

Fish**Info**

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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- 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







 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 <u>needs</u>, 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



Inited Nations 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:
 - <u>Flexible deployment to fill gaps</u>: processing of data stored in existing databases, management of administrative data.
 - <u>Complete deployment of Calipseo</u> to manage small-scale and large-scale fisheries, from administrative data to sampling, from dashboards in support to monitoring to t-RFMOs reporting
 - <u>FAO cloud-based deployment</u> can also be considered in absence of IT department within Fisheries authorities

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An innovative modular approach to manage data and information flow at <u>national level</u>

- 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
- Modules can be deployed independently

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



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Already deployed in Trinidad and Tobago Suriname Grenada

And in the Bahamas with an early version



- 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



B Bootstrap



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- 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 confide 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)





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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)

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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)

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Food and Agriculture
Organization of the
United NationsData 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 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.



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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





Тhank you • Merci Благодарю • ¡Muchas gracias! పोओ • أشكر ١

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