



## Collaborative Information System for Fisheries and the Environment

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Reçu le 23/10/2015; publié le 15/05/2016

AWA © MS WP4\_S4\_35

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### Abstract

Faced with global phenomena (depletion of fish stocks, environmental degradation, global warming, etc.), which today concern to the global community and more directly the coastal countries, the data series (environmental and biological) should be the more complete and consistent but must be possible to combine simple to answer scientific questions and adapt the action managers. Indeed, the effectiveness of the management of various sources of information is dependent on the integration and interoperability capabilities with partner systems. The data sources are always complementary, because they cover different topics. But, taken in isolation, they often give a fragmented view to answer a scientific question, hence the importance of their integration. Another difficulty lies in the fact that actors who analyze these sources have various views and expertise on the issues raised. Data integration is no longer the only issue, the comments and associated knowledge becomes mandatory and collaborative approaches are an interesting track, if not inevitable with the emergence of social networks and tools that accompany them. This work proposes an approach to the implementation of a global information system, a sort of virtual and collaborative observatory. « Virtual » because it offers a vision via a dashboard of indicators calculated from a warehouse describing data to be integrated from various information systems heterogeneous and distributed, while respecting the autonomy of the latter. The data warehouse is « virtual », a scheme is designed from a « scientific sheet » model whose schema and content are built « on-the-fly », depending on the user request expressed by SQL queries. The approach thus differs from the standard approach of the conventional warehouses which is based on a predefined schema and a proper integration of the data using materialized views mechanism. « Collaborative » because the approach allows all stakeholders (research, administration, business, etc.), participate in the operation and collective analysis of spatio-temporal data, to produce common knowledge and possibly to provide more substantial underpinning for concerted decisions. The approach relies on advanced collaborative geomatics, innovative method of



networking individuals or organizations wishing to collect process and disseminate information and geographical nature of common interest. The objective is to provide standardized services to enable interoperability and access on data and treatments (metadata, data, access codes) to move towards a transparent and reproducible science (others can appropriate, which is a form of collaboration) but also to call on expertise in the capture of comments made on the scientific sheets (and their components) dashboard that improve the knowledge produced and exchanges between partners and thus a priori decision making. The chosen solution results in a prototype offering different services to user communities (research, operation and administration of the domain) research services and access to relevant resources (where they are) but also treatment services data (production of indicators, for example) by explaining their reasoning and modelling.

**Keywords:** Collaborative Geomatics, Information System, Environment, Fisheries, Sustainable Management.



Commission Sous-Régionale des Pêches  
Sub-Regional Fisheries Commission



# International Conference ICAWA 2015

Extended book of Abstract

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ISBN: 978-2-9553602-0-2



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**Edited by:**

Patrice BREHMER (IRD, France; Dakar), Babacar BA (CSRP, Sub-Region; Banjul) & Gerd KRAUS (TI, Germany; Hamburg).

**Technical support:** Marie Madeleine GOMEZ (CSRP), Ndague DIOGOUL (IRD).

**With the collaboration of:**

Peter BRANDT, Bamol Ali SOW, Alban LAZAR, Xavier CAPET, Heino FOCK, Eric MACHU, Hamet Diaw DIADIHOU, Didier JOUFFRE, Ibrahima DIALLO, Joern SCHMIDT, Werner EKAU, Amadou GAYE, Mahfoudhould TALEB SIDI, Modou THIAW, Cl Abdoulaye DIOP, Adama MBAYE, Dienaba Beye TRAORE, Moussa SALL, Mariline DIARA, Assane FALL, Ibrahima LY, Ivanice MONTEIRO, Vamara KONE, Aboubacar TOGUYENI, Marie BONNIN, Abdelmalek FARAJ.

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**ISBN:** 978-2-9553602-0-2

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**Cover design:** AWA (BMBF – IRD) project

**Logo and flyers:** Laurent CORSINI (IRD)

**Translation:** Amadou NDIONE (independent)

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