Darwin Plus DPLUS148

Climate Change Resilience in Falkland Islands Fisheries and Marine Ecosystem

Monitoring & Evaluation Plan

Version Control Table

BUILD STATUS:

Version	Date	Author	Reason/Comments
0.1	02/05/22	JvdG	Initial draft
0.1	21/06/22	JvdG	Final draft

DISTRIBUTION:

Copy	Version	Issue Date	Issued To
Electronic	0.1		Issued to PMG on Monday.com & Google Drive

Contents

1 Introduction

1.1 Purpose of this plan

This monitoring and evaluation (M&E) plan has been prepared by the DPLUS148 Project Manager (PM), is approved by the Project Management Group (PMG) and forms an integral part of the project reporting progress. Oversight of the delivery of the M&E plan will be the responsibility of the PM whilst signing off on the implementation of the M&E plan will be the responsibility of the PMG.

1.2 Project summary

	Climate Change Resilience in Falkland Islands Fisheries and Marine Ecosystem
Start/End date	1/7/2021 / 31st March 2024
Duration	2.5 years
Territories	Falkland Islands marine ecosystem
Lead Partner	South Atlantic Environmental Research Institute
Other partner institutions	Falkland Islands Government (FIG), Directorate of Natural Resources, Fisheries Department (FIFD), FIG, Directorate of Policy and Economic Development (DPED), Falkland Islands Fishing Companies Associated (FIFCA), Oregon State University (OSU), British Antarctic Survey (BAS), Shallow Marine Survey Group (SMSG)
Grant Value	£318,606.00
Project leader name	Paul Brickle, SAERI, Director; Jesse van der Grient, SAERI, Project Manager
Project goal	Ecosystem approach to fisheries management in FI is developed, climate change impacts to fishery and marine ecosystem are better understood with climate change adaption mainstreamed into fisheries and ocean governance and policy.

Project Outcome	The synthesis of environmental baseline data through literature review and scientific biological surveys, the estimation of physiological tolerances and acclimation responses of key species in the FI marine ecosystem under climate change scenarios, and the development of an ecosystem model for the FI shelf marine ecosystem together will aid in establishing an ecosystem approach to fisheries and the incorporation of climate change adaption into fisheries Policy and Governance by FIG and other stakeholders.

Project Summary	Measurable Indicators	Means of Verification	Important Assumptions
Impact: EAF capacity in FI developed, CCI to fishery and ecosystems better understood with advice and recommendations for CCA Policy for fisheries and ocean governance/policy submitted to FIG Directorates for consideration. (Max 30 words)			
Outcome: (Max 30 words) Proposed CCA and environmental variability and an ecosystems approach to fisheries management mainstreaming for fisheries governance/policy document, submitted to FIG Directorates for consideration.	0.1 Proposed adaptation to climate change, variability and EAF approaches submitted to FIG Directorates for consideration. 0.2 Adaptive capacity and resilience to climate change of FIFCA members strengthened by the end of the project. 0.3 Impact of climate change on fisheries and FI ecosystem better understood by the end of the project through data synthesis, reports and papers adding a baseline informing future research/work.	0.1 Reports on data synthesis and ecosystem model circulated to stakeholders 0.2 Proposals and suggested approaches for the fisheries sector and FIG on CCA and EAF. 0.3 Annual reports to FIG Directorates responsible for fisheries management and policy. CCI on fisheries and ecosystems included in FI Fisheries Science Strategy and considered for Environmental and Fisheries Policy via proposal to relevant FIG Directorates	Relevant FIG Directorates continue to be open to the concept of mainstreaming CCA into fisheries using an EAF approach and remain fully engaged in the project. FIFCA members and stakeholders committed to the project and engage in project activities. Increased awareness and understanding results in positive action for fisheries and environmental management and governance. That the duration of the project is appropriate to inform policy and the implementation of EAF and CCA actions. Covid-19 impacts don't place restrictions on national and international travel.

Outputs: 1. Project Management structure, monitoring and evaluation and communication tools established	1.1 MoU signed and agreed by partners. 1.2 PM Recruited. 1.3 PMG meeting held every Q. 1.4 Webpage create on SAERI and partners' websites. 1.5 M&E Plan created in. 1.6 Regular DPLUS reports (half yearly/yearly).	1.1 MoU signed, filed adhered to by partners. Y2Q4 1.2 PM employment contract signed. Y2Q4 1.3 PMG meeting notes available on common platform. Starting Y2Q4 1.4 Webpages live and public facing. Y2Q4 1.5 M&E plan available on common online platform. Y2Q4 1.6 DPLUS Reports available to project partners.	Recruitment results in appropriate candidates being appointed and available on island within given timeframe. Continued resource from project partners available to engage with the project for its duration. Covid-19 impacts do not place restrictions on national and international travel.
2. New environmental baselines understood and created by the synthesis of local and scientific knowledge surveys conducted (WPK2)	2.1 At least 20 data sets synthesised to inform current knowledge and informs further data collection. 2.2 1 literature review conducted and database increasing current baseline knowledge. 2.3 20 Inshore zooplankton/ichthyoplankton surveys conducted to augment the role of nearshore offshore connectivity. 2.4 10 inshore loligo egg survey conducted on eastern coasts to determine the spatial (bathymetric) extent of loligo spawning areas. This is key to fisheries management as the	2.1 Project data platform created with a public facing webGIS within the SAERI IMS-GIS/FIG data portal by Y2Q1 2.2 Synthesis report to the PMG and stakeholders by Y2Q1 2.3 Detailed report on the spatial and temporal variation in the plankton community structure quantifying the importance of the near shore ecosystem to the offshore and FI fisheries as nurseries and trophic linkages between Y2Q1 and Y3Q1. This provides further empirical evidence that the near shore environment and proposed MMA is key to sustaining	Partners have the capacity and resource to contribute data and collaborate in the data synthesis report. Inshore survey vessel available at the required time. Weather conditions enable data collection within the proposed time periods. Covid-19 impacts do not place restrictions local activities.

	range (geographical and bathymetric) are not fully understood.	fisheries and ecosystem function. Report re-focused for a scientific journal Y3Q2,Y3Q3. 2.4 Loligo egg survey report delivered to PMG and stakeholders Y2 Q4/Y3Q1. Report re-focused for a scientific journal.	
3. Understanding Physiological tolerances and acclimation responses of FI foundation species with current and projected rates of climate change (WPK3).	3.1 7 key species capacity to cope with and acclimatise to the current and projected rates of climate change assessed experimentally at a FI aquaculture facility allowing un understanding of 'winners' and 'losers' to environmental change.	3.1 Results capture in a report and circulated to PMG and then stakeholders Y3Q2. Report re-focused for a scientific journal. Reports on project website	Partner organisation remains able to contribute and train locally retained marine technician. Partner organisation accommodates experimental equipment at a FI aquaculture facility. Covid-19 impacts do not place restrictions on national and international travel and local activities
4. An Ecosystem Model for the FI shelf developed in collaboration with local and international expertise (WP4).	4.1 A workshop with local and international experts (ecologists and modellers) will create a framework for the first ecosystem model for FI. 4.2 PM in collaboration with partners build Ecosystem model in software Ecopath with Ecosim enhancing understanding of ecosystem function. 4.3 Develop the model to examine ecosystem effects of fishing, impacts of	4.1 Workshop report and recommendations circulated to PMG and stakeholders. Workshop report also uploaded to Project website Y2Q4. 4.2 Ecosystem model development showcased to partners and stakeholders by presentation and demonstration seminars Y2Q4,Y3Q1. 4.3 Model presented to partners and stakeholders through a report and demonstration	Partner and Stakeholders engage in the workshop within the given timeframe Partners continue to contribute WPK in a timely manner and collaborate with model development. Covid-19 impacts do not place restrictions on national and international travel.

	environmental change with data produced in WPK1&2 creating a tool to inform fisheries management. 4.4 Training package created and 3 training seminars given to partners and scientists within FIFD and SAERI. Training video with worked example created building capacity in the FI and other OTs.	seminar. Report uploaded to project website Y3Q2, Y3Q3. Report re-focused for a scientific journal. 4.4 Training seminars given and training video uploaded to the Project website Y3Q4,Y4Q1.	
5. EAF framework agreed by partners and stakeholders. CCA and EAF proposals submitted to FIG to inform decisions on whether to mainstream CCA and EAF into sustainable fisheries, conservation of marine ecosystems, governance and policy (WP5).	5.1 Conduct best practice review for EAF and explore gaps that may impede adoption in FI. 5.2 Review CCA principles and actions in fisheries Governance globally with a focus on small island nations. 5.3 Conduct workshop in FI to a) present best practice review for EAF b) explore options from gap analyses for improvement c) explore potential management/policy interventions to mitigate CC on fisheries and ocean management e) CCA and EAF recommendations submitted to FIG for consideration. 5.4 Submit EAF proposals to FIG's Fisheries Committee.	5.1 EAF best practice review report circulated to PMG, Stakeholders and uploaded to project website Y3Q3 Report re-focused for a scientific journal. 5.2 CCA review report circulated to PMG, Stakeholders and uploaded to project website by Y3Q4. 5.3 Workshop report produced and report circulated to PMG, Stakeholders and uploaded to project website Y3Q4. 5.4 EAF paper submitted prepared for DNR to consider submitting to Fisheries Committee Y4Q1. 5.5 Written acknowledgement by DPED that it has received and reviewed the relevant reports	Key FIG official and stakeholders available for the workshop. FIG continues to engage and contribute to discussion and considerations around how to incorporate EAF and CCA in policy and governance. Buy-in secured through continuous engagement and workshops. Active FIG engagement. Covid-19 impacts do not place restrictions on national and international travel.

	5.5 Submit EAF and CCA proposals to relevant FIG Directorates for consideration.	and that the contents and recommendations will inform policy development Y4Q1.	

Activities (each activity is numbered according to the output that it will contribute towards, for example 1.1, 1.2 and 1.3 are contributing to Output 1)

1.1 MoU signed and agreed by partners.

1.2 PM and PO Recruited.

1.3 PMG meeting held every.

1.4 Webpage create on SAERI and partners' websites

1.5 M&E Plan created.

1.6 Regular DPLUS reports (half yearly/yearly).

2.1 Desk top review establish current knowledge and informs further data collection.

2.2 Review report and metadata catalogue delivered to Project partners

2.3 Inshore zooplankton/ichthyoplankton surveys undertaken

2.4 Inshore Loligo survey conducted using ROV

3.1 Specimens collected and species capacity to cope and acclimatise to projected rates of change ascertained

3.2 Results capture in a report and circulated to PMG and then stakeholders. Report re-focused for a scientific journal.

4.1 Host workshop in FI to create a framework for ecosystem model

4.2 Partners and PM build ecosystem model in relevant modelling environment (e.g. Ecopath with Ecosim)

4.3 PM and partners use model to examine the ecosystem effects of fishing, impacts of environmental change

4.4 Training package created and seminars given to partners and scientists in DNR

5.1 Conduct EAF best practice review and explore gaps that may impede adoption in FI

5.2 Review CCA principles and actions in fisheries governance with an emphasis on small Island nations

5.3 Conduct 2nd workshop in FI to present a) best practice review, b) explore options from gap analyses for improvement c) explore management/policy interventions to mitigate CC on fisheries and ocean management e) CCA and EAF submitted to FIG for consideration

5.4 Submit EAF and CCA proposals to FIG's Fisheries Committee

5.5 Submit EAF and CCA proposals to relevant FIG Directorates for consideration

3 Monitoring and evaluation plan

Activity	Indicator	Evidence/data required	Where evidence / data is to be sourced	Frequency How often will it be measured	Responsibility Who will measure it	Resources (time, £, staff, input from others)
1.1 Sign MoU and have it agreed by partners	MoU created, sent, agreed, and signed by all partners	Signed MoU documents	Signed MoU are filed in appropriate project folder, and shared with and adhered to by partners	Once, in Y2Q4	PMG	Drafting led by SAERI director, deputy director
1.2 Recruit PM	PM recruited, and contract signed by involved parties	Employment contract signed	Signed employment contracts are filed in appropriate project folder and shared with involved partners	Once, in Y2Q4	PMG	SAERI to recruit PM
1.3 Host PMG meeting every quarter	Agenda for each meeting is circulated in advance of each meeting Collated meeting notes are shared after each meeting	Agenda Meeting notes	Agenda is filed in appropriate project folder, and shared with involved partners on common platform Meeting notes are collated after every meeting and filed in appropriate project folder. Meeting notes shall be shared with involved partners on common platform.	Quarterly Meetings are starting Y2Q4	PMG	Meeting will be chaired by PM. PM will collate, file, and share notes after meetings, and arrange meeting times.
1.4 Create webpage on SAERI and partners' websites	Webpage detailing the project is created on SAERI and partners' websites	Webpage is live and public on websites	Project website	Bi-annually, starting in Y2Q4 or when new project updates are available (whichever comes sooner)	PMG	PM and SAERI PA and communications officer create and update the web. Project partners are responsible for creating and updating their respective websites

Activity	Indicator	Evidence/data required	Where evidence / data is to be sourced	Frequency How often will it be measured	Responsibility Who will measure it	Resources (time, £, staff, input from others)
1.5 Write and sign off M&E plan	Monitoring and Evaluation plan is created	M&E available on common platform	M&E plan is available on the project website	Once, in Y2Q4	PMG	Drafting will be led by PM, with technical/contractual input by SAEIR Deputy Director - Science
1.6 Regular DPLUS reports (half yearly/yearly)	Regular Darwin PLUS reports are created and shared with project partners	DPLUS reports	Reports are available to project partners and made available on common platform. Reports are filed in appropriate project folder.	Biannually	PMG	PM will draft report
2.1 & 2.2 Conduct desktop review, and create metadata catalogue	Review report is created At least 20 datasets are synthesized to inform current knowledge and inform further data collection. The metadata will be hosted on the project data platform which includes a public webGIS	Review report, metadata catalogue Dataset on data portal within the larger SAERI IMS-GIS/FIG data portal	Review report and metadata catalogue will be filed in appropriate project folder and shared with PMG and stakeholders. The project data platform including webGIS will be available on the SAERI IMS-GIS/FIG data portal	Once, in Y2Q1	PMG	PM will perform and draft the review to determine current state of knowledge, create metadata catalogue, and identify gaps
2.3 Undertake inshore zooplankton/ichthyoplankton surveys	Report detailing the spatial and temporal variation in zooplankton and ichthyofauna community structure is created. The report will be refocused for a scientific journal.	Report and scientific paper on zooplankton and ichthyofauna community structure	Report and scientific paper are filed in appropriate project folder and shared with PMG and stakeholders. Report is uploaded on the project website	Survey conducted between Y2Q1 and Y3Q1, report and paper finished Y3Q1	PMG	PM and stakeholders to conduct surveys, student to work up data, drafting of report and scientific paper by student and PM
2.4 Conduct inshore *Loligo* survey using ROV	Report on egg surveys is created. The report will be refocused for a scientific journal	Report and scientific paper on *Loligo* egg survey	Report and scientific paper are filed in appropriate project folder and shared with PMG and stakeholders. Report is uploaded on the project website	Survey conduct between Y2Q4 and Y3Q1, report and paper finished Y3Q2	PMG	PM and stakeholders to conduct surveys, student to work up data, drafting of report and scientific paper by student and PM

Activity	Indicator	Evidence/data required	Where evidence / data is to be sourced	Frequency How often will it be measured	Responsibility Who will measure it	Resources (time, £, staff, input from others)
3.1 & 3.2 Determine experimentally the capacity and acclimatisation of key species for climate change scenarios	Report on the responses to different climate change scenarios created and shared with PMG and stakeholders. The report will be refocused for a scientific journal	Report and scientific paper on coping ability and acclimatisation for climate change scenarios	Report and scientific paper are filed in appropriate project folder and shared with PMG and stakeholders. Report is uploaded on the project website	Experiments carried out between Y2Q2 and Y3Q2, report and scientific paper finished Y3Q2	PMG	Stakeholder (BAS), PM and marine technician to design and conduct experiments, draft report and scientific paper
4.1 Deliver workshop to create a framework for ecosystem model and workshop report	Workshop to create a framework for an ecosystem model	Workshop report	Report is filed in appropriate project folder and shared with PMG and stakeholders Report is uploaded on the project website	Once, in Y2Q4	PMG	PMG and stakeholders will engage in the workshop; PM will draft report, with contributions from other project partners
4.2 & 4.3 Create an ecosystem model and examine climate change and fisheries scenarios on the ecosystem	Report on an ecosystem model and impacts of climate change and fisheries scenarios. The report will be refocused for a scientific journal	Ecosystem model report and scientific paper	Ecosystem model and its files, and the report are filed in appropriate project folder and shared with PMG and stakeholders. Report is uploaded on the project website	Model is finished, report is delivered, and scientific paper is finished in Y3Q3	PMG	PM and stakeholders (Oregon State University) create ecosystem model and examine different climate change scenarios in the ecosystem
4.4 Create training package and seminars	Training package including training materials and videos created to demonstrate use of model to partners and stakeholders. Seminar given to demonstrate model use	Training seminar and video and demonstration seminar	Training materials uploaded to project website	Once, by Y4Q1	PMG	PM to create training package with stakeholders, PM to deliver training seminar and demonstration to partners and stakeholders
5.1 Conduct EAF best practice review and gap analysis	Report on EAF best practice review and gap analysis for the FI Report is refocused for scientific journal	EAF best practice report with potential gaps identified that may impede adoption in FI	Report and scientific paper are filed in appropriate project folder and shared with PMG and stakeholder. Report is uploaded on the project website	Once, by Y3Q3	PMG	Key FIG officials and stakeholders are available for workshop, PM to draft report

Activity	Indicator	Evidence/data required	Where evidence / data is to be sourced	Frequency How often will it be measured	Responsibility Who will measure it	Resources (time, £, staff, input from others)
5.2 Review CCA principles and actions	Report on the review of CCA principles and actions with an emphasis on small island nations is carried out and a report created	Review report	Report is filed in appropriate project folder and shared with PMG and stakeholders, Report is uploaded on the project website	Once, Y3Q4	PMG	PM will draft report
5.3 Conduct workshop on climate change and ocean management	Workshop is held to present a) best practice review, b) explore options from gap analyses for improvement, c) explore management/policy interventions to mitigate CC on fisheries and ocean management to discuss findings and explore management/policy interventions	Workshop report	Report is filed in appropriate project folder and shared with PMG and stakeholders, Report is uploaded on the project website	Once, Y3Q4	PMG	PM will draft report, with contributions from other project partners
5.4 & 5.5 Submit EAF and CCA proposals to DNR, FIG's Fisheries Committee and other relevant FIG Directorates for consideration	Proposal paper is created	EAF paper and CCA report	Written acknowledgement that the report has been received	Once, in Y4Q1	PMG	PM to submit proposal and confirm receipt

Role	Responsibilities
Project Manager	The project manager leads on the day to day running of the project, including coordinating the project partnership and providing secretariat for the PMG. The project manager shall be accountable for the financial management of the Darwin project budget and ensuring that the project is delivered on time and on budget.
Project Leaders	The project leader will be responsible for the technical direction of the project and will be the main point of contact for Darwin. In addition, they shall be the person responsible for ensuring any grant meets the relevant Terms and Conditions. Finally, the Project Leader and their organisation are responsible for the health and safety of all staff working full and part time on their project.
Project Management Group (PMG)	Project Management Group (PMG) shall monitor and steer the project, ensuring it aligns with the project proposal document, and ensuring that the project delivers its outputs on time, and on budget. The PMG will also approve the Monitoring and Evaluation plan at the start of the project and sign off its implementation throughout the project duration. Finally, the PMG provides high level decisions regarding anychanges to the Project Management Plan, and will review relevant documents associated with this, such as the project risk register and theissues log. The Project Manager will present a quarterly report on progress against deliverables, progress against the monitoring and evaluation plan and quarterly financial reports.

5 Data Management

SAERI operates a strict data management policy for Darwin Plus projects, which this project shall comply with. This includes, but is not limited to:

- The provision of Scientific Research Permits from the DECR for research undertaken in TCI.
- Submission of final datasets to FIG as required by the data management policy.
- Free availability of all data online where relevant, as per Darwin Data sharing policy.

A more detailed guide to data management provision under this project can be viewed here: https://www.south-atlantic-research.org/research/data-science/managing-data/