



## Member's report on activities related to ICRI

Reporting period December 2015 – November 2016

**NOTE: TO CHECK A BOX, DOUBLE CLICK ON IT AND TICK 'CHECKED' UNDER 'DEFAULT VALUE' IN THE POP UP WINDOW**

1. **Contribution to the ICRI Plan of Action and GM.** *Your responses to the following questions will assist the Secretariat in assessing contributions towards the major themes of the current ICRI Plan of Action (<http://www.icriforum.org/icri-secretariat/current>) and objectives of the general meeting.*

### **a. Bleaching event**

*Were you affected by the Third Global Coral Reef event? Did you do some monitoring, if yes what are the results and could you explain what method did you use? Would you like to report during the ICRI Meeting?*

France has been affected by the third global coral reef bleaching event, specially in his overseas territories in the Indian Ocean and in the Pacific.

The monitoring of this event was done locally, following different protocols, without any national harmonization between regions.

In the Indian Ocean, the project BECOMING has been implemented, leaded by Marex. Two main objectives:

- To monitor coral bleaching (intensity and spatial extent) and estimate mortality arised;
- To identify monitoring to implement in order to face futur bleaching events.

This project is based on field monitoring and satellite image processing.

It was a five steps project:

- 1)Satellite images before bleaching procurement, as a state of reference
- 2)Monitoring of environmental data and oservation in situ to detect the begining of the bleaching
- 3)Procurement of satellite images every 15<sup>th</sup> days during bleaching and treatment
- 4)Basic ground truth every month to feed images treatment + detailed ground truth at the height of the bleaching event and 1 month after to quantify the mortality
- 5)Analysis and results

Results will be presented during the next ICRI GM.

In New-Caledonia, the project BLANCO was conducted by IRD. See project 8 reported after.

In French Polynesia, the CRIOBE lab is in charge of the Polynesia Mana node under the GCRMN. In this framework, all the stakeholders within the region have been asked to monitor specific parameters in case of bleaching: observers, date, Island, location (GPS), depth, gender and species of corals affected, proportion of coral colony impacted, pictures.

- b. INDCs - Intended Nationally Determined Contributions** – *Did your national contribution mention 'marine ecosystems or coral reefs'? Would you be interested in joining an Ad Hoc committee to develop guidelines to integrate coral reefs in the INDC?*

The INDC for France is included in the one of the EU and its members states. This INDC does not specifically mention marine ecosystems or coral reef. However, France has produced, on behalf of his overseas territories, an additional document where marine ecosystems are specially mentioned. Furthermore, France is currently working on the revision of his National Plan for Adaptation to Climate Changes (PNACC) which must identify concrete actions to implement in order to strengthen adaptation to climate changes. The French government intends to give coastal ecosystems and coral reefs a specific and larger place in this revised plan.

- c. Nature-based Solutions to address Climate Change** - Do you have some example(s) of Nature-based (coral reef and related ecosystems) Solutions to address climate change? If yes, could you please provide use some details?

During COP21, the french comity of IUCN launched a report dedicated to nature-based solutions in which different exemples are compiled: [http://uicn-france.fr/wp-content/uploads/2016/09/Plaquette-Solutions-EN-07.2016.web1 .pdf](http://uicn-france.fr/wp-content/uploads/2016/09/Plaquette-Solutions-EN-07.2016.web1.pdf)

The project Ad'apto is leaded by le Conservatoire du Littoral since 2015. His main objective is to support 10 case study, at a local scale, which face risk of erosion or marine submersion. One of these is located in French Guyane, in Mana, and aims to show the importance to restore mangroves in order to better adapt to climate changes. For more information: <http://www.pole-zh-outremer.org/le-conservatoire-du-littoral-lance-son-projet-adapto/>

Many communication tools have also been developed by le pôle-relais « mangroves et zones humides d'outre-mer », with the support of the French Ministry for Environment and ONEMA in order to highlight economic services provided by mangroves specially for coastal adaptation [http://base-documentaire.pole-zh-outremer.org/documents/Docs lies/2015/06/16/A1434479390SD Plaquette%20mangroves%202015%20basse%20definition.pdf](http://base-documentaire.pole-zh-outremer.org/documents/Docs%20lies/2015/06/16/A1434479390SD%20Plaquette%20mangroves%202015%20basse%20definition.pdf)

- d. UN Sustainable Development Goals** – Do you have example(s) showing how coral reefs and related ecosystems address the SDG (SDG 14 but also other related ones such as SDG 1 – End poverty in all its form; SDG 2 – End hunger, achieve food security and improved nutrition...)

In general, coral reefs sustain 1/15 of the world population so the good health of those ecosystems definitely contributes to food security in countries in development in tropical regions. In addition those ecosystems form natural barriers which protect coasts and islands from cyclone, waves, ... (physical erosion). They therefore contribute indirectly to the good health of populations which rely on coral reefs. There economical value is estimated to about 170 billions of \$US per year. They allow fisheries, aquaculture, tourism, pearl farms, etc....

Scientific research improve knowledge on coral reef resilience, functioning and maintenance in order to better protect and preserve the ecosystemic resources they provide to human beings. Education, outreach education... raise the knowledge of local populations so they can become active participants in the processes of coral reef preservation/conservation if not already. Some populations like Kanaks are already involved via their culture in coral reef preservation as they have 'tabou' areas where fisheries are forbidden, etc.

Creation of marine protected areas allow preserving some ecosystems and resources.

The French Initiative for Coral Reef (IFRECOR) did a recent study to estimate the economic value of coral ecosystem services (coral reef, sea grass beds ans mangroves) all over the french overseas territories. Results show that these ecosystems contribute to almost 1.3 billion Euros yearly to the economy of 9 territories. Around 12 000 companies, 50 000 jobs and more than 175 000 homes depend, to varying degrees, on services provided by these ecosystems. Among the services assessed, the study targets "blue tourism", fishing, fish farming, coast protection and sequestration of CO<sup>2</sup>. All these results are key elements to enhance the role of coral reefs and related ecosystems to adress the SDG.

- e. *Do you have notional measure(s) – existing or in development - to ban the sale and manufacture of cosmetics and personal care products containing plastic microbeads? And plastic bags?*

Since mars 2016, France has adopted a national regulation to constrain and gradually prohib the use of plastic bags.

<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000032319878&categorieLien=id>

The law on the energy transition to green growth, adopted the 22<sup>nd</sup> of July 2015, prohibits the sale and distribution of cups, glasses and plastic plates at 1 January 2020. The aim is to reduce pollution because the plastic puts dozens of years to disappear in the nature and is often associated with toxic products. The terms of the ban were specified by the Decree of 30 August 2016.

<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000033076240&categorieLien=id>

Under the recent Law n° 2016-1087 adopted the 8th of August 2016 regarding the reconquest of biodiversity, nature and landscape, the article 124 states:

- the marketing ban of plastic swabs from the 1st of January 2020;
- the marketing end of personal care products containing plastic microbeads the 1st of January 2018 at the latest.

Two Decrees are currently under developement to implement this law.

Please note that a current process is also under progress at the EU level regarding plastic microbeads.

**f. *Upcoming events - Do you plan to attend:***

- o *November 2016 - Marrakech Climate Change Conference / The twenty-second session of the Conference of the Parties (COP 22) YES*
- o *December 4, 2016 to December 17, 2016 - Convention on Biological Diversity COP13 YES*
- o *June 2017 - Oceans & Seas Global Conference, Fiji YES*
- o *Other(s):*

2. **Updates on your activities.** The following table is a summary of ICRI's *Framework for Action* (FFA) and its four cornerstones. (The full text of the FFA is available in English, French, and Spanish at <http://icriforum.org/icri-documents/icri-key-documents/continuing-call-action-2013> ).

Integrated Management	Objective	Manage coral reefs and related ecosystems using an ecosystem approach, recognizing place based activity; connectivity within and among ecological, social, economic, and institutional systems; as well as with attention to scale; resilience of ecological and social systems; and long-term provision of ecosystem services.
	General Approach	Integrated management, using a strategic, risk-based, informed approach, provides a framework for effective coral reef and related ecosystem management which supports natural resilience, ecosystem service provision, and enhances the ability to withstand the impacts of climate change and ocean acidification.
	Desired outcome	There is a demonstrable reduction in the threats to coral reefs and related ecosystems through management action.
Capacity Building	Objective	To build capacity in all facets of management of coral reefs and related ecosystems and support dissemination and application of best practices to achieve the widest possible engagement of all stakeholders in planning and management activities.
	General Approach	Continued collaboration, partnerships, outreach, information sharing and education to ensure the uptake of best practices and encourage behavioural change. This can only be successful if the diversity of cultures, traditions and governance among nations and regions are taken into account.
	Desired outcome	Persons who have influence in the management of coral reef and related ecosystems have the knowledge, tools and capital necessary to apply best practices, adapted to

		the cultural and socio-economic context.
<b>Science &amp; Monitoring</b>	<b>Objective</b>	To support research and citizen science approaches to enable countries and communities assess and report on the status of and threats to their coral reefs and related ecosystems in a coordinated, comparable and accessible manner.
	<b>General Approach</b>	Research and monitoring programs are essential to ensure that management of coral reefs and related ecosystems is based on best available (scientific) information.
	<b>Desired outcome</b>	Knowledge of the status and trends in coral reefs and related ecosystems health is enhanced and used to inform planning and management, improving management outcomes.
<b>Periodic Assessment (Review)</b>	<b>Objective</b>	To engage in periodic review of the impact and effectiveness of all elements of management to enable evaluation and refinement of management measures in an adaptive framework.
	<b>General Approach</b>	Periodic assessments of management effectiveness and evaluation of projects and activities to ensure the efficacy of management tools and systems in tackling the range of pressures affecting coral reefs and related ecosystems and protecting the values associated with them.
	<b>Desired outcome</b>	Management processes and activities are regularly reviewed and improved using a structured approach, to enhance their ability to effectively reduce pressures and threats.

Using the table on the previous page, as well as the detailed descriptors of approaches and strategies available in the full text of the FFA as a reference, please give us an update on an activity/project/program(s) which has been particularly successful in your country/organization during this reporting period.

### Project 1

Cornerstone(s) implemented through the project	Check all that apply: <input checked="" type="checkbox"/> Integrated Management <input checked="" type="checkbox"/> Capacity Building <input checked="" type="checkbox"/> Science & Monitoring <input checked="" type="checkbox"/> Periodic Assessment (Review)
Project Title	<a href="#">Action Plan of the French Initiative for Coral Reef (IFRECOR) 2011-2015</a>
Location	<a href="#">French overseas territories with coral reef</a>
Dates	<a href="#">2011-2015</a>
Main Organizer(s)	<a href="#">French Ministry for Environment, French Ministry for overseas territories</a>
Main Stakeholder(s)	<a href="#">Multiple</a>
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<a href="#">See document attached</a>
Outcome (Expected outcome)	<a href="#">See document attached</a>
Lessons learned	<a href="#">See document attached</a>
Related websites (English preferred)	<a href="http://www.ifrecor.com/">http://www.ifrecor.com/</a>

### Project 2

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input checked="" type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
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Project Title	CORALDISEASES
Location	New Caledonia
Dates	2010-2013
Main Organizer(s)	IRD (PI: A. Tribollet)
Main Stakeholder(s)	IRD, HIMB (Hawaii), USGS (Hawaii), Aquarium de Nouméa, L'association CIE, Provinces Sud et Nord de Nouvelle-Calédonie, BIOCEÑOSE MARINE SARL
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>“Determine and survey coral and CCA diseases in the lagoon of New Caledonia”</p> <p>One of the goals of the project was to provide knowledge on the state of health of the main reef framebuilders in NC (lagoon) to establish an ‘initial point’ for future monitoring programs of coral reefs which are part of the UNESCO world heritage (60% of NC reefs).</p> <p>A training course was organized to transfer basic knowledge to local actors (authorities, associations, NGOs, divers, etc...) on how to recognize and to monitor the most common coral diseases observed in NC. The goal was to have ‘sentinels’ to alert the consortium of scientists working on coral diseases in NC in case of a major event such as the bleaching event of early 2016! The American partners trained French collaborators to best practices to study coral diseases. So the capacity building of NC authorities was reinforced.</p> <p>The project also enable communities assess and report on the status of and threats to their coral reefs and related ecosystems in a coordinated, comparable and accessible manner.</p> <p>Two reports were produced to the 2 funding agencies which supported the project: CRIPS and IFRECOR. These reports can be read by local authorities, policy makers, etc.. and are thus of use to managers/people involved in coral reef conservation.</p>
Outcome (Expected outcome)	<p>First baseline on coral diseases in NC.</p> <p>2 publications have already been published. Some analyzes are still ongoing. New funds should be raised to pursue the monitoring of coral diseases in NC to follow coral coral reef health evolution, especially after the major bleaching event.</p> <p>2 Reports were published (CRISP 2010 and IFRECOR 2013)</p> <p>Integration of 2 coral diseases as bioindicators of reef health in the Reef Check monitorings developed in NC.</p>
Lessons learned	We found out that diseases are more common nearshore than on the barrier reefs. More studies are needed to determine why is that, how we can mitigate some coral disease propagation...
Related websites (English preferred)	<p>CRISP: <a href="http://www.icriforum.org/about-icri/members-networks/coral-reef-initiatives-pacific-crisp-2002-2011">http://www.icriforum.org/about-icri/members-networks/coral-reef-initiatives-pacific-crisp-2002-2011</a></p> <p>IFRECOR : <a href="http://www.ifrecor.com/">http://www.ifrecor.com/</a></p>

### Project 3

Cornerstone(s) implemented through the project	<p>Check all that apply:</p> <p><input type="checkbox"/> Integrated Management      x Capacity Building</p> <p><input type="checkbox"/> Science &amp; Monitoring      <input type="checkbox"/> Periodic Assessment (Review)</p>
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Project Title	<b>MPA managers meetings of french territories in Caribbean region</b>
Location	Caribbean region (FWI and French Guyana)
Dates	2015-2016
Main Organizer(s)	Marine Protected Area Agency
Main Stakeholder(s)	MPA managers of french territories in the Caribbean region: Saint Martin, Saint Barthelemy, Guadeloupe, Martinique, Guyane
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	several meetings were organized (at least Once a year) to enable the french mpa managers in this region to share their experiences, mainly related to the 3 major marine habitats (mangroves, sea grass beds and coral reefs). During those 2 days sessions, presentations of current actions in each MPA occur and time is dedicated to give national informations and for specific workshops.
Outcome (Expected outcome)	Capacity building by sharing good and bad experiences, set up common project
Lessons learned	[Insert text here]
Related websites (English preferred)	[Insert text here]

#### Project 4

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management      x Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	<b>Development of educational marine managed areas</b>
Location	French Polynesia-Marquesas
Dates	2015
Main Organizer(s)	Marine Protected Area Agency
Main Stakeholder(s)	[Insert text here]
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>The EMMA concept was first launched in 2013 in the Marquesas Islands of French Polynesia by Vaitahu Primary School on Tahuata Island; the Marquesan cultural and environmental federation, Motu Haka; the Marine Protected Areas Agency, with support from the Government of French Polynesia; the Marquesan municipal council alliance (CODIM); the French Initiative for Coral Reefs (IFRECOR) and the Government of France. It was initiated after the massive 2012 oceanography campaign in the island group: Pakaihi i te moana (Respect the ocean).</p> <p>An “Educational Managed Marine Area” (EMMA) is a small coastal area a few km<sup>2</sup> wide, managed in a participatory way by primary school pupils, in accordance with principles defined in a charter. It is an educational and eco-friendly project to help young people better understand and protect the marine environment. The children become part of a local project that draws on the expertise of the school and local municipality, along with user associations and environmental protection groups.</p> <p>The concept was born in the Marquesas Islands in 2012 after pupils from a school in Vaitahu spoke of their desire to look after a marine area near their school.</p>

	<p>French Polynesia and the founding partners have since structured the concept to create an EMMA label. To take the strategy further, the “Pukatai” (coral in Marquesan) pilot network of six EMMA was launched on in 2014.</p> <p>Each school needs to implement a programme of actions to prepare correct management of the area,</p> <ul style="list-style-type: none"> <li>• in particular: Conducting an ecological survey in the chosen area involving the children alongside scientific teams;</li> <li>• Establishing a children’s sea council to discuss the actions to be implemented, which can include sea stakeholders and elected officials, as required;</li> <li>• Investing in educational activities within the areas so that the children can think for themselves by drawing on and developing new understanding in a real-life situation.</li> <li>• Developing relationships with elected officials, professionals and academics in order to link up different generations.</li> </ul>
Outcome (Expected outcome)	<p>Stimulating the development of local knowledge on those areas.</p> <p>Diffusion of knowledge and good practices to local communities.</p> <p>Involvement and appropriation of the sites by local communities.</p> <p>Reinforcement of the label tools and approach for developing the project in new schools.</p>
Lessons learned	Necessity to developed tools and harmonised protocols to allow EMMA’s from different parts of the planet to collect comparable data from their sites.
Related websites (English preferred)	<a href="http://www.aires-marines.com/content/view/full/16746">http://www.aires-marines.com/content/view/full/16746</a>

### Project 5

Cornerstone(s) implemented through the project	<p>Check all that apply:</p> <p><input type="checkbox"/> Integrated Management      xCapacity Building</p> <p>x Science &amp; Monitoring      <input type="checkbox"/> Periodic Assessment (Review)</p>
Project Title	<b>-ACQUIMART- Acquisition of Knowledge program on marine environnement around Martinique Isl.</b>
Location	Martinique-FWI
Dates	2015-2016
Main Organizer(s)	Marine Protected Area Agency
Main Stakeholder(s)	Decision makers in Martinique, technical stakeholders (Museum National d’histoire naturelle, Conservatoire du Littoral, associations, université des Antilles)
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>A program of acquisition of knowledge has been defined in 2015 in conjunction with relevant decision makers, in order to bring comprehensive and required knowledge to manage marine environment. The realization of the program, still ongoing, is coordinated by the French MPA Agency and co financed by the main decision makers (MPA Agency, Water Office, decentralized State services of sea and environment, Martinique local Authorities).</p> <p>Several planned action are closely related to coral reefs and associated ecosystems</p>

	<ul style="list-style-type: none"> <li>- Major benthic biodiversity inventory campaign carried out with Museum National d'histoire naturelle</li> <li>- Mapping of Health and conservation status of mangroves, health status indicator conception for a long term management (starting now)</li> <li>- Impact of diseases on corals in Martinique surrounding waters, investigation of causal links with wastewaters (starting now)</li> <li>- Educational program dedicated to fishermen, scholars and decision makers focused on marine environment (starting now)</li> </ul>
Outcome (Expected outcome)	Operational data and knowledge to adjust existing management actions and local regulations
Lessons learned	the gain of money and time when take the time to share visions and to build up common strategies
Related websites (English preferred)	<a href="http://agence-francaise-biodiversite.fr/inventaire-de-la-faune-et-de-la-flore-marines-cotieres-en-martinique">http://agence-francaise-biodiversite.fr/inventaire-de-la-faune-et-de-la-flore-marines-cotieres-en-martinique</a> <a href="http://madibenthos.mnhn.fr/fr/mission">http://madibenthos.mnhn.fr/fr/mission</a>

### Project 6

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input checked="" type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Reef habitats mapping using airborne hyperspectral remote sensing (REFCAR project)
Location	French islands of West Indian ocean : Reunion, Mayotte, Iles Eparses
Dates	Jan-2012 to jan-2014 & jan-2015 to jan-2017
Main Organizer(s)	Agence des aires marines protégées & ACTIMAR company
Main Stakeholder(s)	Mayotte Marine Nature Park & Glorieuses Marine Nature Park
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>The main goal of the project is to develop a new remote sensing method for mapping benthic habitats over large geographic areas using aerial hyperspectral imaging.</p> <p>This new tool is design to assess benthic communities over large areas in a short time in order to have a global and homogeneous understanding of the entire near-shore area.</p> <p>A Multitemporal approach with hyperspectral drone surveys is included in the study to show how this method can address monitoring questions.</p>
Outcome (Expected outcome)	<p>A full data processing and mapping procedure has been implemented, including :</p> <ul style="list-style-type: none"> <li>-automatic method to evaluates the part of the water column effect in order to extract useful data from the signal: the sea bottom reflectance and the water depth (done);</li> <li>-automatic method to extract the sea bottom types and generate</li> </ul>

	<p>benthic habitats maps using a spectral library (done);</p> <p>-calculation of biodiversity indicators using hyperspectral data (to be done).</p> <p>This procedure has been applied on hyperspectral data acquired in the framework of the Spectrhabent OI project on the French islands of the Indian Ocean. The outcomes are :</p> <p>-bottom reflectance images in all the coastal areas of Mayotte island, Reunion island and Iles Eparses (done);</p> <p>-coral reef benthic communities maps in all the coastal areas of Mayotte island, Reunion island and iles Eparses (to be done);</p> <p>-calculation of coral vitality indicator and cover indicator (coral, vegetation, sand).</p>
Lessons learned	<p>Aerial hyperspectral imaging appears as an efficient tool for mapping benthic communities in shallow waters (0-20m) and for monitoring changes and health status of coral reefs.</p> <p>The products developed (reflectance images, habitats maps, indicators) are bringing a comprehensive knowledge to help stakeholders involved in the protection policies.</p> <p>This new remote sensing method is an accurate and cost effective tool for covering large geographic areas. This project has contributed to give an operational dimension to hyperspectral method.</p>
Related websites (English preferred)	<p><a href="http://www.aires-marines.fr/Connaitre/Habitats-et-especes-benthiques/Cartographie-des-habitats-benthiques-par-teledetection-hyperspectrale">http://www.aires-marines.fr/Connaitre/Habitats-et-especes-benthiques/Cartographie-des-habitats-benthiques-par-teledetection-hyperspectrale</a></p>

### Project 7

Cornerstone(s) implemented through the project	<p>Check all that apply:</p> <p><input type="checkbox"/> Integrated Management    <input type="checkbox"/> Capacity Building</p> <p><input type="checkbox"/> Science &amp; Monitoring    <input type="checkbox"/> Periodic Assessment (Review)</p>
Project Title	Coral Reef Observation Network Monitoring Campaign 2014-2015
Location	Prony, Thio, Bourail, Népoui, Pouembout, Hienghène, Luengoni, Santal and Chateaubriand (NC)
Dates	2014-2015
Main Organizer(s)	On behalf of the New Caledonian Lagoons Aquarium, represented by Richard Farman (Director), Sandrine Job: drafting, scientific validation: Laurent Wantiez, Nicolas Guillemot: statistical analysis. Financed by IFRECOR's local committee and the South Province
Main Stakeholder(s)	
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The Coral Reef Observation Network (RORC) has existed since 2003 throughout New Caledonia. In November 2015, it comprised 57 monitoring stations on 20 sites. This report takes stock of the 2014-2015 monitoring campaign for the stations financed by the South Province and IFRECOR's NC Committee, with 24 monitoring stations on nine sites, as there are three sites in every province. The health of the

	reef stations is evaluated on an annual basis with the expertise of three marine environment categories: reef habitat (pre-defined categories), fish (target species) and macro-invertebrates (target species). In addition, data are acquired on pressures (human and natural) exerted on the reefs, on the extent of the disturbance to these reefs and on the coral diseases. The RORC is supported by scuba diving associations and centres, who provide logistical and human resources. All the participants are trained beforehand in techniques for collecting data in the field. This year, three training sessions were held (in Noumea, Poindimié and Lifou), during which 20 divers were taught in techniques. Usual partners were recruited for this campaign and there were also new collaborations. Thirty-nine people were involved in the RORC 2014-2015 monitoring campaign: 33 observers, including 30 members from the Pala Dalik Association, and six pilots. The 2014-2015 campaign is the twelfth of its kind. It was carried out, as in previous years, during the hot season in New Caledonia, between December 2014 and April 2015. During this campaign, only 21 monitoring stations could be visited, Akaia stations (Bourail coastal reef) Koulnoué (Hienghène coastal reef) and Pinjen (Pouembout coastal reef) could not be inventoried because there was not sufficient underwater visibility on the day of field surveys. It can be noted that the 2014-2015 hot season was marked by several episodes of intense rain following tropical depressions in New Caledonia (heavy rain mid-December 2014, tropical depressions Ola, Marcia and Solo in January, February and April 2015) and abnormally hot water temperatures in March 2015.
Outcome (Expected outcome)	
Lessons learned	[Insert text here]
Related websites (English preferred)	[Insert text here]

### Project 8

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Coral bleaching monitoring operation
Location	North Noumea, South Noumea, Prony, Nepoui, Pouembout, Deva, Bourail, Thio and Poindimié.
Dates	April 2016
Main Organizer(s)	Pala Dalik Echo du récif Association: Sandrine Job (President), Lagoons Aquarium of New Caledonia: R. Farman (Director),
Main Stakeholder(s)	Claude Payri: IRD
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	New Caledonia reefs have experienced an intense episode of coral bleaching starting mid-February 2016. Once this problem was observed in RORC's high season (2015-2016 monitoring campaign), an express request was made for additional monitoring in the RORC monitoring stations sampled prior to the episode. This monitoring only focused on reef habitats, being the main short-term indicator of coral bleaching.
Outcome (including expected outcome)	The evolution over time of average coral cover ( $\pm$ typical differences) and of the make-up of the habitat is presented in the graph below.

	Statistical analyses were performed (ANOVA for parametric data and the Friedman for non-parametric data) on the living coral cover rate. The outcomes are also provided below.
Lessons learned	[Insert text here]
Related websites (English preferred)	[Insert text here]

**Project 9**

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Implementation of a swift and adaptive action plan for monitoring the problem of coral bleaching
Location	New Caledonia
Dates	From February 2016 to July 2017: Monitoring four permanent stations to evaluate bleaching and the development of the problem, and physiological monitoring of the selected coral colonies. From August 2016 to July 2017: Analysis of the problem in connection with existing physical, oceanographic and climatological data, and drafting of cards on coral sensitivity to thermic stress
Main Organizer(s)	IRD: Claude Payri
Main Stakeholder(s)	
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The abnormal accumulation of heat in surface waters bordering New Caledonia since January 2016, with record temperatures in February 2016, produced a coral bleaching episode observed from 11 February 2016. Since, many observations made by IRD researchers, among others, and in participatory monitoring organized by the Pali Dalik Association indicate that the problem affects almost all of the Grande Terre fringing coastal reefs and the intermediary reefs in the lagoon and off the small islands in the lagoon. Bleaching was also observed on the Ouvéa Island of the Loyalty Islands. Given how important coral ecosystems are to the maintenance of tropical islands (protection of the coasts from cyclones, storms, erosion) and rim populations who depend on them directly (food resources) or indirectly through economic knock-down effects (tourism), the problem of massive bleaching can have societal, economic and environmental impacts over the long term. It is therefore essential to acquire the necessary data to better understand both the impacts and the responses of coral communities to bleaching but also the combination of environmental factors that are causing it.
Outcome (Expected outcome)	
Lessons learned	[Insert text here]
Related websites (English preferred)	[Insert text here]

**Project 10**

Cornerstone(s)	Check all that apply:
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implemented through the project	<input type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Comic strip about reefs
Location	New Caledonia
Dates	2016
Main Organizer(s)	Sandrine Job President: Pala-Dalik Association – Berard Berger
Main Stakeholder(s)	New Caledonian Government - IFRECOR
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>Publication of the comic strip began on 7 October on COCO TV news at the rate of one comic a week. A text used by various contributors (including IFRECOR NC) in order to communicate more broadly and in more detail on these different themes. Then the next step is to produce a manual using all the comics and associated texts, to be distributed to secondary school students during the educational activities Pala Dalik Association organizes for them. Ten themes were chosen and dealt with, resulting in one comic per theme. Themes cover the biological aspects of coral and the reef ecosystem, the roles and values of reefs for human beings, the pressures and threats damaging the New Caledonian reefs and the available management resources.</p>
Outcome (Expected outcome)	[Insert text here]
Lessons learned	[Insert text here]
Related websites (English preferred)	[Insert text here]

### Project 11

Cornerstone(s) implemented through the project	Check all that apply: <input checked="" type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Passion Lagoon
Location	New Caledonia – World heritage site
Dates	2016
Main Organizer(s)	Conservatory of Natural Spaces
Main Stakeholder(s)	Conservatory of Natural Spaces
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>The objective is to have a video that explains the value of the world heritage site (beauty, outstanding biodiversity of species and associated ecosystems) and the way it is managed. In New Caledonia, management is integrated and participatory and involves a large number of stakeholders.</p> <p>This video is intended to be used a means to raise awareness and communicate to management committees but also to be used a showcase for the management of the world heritage site.</p> <p>The video will be put online and shown in the coming weeks.</p> <p>For example, to the World Heritage Centre to be added to the page on New Caledonia, the IUCN and the ABFPM.</p>
Outcome (Expected outcome)	Expected outcomes: A video shown and used by stakeholders

	More informed users regarding value and management Better informed international stakeholders
Lessons learned	[Insert text here]
Related websites (English preferred)	[Insert text here]

### Project 12

Cornerstone(s) implemented through the project	Check all that apply: <input checked="" type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Mon nom est lagons – My name is lagoons
Location	New Caledonia – World heritage site
Dates	2015
Main Organizer(s)	Conservatory of natural spaces
Main Stakeholder(s)	Conservatory of natural spaces
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	The objective of this action is to raise awareness of the users of the world heritage site (reefs and associated ecosystem), its fragility and its preservation.  This video targets tourists in particular who have had access to very little information before arriving in New Caledonia.
Outcome (including expected outcome)	The video was made and shared with New Caledonian tourist operators. Offices of tourism, airline companies, cruise companies and more.
Lessons learned	[Insert text here]
Related websites (English preferred)	<a href="https://www.youtube.com/watch?v=parLJSTgURw&amp;index=28&amp;list=PLR72adqEEExDf7By0LMvHcNzCHod-Nja4m">https://www.youtube.com/watch?v=parLJSTgURw&amp;index=28&amp;list=PLR72adqEEExDf7By0LMvHcNzCHod-Nja4m</a>

### Project 13

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input checked="" type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	World Heritage Education Programme
Location	New Caledonia – World heritage site
Dates	2015 - 2016
Main Organizer(s)	Conservatory of natural spaces
Main Stakeholder(s)	Centre d'initiation à l'environnement (CEN) and the Pala Dalik Association
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	Education programme implemented in elementary schools (classes of children 8-11 years old), in middle schools and in high schools in partnership with two associations: <i>Centre d'initiation à l'environnement</i> and the Pala Dalik Association (in charge of RORC)  These two associations prepared educational activities in close collaboration with the CEN. The content focuses on: <ul style="list-style-type: none"> <li>- Improving knowledge about the world heritage convention</li> <li>- Improving knowledge about the New Caledonian world heritage</li> </ul>

	site, its threats, its management - Raising students' awareness about the issue, their responsibility and action to take
Outcome (Expected outcome)	Close to 500 students participated
Lessons learned	Activities in the field are to be developed to round out theoretical activities.
Related websites (English preferred)	[Insert text here]

#### Project 14

Cornerstone(s) implemented through the project	Check all that apply: <input type="checkbox"/> Integrated Management <input checked="" type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Management committee training
Location	New Caledonia – World heritage site
Dates	2015 -2016
Main Organizer(s)	Conservatory of natural spaces
Main Stakeholder(s)	European Union (INTEGRE programme) and ATEN (TEMEUM)
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>The breakdown of competence in New Caledonia attributed the land and marine environment management sector to local institutions (the three provinces and New Caledonia). However, for the past ten years, and especially since New Caledonia's lagoons have become a world heritage site, participatory management of natural spaces included in the respective regions of the institutions has truly flourished. That is how several local management committees were created, several of them as associations under the law of 1901, tasked with co-managing a protected marine or land area alongside and in partnership with the provinces. The members of these committees and associations are volunteers from civil society. Given the responsibilities they now have, it is important that training programmes be offered so that they can accomplish their missions with competence and efficiency. Three training components were identified:</p> <p>Managing an association</p> <ol style="list-style-type: none"> <li>A legal component: the law of 1 July 1901, responsibility of the association and leaders, the executive board, the general assembly, and amendment procedures.</li> <li>Social component: the role of employer, job creation, hiring procedures, labour organizations, pay slips, and work contracts.</li> <li>Accounting component: accounting obligations, organizing accounting procedure, accounting books, and accounting plan for associations.</li> <li>Tax component: tax obligations, and more.</li> </ol> <p>Running the association:</p> <ol style="list-style-type: none"> <li>Life and energy of the association</li> <li>Relations with members and partnerships</li> <li>Communication within the association</li> </ol>

	<p>d. External communication</p> <p>Conducting the project:</p> <p>a. Knowing how to identify a project: determining why a specific action should be conducted, identifying objectives</p> <p>b. Knowing how to determine the size of a project and put it into context at different levels</p> <p>c. Logical framework notion: what is an objective, what criteria must it meet, what outcome is expected, actions, what actions and human, equipment and financial means are to be implemented.</p> <p>d. Monitoring the project: defining indicators, taking stock of outcomes.</p>
Outcome (Expected outcome)	Nearly 30 people from management committees and associations have been trained since 2015, thereby improving their capacities.
Lessons learned	Volunteers from management associations need to be assisted and supported in their management approach.
Related websites (English preferred)	<a href="http://www.cen.nc">http://www.cen.nc</a>

### Project 15

Cornerstone(s) implemented through the project	<p>Check all that apply:</p> <p><input checked="" type="checkbox"/> Integrated Management    <input checked="" type="checkbox"/> Capacity Building</p> <p><input type="checkbox"/> Science &amp; Monitoring    <input type="checkbox"/> Periodic Assessment (Review)</p>
Project Title	Recruitment of moderators and coordinators in support of management committees
Location	New Caledonia – World heritage site
Dates	2015-2017
Main Organizer(s)	North, South and Loyalty Islands Provinces
Main Stakeholder(s)	European Union – INTEGRE Programme
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	Recruitments of moderators and a coordinator within management committees and managing communities and support from the INTEGRE programme were created to inject impetus into the participatory management processes and mobilization of local stakeholders. These recruitments help improve capacities and networking of managers of zones constituting a UNESCO world heritage site.
Outcome (Expected outcome)	<p>2 moderator positions and 1 coordinator position created in the South Province</p> <p>1 moderator position and 1 coordinator position created in the Loyalty Islands Province</p> <p>2 moderator positions and 1 coordinator position created in the North Province</p> <p>Moderating management committee</p> <p>Implementing management plan actions for the maintenance of the world heritage site</p>

Lessons learned	Volunteers from management associations need to be assisted and supported in their management approach.
Related websites (English preferred)	<a href="http://integre.spc.int/en-nouvelle-caledonie/le-projet-en-nouvelle-caledonie">http://integre.spc.int/en-nouvelle-caledonie/le-projet-en-nouvelle-caledonie</a> . <a href="http://www.cen.nc/documents/22209/46156/PAROLESD+DES+LAGONS+N%C2%B04+-+La+lettre+du+patrimoine+mondial.pdf/8bb1bb79-e7cf-4db7-b57a-a33729cf10f8?version=1.0">http://www.cen.nc/documents/22209/46156/PAROLESD+DES+LAGONS+N%C2%B04+-+La+lettre+du+patrimoine+mondial.pdf/8bb1bb79-e7cf-4db7-b57a-a33729cf10f8?version=1.0</a> <a href="http://www.cen.nc/documents/22209/46156/PAROLESD+DES+LAGONS+N%C2%B05+-+La+lettre+du+patrimoine+mondial.pdf/56c71b1e-5995-46f7-b893-eeff68fc17a?version=1.0">http://www.cen.nc/documents/22209/46156/PAROLESD+DES+LAGONS+N%C2%B05+-+La+lettre+du+patrimoine+mondial.pdf/56c71b1e-5995-46f7-b893-eeff68fc17a?version=1.0</a>

### Project 16

Cornerstone(s) implemented through the project	Check all that apply: <input checked="" type="checkbox"/> Integrated Management <input checked="" type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	Adoption of the Environmental Code of the Loyalty Islands Province and recruitment of the first nature guard.
Location	New Caledonia – Loyalty Islands Province
Dates	2016
Main Organizer(s)	Loyalty Islands Province
Main Stakeholder(s)	
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<p>The Loyalty Islands Province has an Environmental Code structured according to the same architecture as the other two provinces in order to ensure a certain consistency of environmental regulations in New Caledonia.</p> <p>The Code is therefore made up of four books that will be supplemented at a later date:</p> <p>Book 1: Common and general provisions</p> <ul style="list-style-type: none"> <li>- Title I: General principles of environmental law</li> <li>- Title II: Institutions and organizations participating</li> </ul> <p>Book II: Protection and valuation of natural heritage and associated cultural interests</p> <ul style="list-style-type: none"> <li>-Title IV: The fight against invasive species</li> </ul> <p>Book III: Management of natural resources</p> <ul style="list-style-type: none"> <li>-Title V: Management of mineral resources: careers</li> </ul> <p>Book IV: Prevention of pollution, risks and disturbances</p> <ul style="list-style-type: none"> <li>-Title I: Classified facilities for the protection of the environment</li> </ul> <p>The rules that apply in the Loyalty Islands Province were drafted to take account of cultural and environmental specificities of the community.</p> <p>Consequently, the first nature guard was recruited to apply this code.</p>
Outcome (Expected outcome)	Applying the Code
Lessons learned	

Related websites (English preferred)	<a href="http://www.province-iles.nc/environnement/les-lagons-douvea-et-de-beautemps-beaupre-unesco">http://www.province-iles.nc/environnement/les-lagons-douvea-et-de-beautemps-beaupre-unesco</a>
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**Project 17**

Cornerstone(s) implemented through the project	Check all that apply: <input checked="" type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	<a href="#">Evaluation of the management plans of the western coastal zone and the D'Entrecasteaux Atoll</a>
Location	<a href="#">New Caledonia – World heritage site</a>
Dates	2015
Main Organizer(s)	<a href="#">South Province and Government of New Caledonia</a>
Main Stakeholder(s)	<a href="#">South Province and Government of New Caledonia</a>
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<a href="#">Since Caledonia became a world heritage site in 2008, plans for managing the zones in question were progressively drafted in a participatory and integrated manner. Two of them, the western coastal zone and the D'Entrecasteaux Atoll, were evaluated after five years of operation. Governance and management measures were evaluated.</a>
Outcome (Expected outcome)	
Lessons learned	
Related websites (English preferred)	<a href="http://www.affmar.gouv.nc/portal/page/portal/affmar/librairie/fichiers/32118252.PDF">http://www.affmar.gouv.nc/portal/page/portal/affmar/librairie/fichiers/32118252.PDF</a>

**Project 18**

Cornerstone(s) implemented through the project	Check all that apply: <input checked="" type="checkbox"/> Integrated Management <input type="checkbox"/> Capacity Building <input type="checkbox"/> Science & Monitoring <input type="checkbox"/> Periodic Assessment (Review)
Project Title	<a href="#">Drafting of management plans for Touho and Poindimié</a>
Location	<a href="#">New Caledonia – World heritage site</a>
Dates	2016
Main Organizer(s)	<a href="#">North Province and Touho and Poindimié management committee</a>
Main Stakeholder(s)	<a href="#">North Province and Touho and Poindimié management committee</a>
Description of Project (Please elaborate on how the project implements the FFA cornerstones)	<a href="#">Since Caledonia became a world heritage site in 2008, plans for managing the site were progressively drafted in a participatory and integrated manner. Two of them, for Touho and Poindimié in the northeastern coastal zone, were drafted and adopted this year.</a>
Outcome (Expected outcome)	<a href="#">Implementation of the management plan</a>
Lessons learned	
Related websites (English preferred)	

**3. Publications.** Please list relevant publications/reports you have released during this reporting period.

Title (incl. author and date)	Website URL if available	Type of publication (Paper, report, etc.)
Aeby G, Tribollet A, Lasne G, Work T (2015) Assessing threats from coral and CCA disease on the reefs of New Caledonia. Mar. Freshwater Res. <a href="http://dx.doi.org/10.1071/MF14151">http://dx.doi.org/10.1071/MF14151</a>		
Work TM, Aeby GS, Lasne G, Tribollet A (2014) Gross and microscopic pathology of hard and soft corals in New Caledonia. J. Invert.Pathol. DOI: 10.1016/j.jip.2014.05.007		
MC Cormier-Salem & J Panfili (2016) Mangrove reforestation: greening or grabbing coastal zones and deltas? Case studies in Senegal, African Journal of Aquatic Science, 41:1, 89-98, DOI: 10.2989/16085914.2016.1146122	<a href="http://dx.doi.org/10.2989/16085914.2016.1146122">http://dx.doi.org/10.2989/16085914.2016.1146122</a>	
Viennois, G., Proisy, C., Feret, J.-B., Prosperi, J., Sidik, F., Suhardjono, Rahmania, R., Longépé, N., Germain, O., & Gaspar, P. (2016). Multitemporal analysis of high spatial resolution satellite imagery for mangrove species mapping, Bali, Indonesia Ieee Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 9, 3680 - 3		
Tribollet A (2015) Les coraux constructeurs de récifs sont-ils malades ? Magazine européen BIOFUTUR, mensuel des Biotechnologies		

**4. General Information.** (Note that this information will be posted on the ICRI website on your member page: <http://www.icriforum.org/about-icri/members-networks>.)

Member type (Country / Organization):	FRANCE
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Title/Organization:	Ministère des Outre-Mer
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*Thank you very much for sharing your valuable experiences and information with ICRI.*