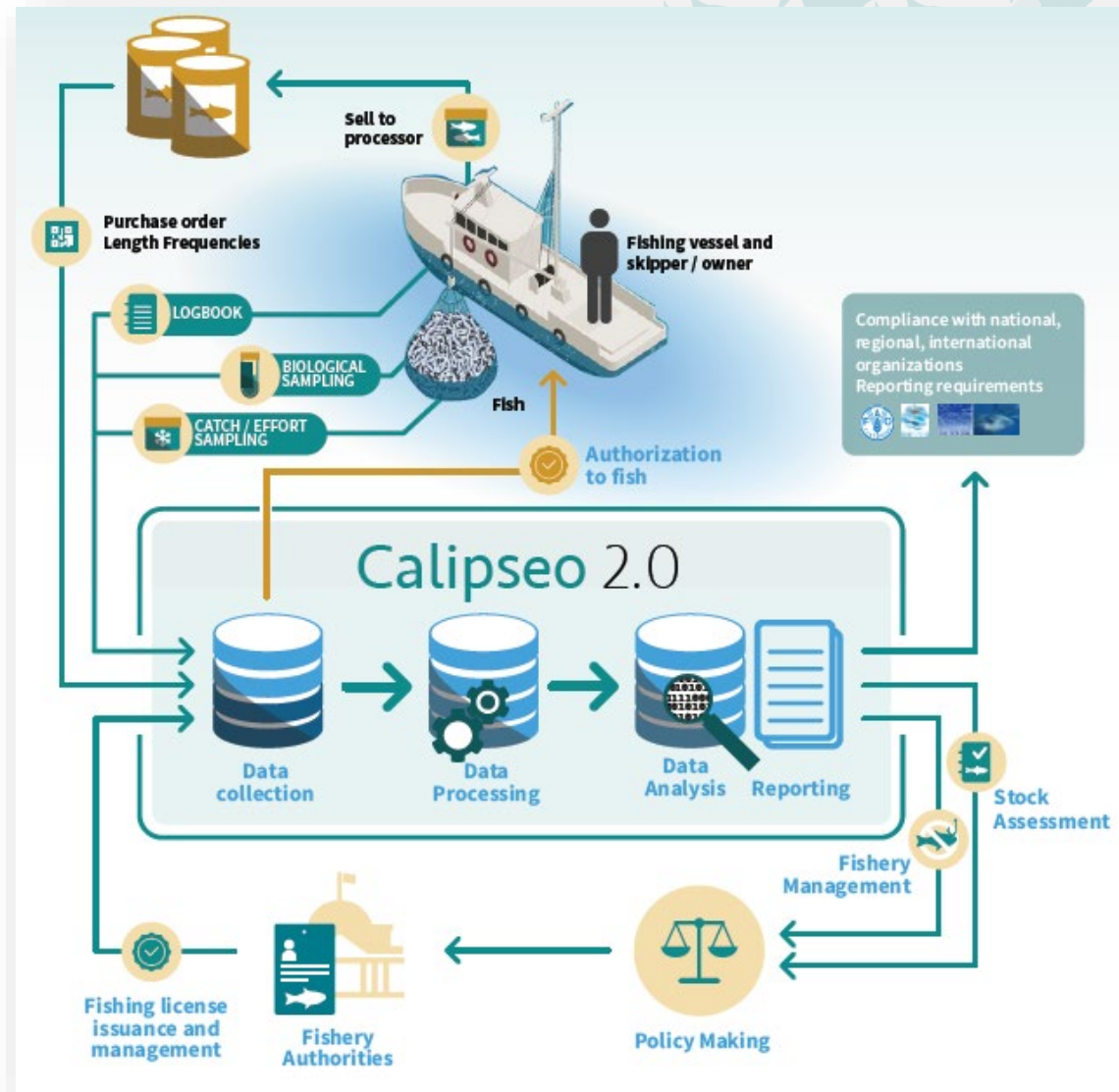
NFI offers for FAO Members Capacity Development

- FAO MEMBERS have **different needs, human and technical resources**:
- NFISS / NFISI have a **diversified** offer:
 - **Low IT context and focus on Small Scale Fisheries**: OpenArtFish, a standalone MS ACCESS data based or simple Excel spreadsheets
 - **Existing IT infrastructure (data centers, stable internet access, IT staff)**: Calipseo as a scalable web-based application can be considered:
 - Flexible deployment to fill gaps: processing of data stored in existing databases, management of administrative data.
 - Complete deployment of Calipseo to manage small-scale and large-scale fisheries, from administrative data to sampling, from dashboards in support to monitoring to t-RFMOs reporting
 - FAO cloud-based deployment can also be considered in absence of IT department within Fisheries authorities

Calipseo approach

An **innovative modular approach** to manage data and information flow at national level

- **Reference data** aligned to international standards
- **Data collection** (sampling / self declaration / industry reports)
- **Administrative data management**
- **Secured data storage**
- **Data processing**
- **Data exchange and reporting** (for national, regional and international levels)
- **SmartForm** for mobile data collection



Already deployed in
 Trinidad and Tobago
 Suriname
 Grenada

And in the Bahamas
 with an early
 version


Modules can be deployed **independently**

Data managed in Calipseo are **owned by the country** not FAO.

Calipseo architecture

- Calipseo is a web application developed with open-source frameworks:
 - Java spring-boot, Bootstrap (web responsive UI), MySQL for all data management and storage part and R for computation and R shiny for processing and reporting



- Calipseo requires to have IT resources:
 - Either internal IT staff and infrastructure (web servers) with the Ministry or at governmental level (data center)

 - Or Calipseo can be hosted in FAO cloud
- Calipseo requires to have data team (collectors / statistician): need for national standard and harmonized classifications, for harmonized and statistically sound data collection schema

→ deployment of Calipseo goes with reinforcement of capacity in statistics, data management and analysis

Types of data managed by Calipseo

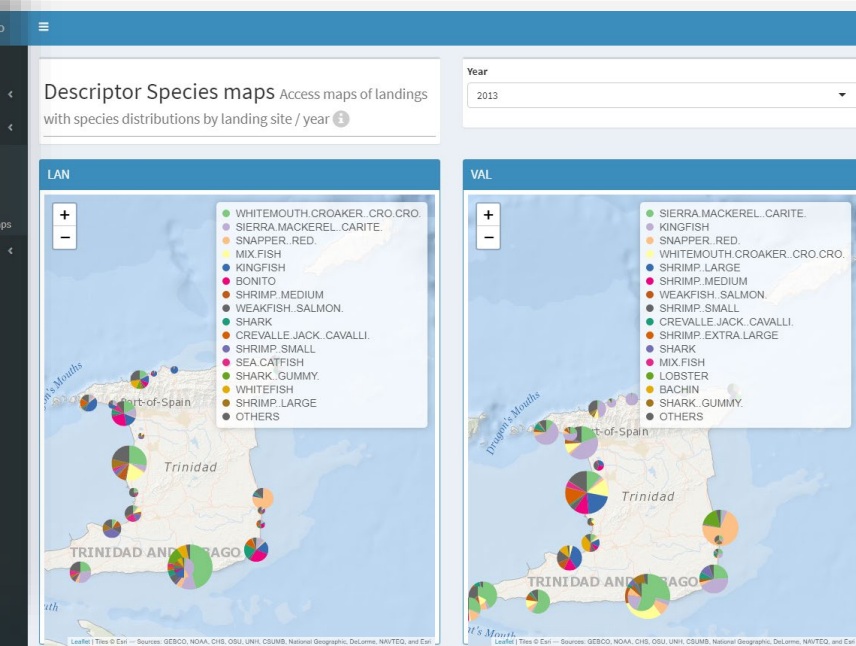
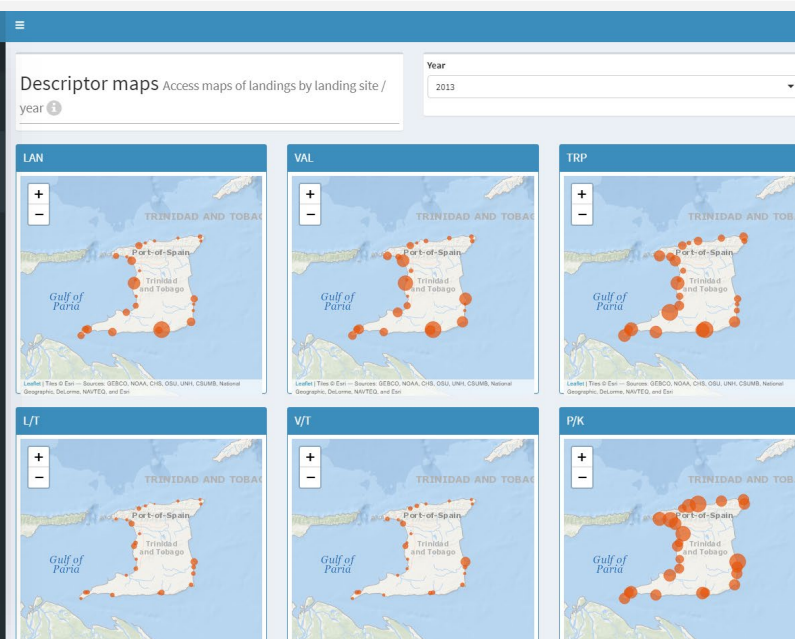
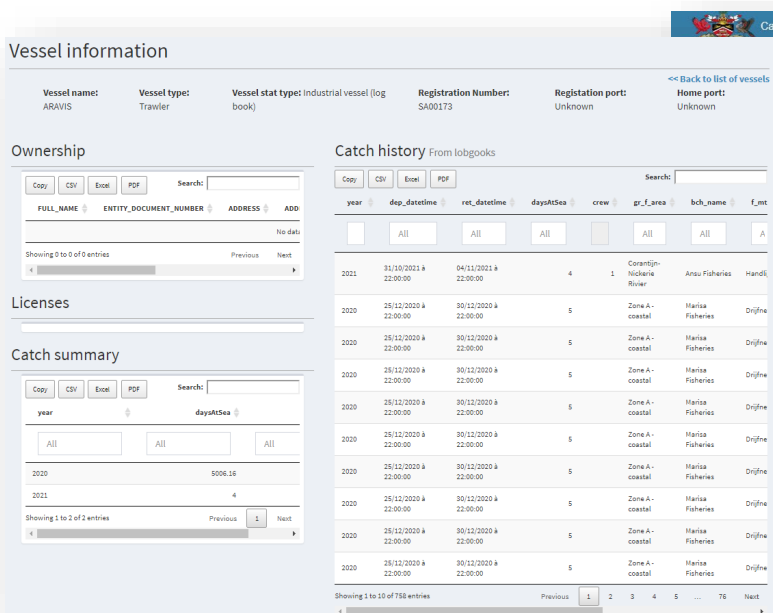
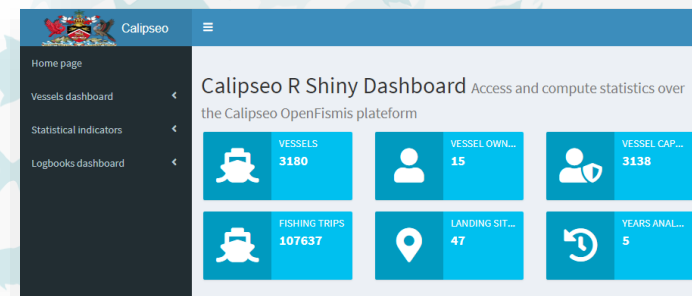
- Calipseo modules encompasses:

- Management of **users**: strict data access and sharing policies are enforced to ensure confidence of data (collected or processed)
- Management of **standard Reference data**: species, gear types, vessel types, fishing zones etc. including mapping with international classifications (ASFIS, ISSCFG, ISSCFV etc.)
- Management of **administrative data**: vessel, fishers and companies registries with issuances of licenses
- Collection of **fisheries dependent data**: stratified sampling for small scale fisheries (collected by enumerators), logbook data (reported by fishers), biological data (length frequencies), Observers' programmes report : *all catches / landing / effort data are sharing same reference data (to ensure consistency across datasets) and have embedded quality controls (outliers detection: can't report 1000 tonnes for one day trip of a dug-out canoe, consistency control like species caught by type of gear)*



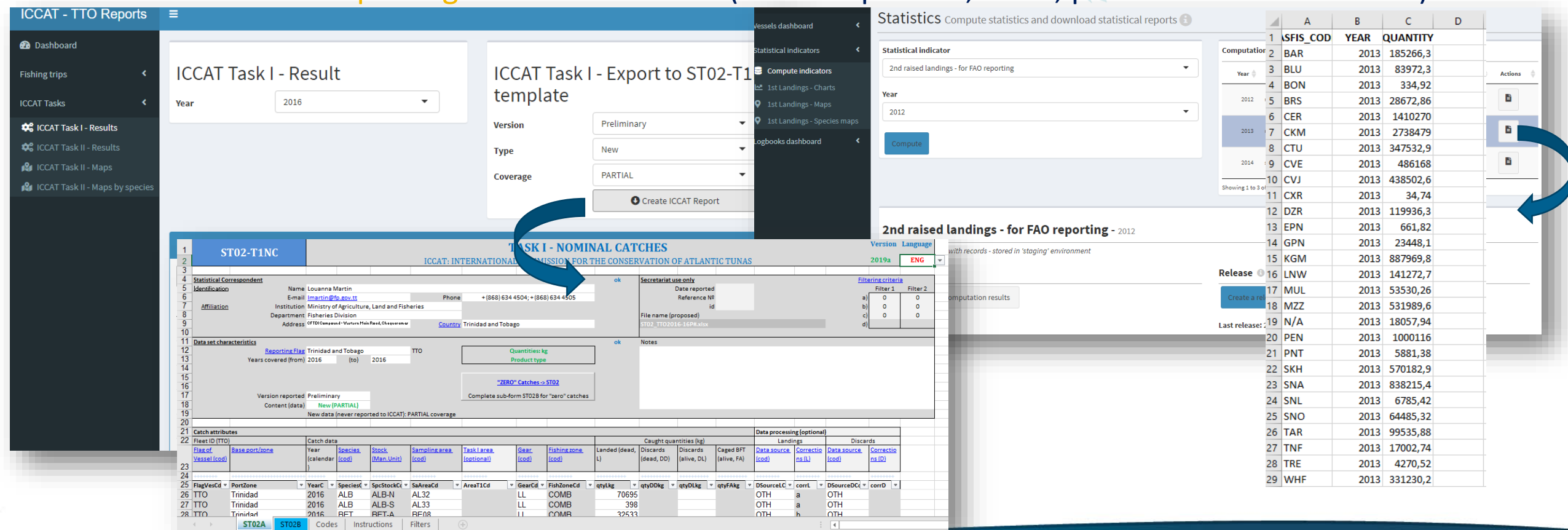
Computation by Calipseo

- Calipseo implements R engine to compute statistics:
 - Production of **dashboards** and **standard fisheries indicators** (catch, effort, CPUE, employment, operational cost, and more) with statistical indicators on quality of indicators (Coefficient of variation, standard deviation)



Reporting by Calipseo

- Calipseo implements R engine to compute statistics:
 - Preparation of **standard reporting for RFMOs** (GFCM), **t-RFMOs** (ICCAT) and **FAO**; and **custom reporting for national needs** (national policies, SDGs, post disaster assessment)



The screenshot displays the Calipseo web application interface. On the left, a navigation menu includes 'ICCAT - TTO Reports', 'Dashboard', 'Fishing trips', 'ICCAT Tasks', and 'ICCAT Task I - Results'. The main content area is divided into several sections:

- ICCAT Task I - Result:** A form with a 'Year' dropdown set to 2016.
- ICCAT Task I - Export to ST02-T1 template:** A form with dropdowns for 'Version' (Preliminary), 'Type' (New), and 'Coverage' (PARTIAL), and a 'Create ICCAT Report' button.
- Statistics:** A section for 'Compute statistics and download statistical reports' with a 'Statistical indicator' dropdown (2nd raised landings - for FAO reporting) and a 'Year' dropdown (2012), plus a 'Compute' button.
- 2nd raised landings - for FAO reporting - 2012:** A table with columns A (SFIS_COD), B (YEAR), C (QUANTITY), and D. It lists various species codes and their corresponding years and quantities.
- ST02-T1NC Form:** A detailed reporting form for 'TASK I - NOMINAL CATCHES' with sections for 'Statistical Correspondent', 'Affiliation', 'Data set characteristics', and 'Catch attributes'.

Blue arrows indicate the flow of data from the reporting forms to the statistics table and the data processing table.

	A	B	C	D
1	SFIS_COD	YEAR	QUANTITY	
2	BAR	2013	185266,3	
3	BLU	2013	83972,3	
4	BON	2013	334,92	
5	BRS	2013	28672,86	
6	CER	2013	1410270	
7	CKM	2013	2738479	
8	CTU	2013	347532,9	
9	CVE	2013	486168	
10	CVJ	2013	438502,6	
11	CXR	2013	34,74	
12	DZR	2013	119936,3	
13	EPN	2013	661,82	
14	GPN	2013	23448,1	
15	KGM	2013	887969,8	
16	LNW	2013	141272,7	
17	MUL	2013	53530,26	
18	MZZ	2013	531989,6	
19	N/A	2013	18057,94	
20	PEN	2013	1000116	
21	PNT	2013	5881,38	
22	SKH	2013	570182,9	
23	SNA	2013	838215,4	
24	SNL	2013	6785,42	
25	SNO	2013	64485,32	
26	TAR	2013	99535,88	
27	TNF	2013	17002,74	
28	TRE	2013	4270,52	
29	WHF	2013	331230,2	

Data exchange by Calipseo

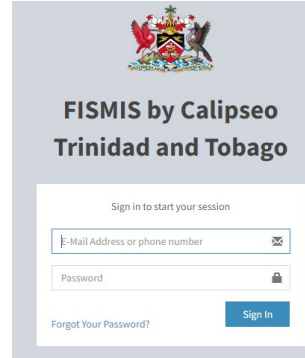
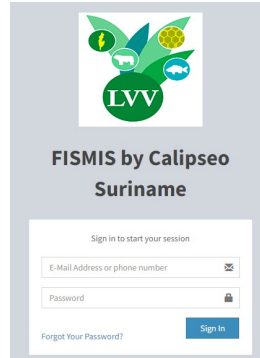
- Calipseo implements standard data exchange mechanisms:
 - Read external data for **interoperability with existing systems** (part of the modular approach to Calipseo) such as existing national FIS like Tanzanian e-CAS, or private companies (vessel registries and VMS)
 - Potential Connection to **data collection mobile application** like FAO SmartForm (a generic form builder application) or any other existing mobile applications on the market (Abalobi for instance)
 - Make data available to external applications to feed **stock assessment** algorithms or applications



Under strict data and sharing access policies !

Calipseo instances

- Calipseo instances are deployed as National Fisheries Statistics and Management Information System (FISMIS) for Suriname (full), Trinidad & Tobago (focus on SSF and administrative data) and Grenada (vessel registry)



- Lebanon is now being implemented for production of catch and effort statistics (stratified sampling approach).
- Candidate countries: Dominica, Panama for a complete implementation first quarter of 2022, Bangladesh for C/E in 2022 Q1, Tanzania (only data processing), Mauritius and St Lucia later in 2022 for a complete implementation.



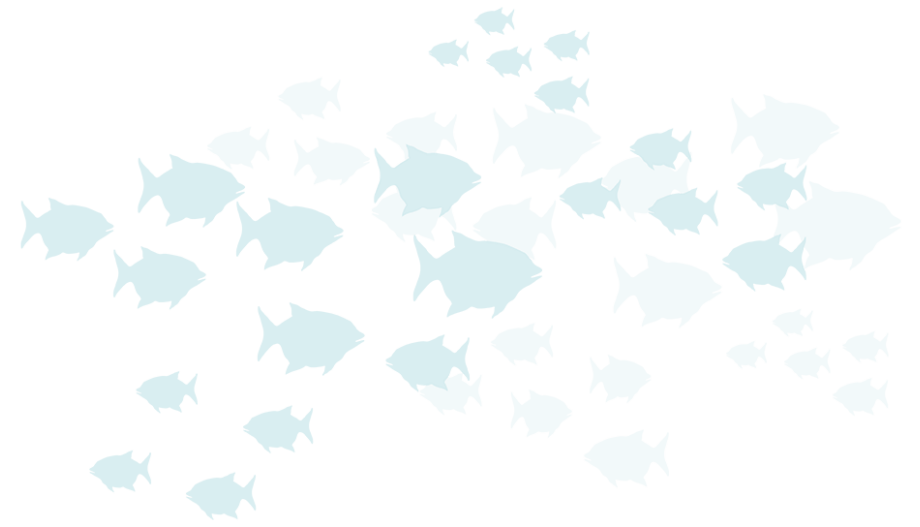


Calipseo business model for long term support

- NFISI is developing a **business model** built on a combination of contributions from implementation / capacity building projects and multi-donors project to ensure continuation of support to Calipseo after the end of implementation phase.
- Support will be for **Calipseo IT maintenance, FAO Members with a Calipseo instance hotline** and **statistical** support.
- Cost estimations have been finalized and the actual implementation options are being reviewed to start in 2022



Live demo





Thank you ▪ Merci
Благодарю ▪ ¡Muchas gracias!
謝謝 ▪ شكرا

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