

## Blue Economy CRC Call for Projects 2QFY19\_20

This document has been prepared for Blue Economy CRC Participants to provide information about the Blue Economy CRC's (BE CRC / the Company) first "call for projects". The material provides context for the CRC and its goals, describes the features of the categories of projects being called for, and the last section identifies key dates.

The [submission, assessment criteria and assessment processes](#) for project proposals are also provided in **Appendix 1**.

More information about [our research programs and the target milestone outcomes](#) for each are outlined in **Appendix 2**.

### About Blue Economy CRC

Australia is positioned adjacent to the world's largest markets for seafood and energy and has enormous opportunity to grow sustainable marine industries – our blue economy. Future growth is constrained by access to coastal sites and to realise this opportunity, industries must move offshore into more exposed operating environments.

Established in 2019, Blue Economy CRC is one of the largest funded cooperative research efforts and for the first time brings the aquaculture, offshore engineering and renewable energy sectors together to address the challenges of offshore food and energy production.

The Blue Economy CRC draws together the knowledge, skills and experience of over 40 partners from industry, research and government, based around Australia and internationally, over 10 years to develop systems, structures and capabilities that will transform the future of Australia's marine-based industries, widely referred to as the 'blue economy'.

### Call for Projects 2QFY19\_20

BE CRC is calling for **Scoping Study Projects** and **General Projects** across its five integrated user-defined research programs.

The submission deadlines for **Scoping Study Projects** and **General Projects** are outlined herein.

There is a two-stage process for both that includes (i) an Expression of Interest and for EoI that are supported, (ii) a Project Application stage.

### Features Common to All Projects

**Both Scoping Study Projects** and **General Projects** must demonstrate how they assist the Blue Economy CRC meet the program objectives set out in the Commonwealth Milestones listed in the CRC's Grant Agreement.

All BE CRC projects involve collaborations between industry and research providers and/or government. They are driven by the needs of our industry participants and the end-users that they engage with. Most projects will have two or more research participants and one or more industry participants. Applicants are strongly encouraged to visit the "Connect" Blue Economy on-line collaboration space to discuss how complementary concepts can be combined into compelling proposals.

For each project there will be a Project Leader who will be accountable for registering the details of projects onto the Blue Economy CRC on-line collaboration space. Details of this will be provided separately, Project leaders will be responsible for the delivery of milestones as defined in the Project Agreement. All projects will be subject to a Project Agreement which will include a project plan outlining specific roles and responsibilities of each participant.

### Scoping Study Projects

Scoping Study Projects are defined as projects whose outputs will help the CRC understand the current status of broad areas within our research programs. Through the Scoping Projects the CRC seeks to develop a clear understanding of where existing technologies / solutions / knowledge and trends currently are, and what major challenges and opportunities need to be addressed by the CRC's research agenda. When these scoping studies are complete the CRC will be able to strategically consider options and opportunities to guide future research investment and inform the delivery of our milestones across the five programs.

Scoping Study Projects should include a sufficient review of the scientific literature to ensure that our research is not re-investigating areas already addressed by others. They should identify significant gaps (in our understanding, or technology hurdles), that can assist us set the target research outcomes across the five programs over the next 3 years. It should be clear from the scoping studies that industry has been involved in setting the scoping project agenda and the target outcomes. As such, within their short time frame they are expected to deliver valuable guidance.

Scoping projects are expected to largely rely on desktop research but will leverage meetings and workshops to work through options and opportunities in more detail. As such, project budgets will be based on the researcher time with appropriate allocation for travel and meeting costs. There may be other expenses related to obtaining background data and information to inform the reviews.

Scoping projects should help build collaborative relationships between and across researchers and end users within the CRC. Collaborative delivery will help position the CRC for future delivery of projects.

Requests for cash funding from the Blue Economy CRC (i.e. that is distinct from any in-kind contributions being committed to an EoI including in-kind salary contribution)) should not exceed \$50,000. Projects must be completed within five (5) months and must produce Project Final Report and a Presentation. Each Project will be the subject of a Project Agreement – a Project Agreement Template will be provided to all Project Participants).

Final Reports are due 5PM AEST Friday 31 July 2020 and more information on their format will be provided elsewhere. In addition, a presentation of the findings will be expected by the Project Lead at the BE CRC's annual conference (date to be provided).

### Timeline of Key Dates for Scoping Study Projects:

Date	Activity
1 November 2019	Call for Scoping Study Project proposals made, guidelines and template released
29 November 2019 (5PM AEST)	Expressions of Interest (Eoi) for Scoping Study Projects due to BE CRC. <i>Eois will be considered by BE CRC Research Executive (i.e. Research Director and Program &amp; Deputy Program Leaders).</i>
9 December 2019	Applicants notified of outcome of Eols.
10 January 2020 (5PM AEST)	Full Scoping Study Project Applications (based on successful Eols) due
22 January 2020	Full Scoping Study Project Applications considered by BE CRC Research Executive, Business Manager (BM) and CEO. Comments from applications provided to BE CRC Scientific Advisory Committee (SAC).
31 January 2020	Full Scoping Study Project Applications considered by SAC.
7 February 2020	SAC Recommended Scoping Study Projects for funding tabled at BE CRC Board Meeting for endorsement
14 February 2020	Applicants notified of outcome of Full Scoping Study Project Applications.
31 July 2020 (5PM AEST)	Scoping Study Projects Final Reports due

**Closing Date for Expressions of Interest:** 5PM AEST Friday 29 November 2019. Confirmation will be provided of your submission.

**Closing Date for Full Proposals:** If Eoi is successful full proposals are due 5PM AEST Friday 10 January 2020. Confirmation will be provided of your submission.

**Final Reports** are due 5PM AEST Friday 31 July 2020. Confirmation will be provided of your submission.

## General Projects

General Projects are an open call for projects to examine topics to our research programs. Typically, these projects will have a specific relationship to the research outcomes that assist the Blue Economy CRC to meet program objectives set out in the Commonwealth Milestones. General Projects terms will generally be no shorter than 12 months but no longer than 36 months in duration.

Requests for General Project funding from the BE CRC will be considered taking into account the information required in the application and will be assessed on the application criteria stipulated by the BE CRC including overall value for money.

### Timeline of Key Dates for General Projects:

Date	Activity
1 November 2019	Call for General Project proposals made, guidelines and template released
14 February 2020 (5PM AEST)	Expressions of Interest (EOI) for General Projects due to BE CRC. <i>EOIs will be considered by BE CRC Research Executive (i.e. Research Director and Program &amp; Deputy Program Leaders).</i>
21 February 2020	Applicants notified of outcome of EOIs.
3 April 2020 (5PM AEST)	Full General Project Applications (based on successful EOIs) due
17 April 2020	Full General Project Applications considered by BE CRC Research Executive, Business Manager (BM) and CEO. Comments from applications provided to BE CRC Scientific Advisory Committee (SAC).
24 April 2020	Full General Project Applications considered by BE CRC SAC.
1 May 2020	SAC Recommended General Projects for funding tabled at BE CRC Board Meeting for endorsement
8 May 2020	Applicants notified of outcome of Full General Project Applications.

**Closing Date for Expressions of Interest:** 5PM AEST Friday 14 February 2020. Confirmation will be provided of your submission.

**Closing Date for Full Proposals:** If EOI is successful full proposals are due 5PM AEST Friday 3 April 2020. Confirmation will be provided of your submission.

## Further Information

**Research Director (Interim)** Professor Irene Penesis, E:  
[Irene.Penesis@blueeconomycrc.com.au](mailto:Irene.Penesis@blueeconomycrc.com.au) P: +61 3 6324 9770

## Appendix 1: Submission, assessment criteria and assessment processes for project proposals

### Instructions for Participants: Applying for Project Funding

In 2QFY19/20 the Blue Economy CRC (BE CRC) will call for **Scoping Study Projects** and **General Projects** across its five integrated user-defined research programs.

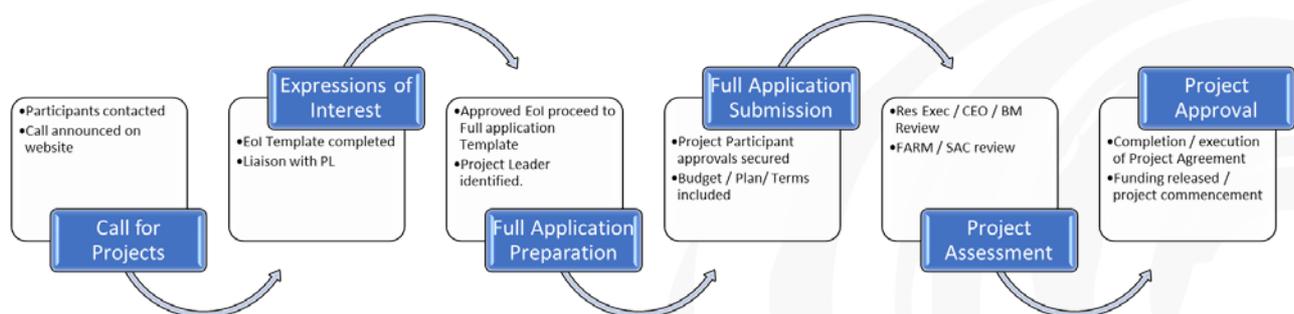
These project proposals will be developed and assessed in a two-stage process that includes an Expression of Interest (Eol) stage and a Full Project Application stage.

Blue Economy CRC (BE CRC / the Company) has created a Research Executive that includes the Research Director, the Program and Deputy Program Leaders. The Research Executive will provide guidance to project applicants to prepare Eol and full proposals which will be considered successively by the Scientific Advisory Committee (SAC).

Those projects that secure the endorsement of those committees will be recommended to the BE CRC Board for funding.

The process described below includes the application submission, review and selection process for proposals submitted to the Blue Economy CRC (BE CRC) for funding.

### Application Process



#### Step 1 A Call for Projects is Announced.

Participants will be advised that the Company is calling for project proposals. In 2QFY19/20 this will occur in several ways. The Company will email the Participants' representatives and request that the details for the calls be distributed to their respective staff and researchers, and the calls will be published on the company website.

#### Step 2: Expression of Interest

For both the Scoping and General Project calls, applicants must submit an Eol to the Program Leaders most aligned with the focus of the project. An Eol template will be provided. The Program Leader will review the Eol to ensure it contributes to the achievement of the BE CRC's Commonwealth Milestones.

If proposals are received that address the same or sufficiently similar topics, the Program Leader will advise participants and encourage a re-submitted collaborative Eol.

Once the appropriate approvals signatures are obtained, the Project Leader may submit their Eol by the relevant due date using the online submission portal.

Eols (endorsed by Program leaders) will be reviewed by the Research Executive.

Applicants who have an Eol approved by the Research Executive will receive a notification to move to Step 3 and submit their full proposal.

*Refer to timeline of key dates for submission dates for EOIs for Scoping Study Projects and General Projects.*

### **Step 3: Full Project Application**

Applicants with approved Eols must complete the BE CRC Project Application template. All proposed Project Participants must contribute to and review applications in which they are involved. Advice on the development of applications may be sought from the relevant Program Leader(s) at any time.

Prior to submission of the final application, applicants are reminded to obtain final approval for signoff from their Participant delegate confirming acceptance of the final version of the project plan, the budget, proposed in-kind contributions and intellectual property rights.

Agreement on these elements will facilitate the completion of a Project Agreement should the project application be successful.

The relevant Program Leader will be required to provide signoff prior to the submission of the application online (through the company's website / or other process as described at the time).

### **Step 4: Submit Project Application**

Once the appropriate approvals signatures are obtained and relevant supporting documentation attached the Project Leader may submit the Project Application by the relevant due date using the online submission portal.

*Refer to timeline of key dates for submission dates for Full Proposals for Scoping Study Projects and General Projects.*

### **Step 5: Assessment**

The process for the assessment of Project Applications is as follows:

1. Project Applications are initially considered by BE CRC Research Executive, Business Manager (BM) and CEO. Comments on Project Applications from Research Executive, BM & CEO are then provided to SAC.
2. Project Applications considered by BE CRC SAC.
3. For unsuccessful projects SAC will provide feedback to the respective Project Leader to provide the rationale for SAC's decision.
4. SAC provides recommendations to the BE CRC Board Meeting for endorsement.
5. Subject to the Board's endorsement the respective Project Leader will be notified of the final outcome of their proposals.
6. The Project Leader will then liaise with the BM to complete and finalise the Project Agreement. The Project leader will be responsible for securing all Project Participant approvals and sign-offs for the Project Agreement.
7. Upon execution of the Project Agreement funding will be released and the project can commence.

An initial payment (if required under the Project Agreement) can be made in advance, subsequent payments will be made in arrears upon the satisfactory completion of project milestones, research progress, reporting obligations.

A project can be terminated in accordance with the terms of the Project Agreement.

### **Assessment Criteria for Projects**

Projects will be ranked in accordance with the relevant assessor's view of the project's ability to address (in no particular order) the following criteria:

- Compliance with application guidelines;
- The contribution to the achievement of BE CRC Milestone outputs as defined in the Grant Agreement between the Company and the Commonwealth;
- Scientific excellence;
- Extent of cross-disciplinary approaches and research innovation;
- Capability and track-record of project members;
- Cost-effective use of a project participants in-kind (staff and non-staff) contributions;
- Overall value for money;
- Feasibility and risk management;
- Alignment with end-user goals;
- Project outputs expected.
- The scope of opportunity for early career researcher (ECR) and higher degree by research (HDR) training;
- Identification of utilisation agent(s) and high-level utilisation plans that consider the likelihood of successful commercialisation and the size of the market opportunity
- Compliance with BE CRC's expectation for inclusion, diversity and equity across the project;
- Compliance with integrity, ethics and work health and safety (WH&S) requirements.

### **Other Terms and Conditions**

The terms and conditions that research providers are responsible for in this project call include:

- Make any recommended changes to projects as reasonably requested by the BE CRC.
- Adhere to the [Australian Code for the Responsible Conduct of Research](#).
- Adhere to the BE CRC Data Management and Security Policy and Procedures.
- Obtain prior approvals and secure access to required research facilities.
- Deliver research outputs and outcomes on time and to budget.
- Analyse and report all project data generated.
- Identify and report all Intellectual Property (IP) and commercialisation potential.
- Inform BE CRC of any project delays or variations required as soon as reasonably possible.

## Appendix 2: About our Research Programs

### Research Program 1: Offshore Engineering and Technology (OET)

Program Leader:

- Professor Chien Ming Wang (University of Queensland)
- E: [cm.wang@uq.edu.au](mailto:cm.wang@uq.edu.au)
- P: +61 7 3365 4356

Deputy Program Leader:

- Dr Nagi Abdussamie (Australian Maritime College, University of Tasmania)
- E: [nagi.abdussamie@utas.edu.au](mailto:nagi.abdussamie@utas.edu.au)
- P: +61 3 6324 3637

The objective of Offshore Engineering and Technology (OET) Program is to generate the infrastructure that supports the development of offshore systems. It brings together industrial engineering expertise to collaborate with the aquaculture (Program 2) and offshore renewable energy (Program 3) sectors to build the required infrastructure for integrated offshore operations.

The projects anticipate that IP relating but not limited to; the design of sea-cage infrastructure, support systems for operating (e.g. anchoring devices), innovative maintenance technologies (e.g. anti-corrosive or antifouling devices), and monitoring (e.g. advanced materials for longevity and structural reliability; in-built sensors in composite materials to detect fatigue in offshore platforms), will be created. The CRC expects that our research will deliver commercial prototypes for monitoring and maintenance of infrastructure that leverages robotics, artificial intelligence, integrated sensors and real-time visualisation.

Projects that contribute to the achievement of our milestones will be favourably considered.

#### Milestone Output 1

*Commercialised designs and sub-systems for high-energy offshore aquaculture cages. Outputs include; proprietary IP for materials, cage design, mooring systems and manufacturing methods as well as in-depth performance data from deployment tests. This output also includes the designated design and operation framework covering engineering principles, economic models and operation guidelines as well as dynamic risk models for life cycle assessment of offshore structures.*

#### Milestone Output 2

*First standardised modular multi-use platform system ready for commercialisation. IP covering the design, fabrication, deployment and decommission of the entire systems. This output includes the business case for the system, validated performance data from field tests and design and operation guidelines. Other outputs include new mooring and station keeping systems, design and simulation tools and guidelines and standards applicable to a broad range floating offshore platform.*

#### Milestone Output 3

*A demonstrator multi-use offshore platform will be deployed as part of this activity. For the first time, this will allow the realistic investigation of system integration aspects of multi-use platforms and the quantification of synergistic benefits of multi-use platform operation. For the last 5 year of the project the platform will serve as live test-bed for the real-world testing and co-location of the participant's systems and CRC outputs.*

Milestone Output 4

*Development of remote sensors and autonomous platform that uses aerial, surface and underwater systems to reduce the operational risks for aquaculture and renewable energy. A strong emphasis will be on sensor integration and cross-platform communication to allow predictive decision making.*

## **Research Program 2: Seafood and Marine Products (SMP)**

Program Leader:

- Professor Chris Carter (Institute of Marine and Antarctic Studies, University of Tasmania)
- E: [Chris.Carter@utas.edu.au](mailto:Chris.Carter@utas.edu.au)
- P: +61 3 6226 8256

Deputy Program Leader:

- Professor Lindsey White (Auckland University of Technology)
- E: [Lindsey.White@aut.ac.nz](mailto:Lindsey.White@aut.ac.nz)
- P: +64 9 921 9999 (ext 8065)

The objective of Seafood and Marine Products (SMP) Program is to develop offshore aquaculture systems that provide viable and sustainable growth opportunities for this sector. Commercialisation opportunities include novel aquaculture system designs for emerging species in collaboration with Program 1, and new seafood products, as well as the development of supply chain aquaculture activities (e.g. platform-based hatcheries and processing). Identification and development of premium export products and new export markets will ensure the expectations of high end-users are met.

Projects that contribute to the achievement of our milestones will be favourably considered.

Milestone Output 1

*Advanced understanding of, and industry-ready knowledge to- improve fish biological performance in offshore environments. This will include operational guidelines and protocols, tools (models) to compare production, policy recommendations, environment and food safety across multiple species and tailored to offshore sites. This knowledge will be translated in the form of an online tool that lists suitable species and the likely production benefits from the adoption of advanced production approaches.*

Milestone Output 2

*A framework for integrating production and engineering technologies that advances overall productivity of seafood marine products. This will be in the form of a matrix that trades off the complexity of physical platforms and maximises the recovery of nutrients and nutritional material.*

*The development of operational guidelines and protocols, policy recommendations and a suite of information material.*

Milestone Output 3

*Platform to underpin the value and promotion of seafood from new aquaculture systems. This will be based on providing evidence to support operational arrangements. New species will achieve high value in the market place, based on attributes such as sustainability, animal welfare improvements and nutritional value. Consumer confidence will be enhanced through certification schemes.*

### **Research Program 3: Offshore Renewable Energy Systems (ORES)**

Program Leader:

- Dr Mark Hemer (Oceans & Atmosphere, CSIRO)
- E: [Mark.Hemer@csiro.au](mailto:Mark.Hemer@csiro.au)
- P: +61 3 6232 5017

Deputy Program Leader:

- Professor Evan Gray (Griffith University)
- E: [e.gray@griffith.edu.au](mailto:e.gray@griffith.edu.au)
- P: +61 7 3735 7240

The objective of Offshore Renewable Energy Systems (ORES) Program is to support offshore aquaculture (Program 2) through supplies of lower cost energy and ancillary products (oxygen and freshwater) and to contribute to the cost of offshore infrastructure through the development of exportable energy carriers (e.g. hydrogen).

Commercialisation opportunities include the design and development of renewable energy conversion devices; optimal offshore storage solutions and export products and micro-grid architecture solutions and control systems for intelligent management of integrated end-user demands. ORES will also focus on essential resources such as freshwater (via desalination) and oxygen (for hatchery and fish culture) which could be commercialised.

Projects that contribute to the achievement of our milestones will be favourably considered.

Milestone Output 1

*An energy demand and optimisation model for offshore industry operations (for proposed co-located aquaculture platform, and other future scenarios).*

Milestone Output 2

*Offshore Renewable Energy Converter (OREC) designs, patents, improvement in existing technologies with increased survivability and decreased environmental impact, capital and operating costs.*

Milestone Output 3

*Designs, patents, energy management strategies, new and integrated technologies, suitable for the offshore environment, leading to a bench-scale test system and products such as micro-grid architecture, desalination, oxygen, hydrogen, ammonia and other storage solutions, derived from Offshore Renewable Energy Systems (ORES).*

#### Milestone Output 4

*Successful proof of concept through field demonstration of the operation of novel ORES, reporting findings and learnings (e.g. performance, system-scaling, installation, monitoring systems, licensing, risk management and mitigation, maintenance, end-user demands, CAPEX and OPEX reductions).*

### **Research Program 4: Environment and Ecosystems (EE)**

#### Program Leader:

- Dr Beth Fulton (Oceans & Atmosphere, CSIRO)
- E: [Beth.Fulton@csiro.au](mailto:Beth.Fulton@csiro.au)
- P: +61 3 6232 5018

#### Deputy Program Leader:

- Professor Chris Frid (Griffith University)
- E: [C.Frid@griffith.edu.au](mailto:C.Frid@griffith.edu.au)
- P: +61 7 5552 8019

#### Deputy Program Leader:

- Dr Remo Cossu (University of Queensland)
- E: [R.Cossu@uq.edu.au](mailto:R.Cossu@uq.edu.au)
- P: +61 7 3365 9117

The objective of Environment and Ecosystems (EE) Program 4 is to understand the environmental footprint of the infrastructure (Program 1), culture systems (Program 2) and energy generating devices (Program 3). The EE program connects with Program 5 to develop management systems to monitor environmental impact and interactions with other sectors, and with programs 1-3 to monitor the impacts of the environment on health, maintenance and performance of species, infrastructure and devices respectively. Commercialisation opportunities include the development of novel monitoring systems including models and user interfaces to deliver real time data and information for use by government, industry and the public.

Projects that contribute to the achievement of our milestones will be favourably considered.

#### Milestone Output 1

*Multi-criteria regional marine spatial planning tool for the identification of regional areas that would support technical and economically feasible areas for integrated multiple-use platforms. Including consideration for other users (and associated trade-offs), identification of desired environmental conditions, and a suite of potential indicators and reference points to be used to track operational performance and predicted impacts.*

#### Milestone Output 2

*Framework for assessing proposed offshore activities & supporting specific site selection. Constituent products include: Systematic risk assessment process (hazard analysis, risk assessment, contingency & response identification); indicator identification &*

*benchmarking; characterisation of site properties; creation of reference cases & requirements for subsequent developments & assessments.*

#### Milestone Output 3

*Smart monitoring and information platforms, maximising probability of correctly attributing cause of observed changes and enables responsive operations. Automated data workflows feeding forecasting systems with resulting model and data products coordinated in centralised information platforms featuring in-built visualisation and processing, and a design focus on easing access and interoperability. Underlies a risk alert system and incident response platform.*

#### Milestone Output 4

*New understanding and prioritisation of emerging and extant disease and parasite vectors, exposure & treatments in the novel offshore environment. This will include impacts on phenology, ecology on wild stocks. New biosecurity protocols will leverage off the new understanding and new data types (accessed via A3) to prioritise risk responses and health related procedures both for stocks on farms and in the immediate vicinity of platforms.*

#### Milestone Output 5

*Understanding, tools and guidelines pertaining to the benefits, drawbacks and trade-offs associated with co-location of operations on multiple use platforms. Including: social, economic, environmental footprint of platforms and their interaction with surrounding socio-ecological systems; life cycle, economic and systems analysis procedures; reporting; analyses of feasibility, returns on investment and public good comparison of offshore activities vs terrestrial or coastal industries.*

### **Research Program 5: Sustainable Offshore Developments (SOD)**

#### Program Leader:

- Professor Marcus Haward (The University of Tasmania)
- E: [Marcus.Haward@utas.edu.au](mailto:Marcus.Haward@utas.edu.au)
- P: +61 3 6226 2333

#### Deputy Program Leader:

- A/Professor Ki-Hoon Lee (Griffith University)
- E: [ki-hoon.lee@griffith.edu.au](mailto:ki-hoon.lee@griffith.edu.au)
- P: +61 7 5552 9181

#### Deputy Program Leader:

- Dr Leo Dutra (CSIRO)
- E: [Leo.Dutra@csiro.au](mailto:Leo.Dutra@csiro.au)
- P: +61 7 3214 2850

The objective of Sustainable Offshore Developments (SOD) Program is to profile and advocate for the regulatory frameworks that will provide confidence for aquaculture and renewable energy industry to invest and for the public to be confident that offshore developments operate to the highest environmental standards for sustainability and ecosystem integrity. Projects that contribute to the achievement of our milestones will be favourably considered.

**Milestone Output 1**

*Assessment of the fit of legislative and policy frameworks for blue economy activities, evaluation of mechanisms relation to management of risks in implementation of integrated management and development and application of policy tools to assess effectiveness in meeting policy objectives.*

**Milestone Output 2**

*An integrated and planned approach to managing supply chains that includes the identification of potential synergies between marine and offshore energy and aquaculture systems that results in cost effectiveness. Proposing integrated systems and process for supporting marine and offshore energy and aquaculture supply chain operations, including the proposed co-located platform.*

**Milestone Output 3**

*State of the blue economy reporting framework and regular reports. Mapping, assessing and making recommendations for improvement to the Blue Economy Integrity Systems.*

**Milestone Output 4**

*Establishment of cost effective and robust economic assessments and environmental management accounting systems for blue economy activities.*

**Milestone Output 5**

*Establishment of internal CRC research engagement and extension process.  
Establishment of research user forums and industry workshop to enhance capacity.*

**DOCUMENT CONTROL**

<p><b>Version:</b> 1</p> <p><b>Issue:</b> November 2019</p> <p><b>Review:</b> June 2020</p>	<p><b>Approved:</b> Call for Projects Approved by BE CRC Board October 2019</p> <p><b>Responsible:</b> Research Director</p>
---	--