FINAL REPORT

Southern Rock Lobster Clean Green Program, Revision, Digitisation & Extension Across the Supply Chain

Southern Rocklobster
LIMITED

Ross Hodge and Justin Phillips

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In submitting this report, the researcher has agreed to FRDC publishing this material in its edited form.

Contents

Acknowledgments

Abbreviations

SRL	Southern Rocklobster Limited
AMSA	Australian Maritime Safety Authority
SMS	Safety Management System
CG	Clean Green
CGP	Clean Green Program
SWSA	Safe Work South Australia
NSCV	National Standard Commercial Vessels
WH&S	Work, Health & Safety
PPP	PowerPoint Presentation
EOI	Expression of Interest
EO	Executive Officer
CARs	Corrective Action Requests
ELP	e-Learning Platform
GMP	Vessel – Good Manufacturing Practice
WQMS	Water Quality Monitoring Systems
ARLEA	Australian Southern Rock Lobsters Exporters Association
WRLC	Western Rock Lobster Council
SA	South Australia
TAS	Tasmania
VIC	Victoria
TEPS	Threatened Endangered Protected Species
DAWE	Department Agriculture, Water and the Environment
SA – SE	South Australia South East (Fishing zone)

Executive Summary

Both the Principal Investigator, Ross Hodge, and Co-Investigator, Justin Phillips, for this project have a long association with Southern Rocklobster Limited (SRL) and the Clean Green Program (CGP). The core elements to this project were to digitise the existing paper-based CGP to be delivered in an application device (app) format, develop a web-based backend portal to administer the apps (one app for fishing operations and one app for post-harvest), provide an efficient management system and to also produce a new vessel safety video. The Investigators delivered the project from their respective bases in Victoria and South Australia, the IT development work was contracted to Adelaide-based Crawford IT and Queensland based Millstream Productions produced the video with filming undertaken in South Australia's Southern Zone Southern Rock Lobster Fishery (South East SA / Limestone Coast Region).

Commencing in July 2018, the project was undertaken primarily to deliver a digitised CGP by adapting 21st Century technology with the end-user interface presented via iOS on an iPad. The application / software could be adapted to suit handheld iOS devices and also the android platform in the future, however the iOS platform on the iPad device was chosen as a large number of fishers already utilise that device on their vessels, particularly in the South Australian Southern Zone Rock Lobster Fishery, to record catch and effort information. Parallel initial development for android would also have necessitated additional testing and review, which was not accommodated in the project's budget. The project was delivered with an extensive level of revision and updating of all the content of the CGP with Crawford IT converting all the required content into digitised application format as well as developing the online management portal ('backend') to interface the apps and the administration system. The content of the new vessel safety video, titled *Fishing for Safety* followed a script that was developed in consultation with the Australian Maritime Safety Authority (AMSA). It was filmed and produced by Millstream Productions with support from Rock Lobster fishers in the SA-SE ports of Robe, Beachport and Southend.

First introduced in 2004, the CGP was developed as an integrated pot-to-plate Product Standard with independent third-party auditing of practices. During the period 2013 to 2015 the CGP was considerably updated for the first time since being introduced to address the introduction of AMSA's National Standard for Commercial Vessels (NSCV). The NSCV required documented safety procedures for safe vessel and fishing operations. The updating of the CGP and subsequent formal recognition by AMSA of compliance with the program heightened the program's relevance to industry and there was a considerable uptick in participation. With all the Clean Green Program documentation in a paper-based format any dissemination of new and / or updated material was very administratively time-consuming and expensive, particularly as meeting the requirements of SafeWork authorities and AMSA is a constantly evolving process. The best option to keep the CGP viable moving forward was to digitise and deliver in an app format with a 'backend' that could streamline management and administration including the independent auditing process and also provide an efficient system for communicating with, and disseminating updates to, participants. The program's audit requirements, which are met by an independent third party (Conformance Assessment Body /SAI-Global), are detailed in the CGP's Standard and Audit Protocol. These audits are currently undertaken in person requiring great levels of co-ordination, travel and time expenses. The digitised CGP now provides the opportunity for this process to be undertaken virtually in many instances, providing great savings in time and resources.

While the overall aim was to adapt the CGP to completely function using 21st century technology for both the participants of the program and for those responsible for managing & administrating it, there were a number of other key aims within the project, these included:

- A complete review and update of all CGP material for fishing operations and post-harvest;

- Enhance the safety message for vessel and fishing operations with a new video;

- Expand the material and develop an additional app for the Post Harvest sector;

- Seek the recognition of the program by governing authorities; and

- Explore options for transferability of the program to other sectors

The objectives for project 2017 – 224 were:

OBJECTIVE 1: *REVISE AND UPDATE THE CLEAN GREEN MATERIAL (CATCHING SECTOR) TO MEET STAKEHOLDER REQUIREMENTS AND FORMATTED FOR DIGITISATION*

OBJECTIVE 2: *FULLY REVIEW AND REVISE EXISTING, AND DEVELOP NEW, MATERIAL FOR EXPORTER / POST HARVEST OPERATIONS*

OBJECTIVE 3: *DIGITISE THE REVISED CLEAN GREEN PROGRAM SO IT CAN BE IMPLEMENTED IN A DEVICE APPLICATION (APP) SOFTWARE FORMAT*

OBJECTIVE 4: *LAUNCH AND ROLL OUT THE REVISED AND DIGITISED CLEAN GREEN PROGRAM*

During the course of the project the deliverables / outputs under the objectives were expanded to include research into suitable options for using water quality monitoring systems (WQMS) on vessels and developing an e-Learning Platform (ELP) to roll-out the required training for introducing the apps, to industry (catching sector) in lieu of the original planned workshops.

To following key tasks were undertaken to achieve the project objectives:

- Researching the results of other projects and any recent legislative requirements that would contribute to revising the content of the CGP.
- Reviewing all the content associated with the CGP and then revising and developing additional material as required.
- Engaging a competent video production company, consulting with key government authority on script and content and arrange industry participation to include in the filming.
- Consulting with production company on the use of infographics and provide feedback on versions off the video until final production approved.
- Engaging a competent IT Company to develop the applications (apps) and online management portal.
- Regular meetings with IT developers to review progress and then continue with external testing of the functionality of the portal and progressive versions of the apps, providing feedback and continued testing until satisfied with the operating performance.
- Engaging with industry on testing the apps.
- Develop training materials to roll-out the apps to industry.
- Developing an ELP to deliver the training when the scheduled workshops had to be cancelled.
- Engaging with AMSA on recognition of the revised CGP in the app format.
- Negotiating the development of an ELP to replace the workshops planned with industry to facilitate the roll-out.

There had been little opportunity to engage with other industry sectors in discussions on transferring the digitised CGP for their use. The impact of COVID-19 travel and border restrictions has hampered much of the project's planned consultation processes over the past two years.

Over the past two years (2020 and 2021) the delivery of this project has experienced some considerable 'head winds' in the form of the restrictions associated with the COVID-19 Pandemic and the collapse of industry's main market, China. Both these issues have impacted on the delivery of the project from the basis of 'business as normal', and having direct engagement with industry / stakeholders in face-to-face meetings and gaining a high level of interest. Nonetheless, the majority of the planned outcomes have been delivered including additional work, all within the original budget. The key results this project have delivered are:

- A complete suite of updated CGP material for both fishing and post-harvest sectors.
- A fully operational online web-based management portal ('backend').
- A functional Fishing Operations App that also includes a Logbook.
- A functional Post Harvest App.
- A high-quality 'Fishing for Safety' Video.
- An understanding of what water quality monitoring systems (WQMS) are available and could be used on Rock Lobster fishing vessels.
- Training resources for fishing / vessel operations and post-harvest.

- An e-Learning Platform (ELP) – this will continue to deliver an ongoing benefit to industry following the wrap up of this project (ongoing training platform).
- The functionality of the apps and ELP allow for future updates and amendments (including any legislative changes) to be quickly and easily incorporated via 'updates' pushed out to Members via the CGP Manager using the web-based backend and then accessed by industry.
- AMSA have provided their feedback in relation to the CGP Fishing Operations App, and the project's Investigators have provided guidance back to AMSA linking their own 'AMSA Marine Order 504 SMS ASSESSMENT' Checklist directly to the relevant sections of the CGP Fishing Operations App, meeting all of AMSA's requirements.

At the point of writing this Final Report, the exercise linking AMSA's own SMS Checklist to the CGP Fishing Operations App, had only just been completed, with a second roll-out of the updated app to industry using the ELP having commenced.

Due to travel and border restrictions, there has been no opportunity to meet with other fishing sectors to promote the transfer of the CGP app. Explaining the functionality and performance of the app would require, particularly for those unfamiliar with the CGP (and from the non-Rock Lobster fishing sectors), more than just a written briefing or a telephone conversation.

The Vessel SMS component of the CGP being quite specific to SRL is different to other app based versions of Vessel SMS. These generic apps rely on the user to create the fishing methodology /vessel risk assessment and fishing methodology/vessel specific WHS procedures

The CGP is a unique program delivering a suite of best practice standards for Australia's Southern Rock Lobster Fishery and the transition to delivering the program on an iPad in a digitised app format will require ongoing coaxing of the participants currently using the paper-based version to swap over. Even with the ELP in place, losing the opportunity for the Project Investigators (long associated with the CGP) to meet directly with industry and coach fishers through the changes, will require the industry roll-out to be an ongoing effort.

The one important recommendation, based on the last point made, is for SRL to continue to promote the adoption of the app version of the CGP post completion of the project by the Investigators.

Introduction

During the period 2015-2018, prior to this project commencing, more vessels (approx. 60% increase across that noted 3-year period) were participating in the Clean Green Program (CGP) since it was first introduced in 2004. The re-alignment of the CGP to address new and changing legislative requirements e.g. the introduction of the National Standard Commercial Vessels (NSCV) by the Australian Maritime Safety Authority (AMSA) and new Work, Health & Safety (WH&S) requirements, had been the key driver for the increased support from industry. There is recognition the CGP must / will continue to be a program capable of evolving to address regulatory changes and, accordingly, the required updating of program content (in consultation with Regulators). Therefore, a project was required to adapt 21st century technology to deliver a digitised, operationally focussed, CGP that can be more efficiently updated and disseminated to industry. By revising and digitising the program it could also become a benchmark responsible fishing standard, with support and auditing materials, that could:

- Improve ongoing program administration (as regulators e.g. SWSA, AMSA and DAWE, continue to change and update relevant legislative requirements, the maintenance of a paper-based program had become unsustainable)
- Extend the Clean Green Program into the post-harvest sector of the supply chain and provide a medium for SRL to extend relevant outputs from other R&D in which the industry has invested to interested businesses e.g. traceability and Lobster health
- Improve communications and audit procedures with / for the Clean Green Auditor to streamline and reduce cost of independent third-party auditing processes. As noted previously, a move to virtual auditing is now an option for SRL.
- Generate usable data for relevant Regulators and seek their recognition / accreditation of the program and further opportunities for Clean Green to serve as a tool for industry self-regulation
- Streamline program management and financial control of the program e.g. invoicing, scheduling of auditing, raising and closing out of Corrective Action Requests (CARs), physical auditing of vessels, communication with members, improved efficiency and effectiveness of Clean Green training and refresher training; and
- Increase the transferability of the Clean Green Program to other catching sectors. This may aid with generating greater economies of scale and assist the Clean Green Program, and its management, to continue to be financially self-sustaining.
- Increase the uptake and implementation of the Vessel SMS component by use of an app replacing paper

Objectives

OBJECTIVE 1: *REVISE AND UPDATE THE CLEAN GREEN MATERIAL (CATCHING SECTOR) TO MEET STAKEHOLDER REQUIREMENTS AND FORMATTED FOR DIGITISATION*

OBJECTIVE 2: *FULLY REVIEW AND REVISE EXISTING, AND DEVELOP NEW, MATERIAL FOR EXPORTER / POST HARVEST OPERATIONS*

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OBJECTIVE 4*: LAUNCH AND ROLL OUT THE REVISED AND DIGITISED CLEAN GREEN PROGRAM*

These objectives remained unchanged throughout the project, although the actual deliverables were expanded and modified due to either opportunities that presented while developing the R&D content or from the COVID-19 Pandemic that coincided with, and considerably impacted, the work schedule. The additional changes to the deliverables that included researching and trialling water quality monitoring equipment and using an e-Learning Platform (to rollout training in lieu of face-to-face workshops) will be noted and addressed accordingly within this Report.

Method

Project Delivery

The main purpose of this project was to move all the paper-based content of the CGP to a digitised application (app) format that would be accessed through a tablet / iPad interface.

The Principal Investigator, Ross Hodge, and Co-Investigator, Justin Phillips, were responsible for delivering the project including revising all the existing and / or developing additional CGP associated materials. The major element of the project to digitise the Clean Green Program into an app-based format delivered in iOS for use for use on an iPad operating through an on-line management portal was undertaken by Adelaide based company Only Cloud (part of the Crawford IT Group).

After the commencement of the project, the other major element to be contracted out was with Millstream Productions to produce a new vessel safety video which was subsequently titled '*Fishing for Safety'*.

At appropriate times throughout the development of the project there was consultation undertaken with the catching sector, post-harvest and key government authorities. However, the impact of restrictions on travel and business / office arrangements from the COVID-19 Pandemic restricted the ability to hold face-to-face meetings and demonstrate the developments in the materials and app. Meetings were held online using platforms such as Zoom but were not highly conducive for a program with such a focus on development, testing and reviewing functionality and engagement with stakeholders.

The project was planned to deliver the outcome / output requirements for each objective in a staged or phased process. Once the project started some work was able to commence a bit earlier than initially scheduled e.g. it was possible to undertake development of the web-based backend first, prior to the app content and structure being developed. Accordingly, some of the revised material in the app needed to be reworked once the functionality of the app format had been tested.

The project addressed the objectives as follows:

Objective 1: *Revise and update the clean green material (catching sector) to meet stakeholder requirements and formatted for digitisation*

Phase 1: Revision of the following Clean Green Program components

The catching sector components of the CGP that were revised and updated were:

Component 1: *The original On-Boat Induction Manual* – this large collection of guidance material is now referred to in the app format as the Fishing Operations Manual and is made up of 11 Parts. It is the most significant component of the CGP and addresses various legislative requirements for Lobster fishers, tailored specifically for their needs e.g. AMSA, SafeWork, State Fisheries Management, EPBC Act, EPA, Animal Welfare and Primary Production / Food Safety legislation.

Most importantly, it enables harmonisation of key areas of fishing and vessel operations into a single program. From a digitised documentation perspective, this is the largest single component of the app from its size i.e. number of pages, and from an interactive and functionality perspective i.e. amount of data input and editing required by the user to individualise the content to best support the requirements of their own vessel / fishing operations. All content, once included by the user in the app and saved, can at any time be accessed and modified / updated as required.

The revision and updating of this component for digitisation also strengthened the requirements to demonstrate higher-level management of environmental interactions (such as TEPS, by-catch, waste management, use of sustainably sourced bait, and disposal and use of chemicals) further enhancing the CGP standing as a benchmark amongst standards and best practice for responsible fishing. During the updating work on the app content, one of the key sections of the manual, the 'Flip Cards', which provides a pictorial overview of much of the documented requirements, needed considerable updating. This required consultation with Government departments regarding GPS coordinates for known seal and sea lion colonies, boundaries for marine parks, updated contacts for authorities (in each State) to report observations to and an information chart for administering first aid and CPR. Once all the updated

requirements for the Flip Cards was identified and the information sourced, a number of new images were also required, and then a Graphic Designer was engaged to make the required changes.

The app version once setup with individual login details provides easy navigation through all parts requiring just a tap of the finger, using drop down menus, self-filling text for names e.g. skipper, crew and vessel and pre-emptive keyboard for when entering data.   It took a considerable level of trialling a number of versions to get the functionality to a level the Project's Investigators considered suitable for industry use. This point will be addressed in more detail under Objective 3 / Phase 3 of this report.

Component 2: *Clean Green Record / Logbook* – this document requires the CGP participant to record entries at least once a week during the fishing season. The original hard copy logbook contained 8 sections for recoding various requirements and this has been expanded to 14 sections as some of the information e.g. checklists, previously recorded in the On-Boat Induction Manual, have now been consolidated into this one record keeping component. The pages previously used for recording accidents / incidents and injury / illnesses have each been separated into two sections, as has reporting of ecological or general observations been separated.

The functionality of the Record / Logbook operates, mechanically, the same way as the Fishing Operations Manual and every entry in each section when saved is retrievable and can be updated.

The backend management portal also provides access for the CGP Manager and the Independent auditor to access the app and check the input of every user to ensure all required information has been included and saved. This will be key to future considerations by the CGP management to introduce remote auditing of vessels e.g. using FaceTime to observe and review the vessel audit requirements without having to physically be present.

The rest of the documents noted under this Objective 1 and Phase 1 of the project are key reference material for delivering the CGP, and can be accessed through the app - while they are not editable as such by the app user, each is important to the overall program package.

Component 3: *Clean Green Standard* – this is the overarching document that sets out the Objectives and Best Practice Standards to meet the goals of the CGP and is verified / validated through the audit process. The Clean Green Standard has always been structured as a pot-to-plate control document that sets out all the 'what & how to' processes and procedures.   This project has enabled a complete re-working of the content in the standard including new Quality Objectives and presenting in two distinct Parts i.e. Part 1) Fishing Operations (Harvest) and Part 2) Processing and Exporting Operations (Post Harvest).

In regards to Part 1) Fishing Operations, the Standard dropped out the CGP's 'Sustainability' element and strengthened the 'Environmental' best practice requirements. The reason for this change was that sustainability is managed through the various fishery management plans for each jurisdiction, whereas all the environmental interactions of fishing operations are managed at an operator / vessel level. The changes to further enhance the responsibility requirements for environmental interactions at the operator / vessel level (in the Standard) flowed through to additional documentation of procedures in both the Fishing Operations Manual and the Audit Checklist.

Component 4: *Clean Green Audit Protocol* – this document establishes the credentials to be recognised as a Conformity Assessment Body (CAB) and undertake the CGP independent vessel audit assessment requirements. The document also establishes the frequency to conduct vessel audits and the timeframe to address any Corrective Action Requests (CARs) which can occur when a vessel fails an item on the audit checklist. For this project, the Audit Protocol document required very little updating from the last time it was reviewed.

Component 5: *Clean Green Audit Checklist* – this document is based on auditing guidelines that are set out in the CG Standard and follows in the same order for the Checklist. The few amendments made to the Audit Checklist correlated with the updates to the CG Standard and the relevant components of the Fishing Operations Manual, particularly the increased requirements for managing environmental interactions / responsible fishing practices.

Component 6: *Clean Green Management Manual* - there had never been an overarching management manual, as such, defining the objectives and the system requirements to manage the program. The Management Manual was developed in consultation with AMSA to assist with any CGP recognition process.

Component 7: *New Clean Green WH&S and Vessel Safety Video* - The production of this video was contracted to Millstream Productions (Matthew Blyth and Alaneo Gloor) who have considerable experience producing videos for the commercial fishing industry. This work was included in this project to replace the video *Occupational Health and Safety for the Professional Fishing Industry* produced by the Western Australian Fishing Industry Council (WAFIC) some 20 plus years ago.

The framework and content for the new video was produced in collaboration with AMSA, the production company and the Project's Investigators, and during this consultation process it was agreed that the title would be: *Fishing for Safety*. It was agreed from the outset that the video content focus on guidance for developing a vessel Safety Management System (SMS) and WH&S it would be general in nature to make it relevant and appealing to the diverse and dynamic nature of the commercial fishing industry.

Filming for the project took place during November 2018 in South Australia's Southern Zone Southern Rock Lobster Fishery, with a considerable level of support from skippers (providing their vessels / gear) who operate out of the ports of Robe, Beachport and Southend. In addition to the footage filmed with the Southern Rock Lobster industry, Millstream Productions were also able to provide additional footage from their experiences working with other individuals and sectors involved in commercial fishing. In addition to the use of live footage the production / script for the video enabled the use of a lot of infographics to enhance the educational messaging contained in *Fishing for Safety*. It was officially launched to industry in August 2019 at the Trans-Tasman Rock Lobster Congress held in Queenstown New Zealand. The following paragraphs are from the official Release Notice that was widely distributed when the video was launched:

'*The video, of 16 minutes duration, is an engaging and superbly shot production which really makes the subject matter come to life. It puts an industry-focussed take on SMS development and adoption within the Australian commercial fishing industry through the sharing of real-world stories and experiences.*

While the production was driven by the Australian Southern Rock Lobster Industry, Fishing for Safety includes inspiring footage and stories across a range of fishing industry sectors and operations - it is intended for use as a freely available training and induction tool in vessel safety and SMS development. We encourage you to view and share the video widely.'

The release notice was widely distributed through the FRDC and SRL networks of industry contacts.

Feedback following the release was very positive with some of the larger fishing companies i.e. other than Rock Lobster, using it for educating their skippers and crew. AMSA are also using *Fishing for Safety* at the industry safety workshops they have been conducting around the country.

As noted previously, now that AMSA have provided their direct feedback, and this had been accommodated into guidance advice, the app will be re-released to industry highlighting this development.

AMSA Accreditation of the Clean Green Program

At this point there are still ongoing communications with AMSA regarding recognition of the digitised app version of the CGP. Due to the COVID-19 travel and office / meeting restrictions, a number of scheduled meetings between the project investigators and AMSA to demonstrate the app have been cancelled. A senior AMSA officer has advised the project's Investigators that their accreditation program was not continuing. Consultation is still underway with AMSA to meet and demonstrate the functionality of the digitised CGP / app and discuss any recognition arrangements they are considering.

Whilst it took some time to receive feedback from AMSA in regards to the content of the app it was noted the updated version of the CGP "met the intent of MO504" (Marine Order 504). AMSA did provide some commentary on terminology used in the app in regards to MO504 SMS requirements and these were incorporated into the final updated version of the app that industry is now using.

Additional Project Output – Water Quality Monitoring

In September 2019 there was agreement to vary the project outputs to include some research and trialling of Water Quality Testing Technology that would be undertaken within the existing budget i.e. no additional funding required. The proposal to undertake the additional work within the project was based on an amendment in the Fishing Operations app – Part 5 Vessel Good Manufacturing Practice (GMP) recommendation under *Water Quality, Wet Wells Circulating Tanks* to measure and maintain water to the following specifications:

- temperature 8°C - 14°C – optimum 10-12°C;
- oxygen concentration (DO) greater than 70%;
- salinity between 30 and 38 parts per thousand (ppt) – optimum (35-36ppt);

These specifications are based on water quality management criteria from the Clean Green Standard which also correlates with the work undertaken by U-TAS in the project: *Improving post-harvest survivability of Southern Rocklobster in a changing environment.* These water quality specifications are also included in the Best Practice Guide developed for the Post-Harvest Export Operations app (detailed under Objective 2).

Initially the research into water quality sensing technology identified about 6 suppliers of potentially suitable equipment by the following manufacturers: Endress + Hauser, Hobo, Senect, Hach, OneTemp and SEDNA. Meetings were held with the Australian distributors of most of these potential options. The equipment reviewed provided an assortment of operational options such as:
- Hand held (portable) or permanently fixed monitoring equipment;
- Capabilities in the actual criteria (number of water qualities) that can be measured and / or continually monitored;
- Ability to record and store data that can be downloaded,
- Powered by battery, or hard wired for either 24VDC or 240VAC power supply; and
- Include an auditable alarm to signal if the water qualities being monitored move outside of the set parameters.

Early in the research, the use of hand-held technology that required the sensing probes to be interchanged for each quality criteria to be monitored i.e. not able to measure Temperature, Dissolved Oxygen and Salinity at the same time, were considered impractical to use on a Lobster fishing vessel. For convenience of referencing, the Investigators referred to the technology as Water Quality Monitoring Systems (WQMS). After the initial research and discussions with suppliers, a 'spec' document was developed to narrow down the focus on suitable technology options to integrate into the monitoring systems that would:

1. Have a fixed monitor / controller that could measure all three water quality specifications, with a built-in alarm (audible when set paraments were not being met) and record data that could be stored / downloaded and reviewed retrospectively
2. Use sensors that could be permanently fixed into a vessels' holding tanks (cabled back to the fixed monitors / controllers), and
3. Have options of power supply being either 24VDC or 240VAC depending on a vessels' power supply (some WQMS can be set to work from either).

At least two suitable options (Senect and Endress + Hauser) met the criteria in the spec document and were considered suitable for trialling. Once there had been some further investigation on the actual installation requirements on vessels or facility holding tanks e.g. freestanding or wall-mounted installation of monitors / controllers, power supply connection and fixing sensors into tanks, the Senect Two was considered the most suitable for installation on vessels. Several of the Senect Two systems were purchased costing approximately $3,500 each.

One other interesting WQMS product that has come onto the market more recently (after research and trialling had been completed) is the SEDNA Aquaorb. Rather than cables it uses Wireless Bluetooth technology from the (bulb like) sensing device in the holding tank linking it to an app installed on your own device which collects and stores the data. While the upside of the SEDNA technology is no cabling from sensors to the controller or monitor, it does not currently measure salinity, purchase and set up costs are currently around $13,000 and there is no audible alarm for when the fields being monitored move out of the optimum ranges. However, it is evolving technology worth following.

Since the Draft Final Report was submitted the project's Investigators have received some further feedback on the Senect WQMS that was trialled. The additional feedback noted issues with the monitor probes fixed in the holding tanks in regards to how often calibration was required to remain accurate and also how quickly there was marine fouling build up from constant submersion in salt water. These issues would differ between wet wells and holding tanks where the water is pumped in and out. It also highlights that the available WQMS equipment that was tested is really designed for aquaculture use and there is no technology specifically designed / available for wet wells and circulating tanks on Rock Lobster fishing vessels.

Project – Objective 2: *Fully review and revise existing, and develop new, material for exporter / post-harvest operations*

Phase 2 Development of Clean Green Program Content for the Post-Harvest Sector (Export)

At the time this project was commencing, another project titled: *Improving post-harvest survivability of Southern Rocklobster in a changing environment* was being undertaken by the University of Tasmania (UTAS), led by the Principal Investigator, Dr Quinn Fitzgibbon. The UTAS project proved to be very timely as the results of the research into post-harvest industry management practices for handling and live holding (circulating tanks /systems) in processing and export facilities were able to support the revision and development of material to deliver the outputs and outcomes for this Objective and stage of the project.

Through consultation with SRL and FRDC there was agreement to enter into a formal arrangement with UTAS to pay them (from this project's budget) to develop a best practice guide based on their research project. The document developed by UTAS was 35-pages and titled: *Best practice guide for Southern Rock Lobster post-harvest holding and processors industry operations.* Once the document had been received from UTAS it was decided to also develop an abridged version. The thinking behind the abridged best practice guide was to have a document that was shorter, not as technical and written with less scientific reference and research detail, that would be more suitable for educating existing, and inducting new, staff into best practice procedures. The abridged version was drafted by this project's investigators who collaborated with UTAS on approval of the final document. Both versions of the post-harvest best handing guides can be accessed through the post-harvest app. The actual material developed for Object 2 and Phase 2 of the project were:

Component 1: *Clean Green Post-Harvest Standard (relevant to exporters)* - the Clean Green Standard having been originally developed as a Pot-to-Plate document and written in a format that basically following the supply chain i.e. catching vessel operations to post-harvest processing and export. This made annexing the back half of the document i.e. separating at the point the Lobster are no longer the responsibility of the fisher, for use as the Clean Green Standard titled: Part 2) *Post Harvest Holding and Processors Industry Operations*, a relatively straight forward process.

Once this annexing of the material in the Standard document required for Part 2 had been formatted into a new document, the content was then reviewed against the outcomes of the UTAS project and the Best Practice Guide they had prepared for this project. A considerable rewrite (from the original material) was undertaken to prepare the new Part 2) Post-Harvest Standard by basically following the actual supply chain stages and incorporating the recommendations from the material supplied by UTAS.

Component 2: *Implementation Manual Material to assist with staff training and induction* - in addition to the best practice guide (full and abridged versions) a PowerPoint Presentation (PPP) has been developed which basically follows the content of the Standard document for Part2) Post-Harvest and the Best Practice Guidance documents for the framework and content. The PPP will be provided to Australian Rock Lobster Exporters Association (ARLEA) members when they request access to download and use the Post-Harvest App.

Component 3: *The Clean Green Post-Harvest Audit Protocol* – at this stage the fishing operations protocol will provide a guide for an audit protocol document if and when the post-harvest sector agreed to go down the industry accreditation pathway.

Component 4: *Clean Green Post-Harvest Checklist* – this document is based on auditing guidelines that are set-out in the CG Standard (Part 2) Post-Harvest, and follows the control criteria in the same order i.e. from the point of receiving catch from the fisher to dispatch from the processor / exporter facility.

Component 5: *Additional documentation to include in the Post-Harvest App* – this required developing three additional documents that can record data input and then analyse and summarise that data; being:

    a. Dashboard
    b. Water Quality
    c. Stock

More detail on how these documents operate when digitised and included in the app will be provided in this report with the commentary provided on Objective 3 phase 3 of the project.

Project – Objective 3: *Digitise the revised clean green program so it can be implemented in a device application (app) software format*

Phase 3 Digitisation of all The Clean Green documentation to be used in the App

The core goal of this project was to adapt 21st Century technology to transform the existing paper-based CGP (harvest / catching sector) into an iOS (Apple) app-based format, best suited for use on the Apple iPad. Additionally, a second app for use in post-harvest operations was also planned and developed as part of the project. As well as developing the apps, the project also required the development of an online web portal to administer the apps and provide an efficient backend management and administration system for the CGP.

Selection of IT company

Prior to submitting the final project application to FRDC for approval, the Project's Investigators undertook and expression of interest (EOI) inviting a number of Information Technology (IT) companies with experience in developing digitised application (app) programs to submit an application with costings.

The EOI process produced six responses from which three companies were selected for interview based on their apparent capabilities from their response to the EOI to perform the work and produce the required outcomes. At that stage of interviewing and appointing an IT company, FRDC assisted with the selection process and the assessment of the capabilities of the applicants. At the completion of this thorough process, Only Cloud, which is part of the Adelaide based Crawford IT Group, was selected. Once the final approval was given by SRL and FRDC the Project Agreement for project 2017-224 was finalised in July 2018, an agreement between Crawford IT and SRL was then formalised for the contractual arrangements to develop and deliver the IT component of the project.

Development of Backend Management Portal

Once the project was given approval to start, Only Cloud commenced their development work on the first stage of building the backend management and administration portal. Regular meetings were scheduled with Only Cloud, the Project Investigators and SRL Executive Officer (EO) and CGP Manager to review the functionality as the development of the backend management portal progressed.

Development of content for apps

At the same time, Only Cloud were developing the backend component, the Project's Investigators commenced work on reviewing, updating and developing all the (new) documentation to form the digitised content for each of the two apps commencing with Fishing Operations. Most of this work for the first app content was completed (as previously detailed under Objectives 1 and 2) and passed to Only Cloud by the end of 2018, with one final section / document (Flip Cards) provided in early 2019. Once all the material for the catching sector app was complete the Project Investigators developed the content for the second post-harvest app and that was forwarded to Only Cloud when completed in May 2019.

Reviewing app content and testing functionality

The focus of Only Cloud was to complete the development of the backend before starting on developing the first of the two apps. Then, unfortunately there was some considerable time slippage experienced in the development process before it reached a stage where the Project Investigators could actually view the app and get a feel for how it was going to function. Meetings were held with the developers in late November 2019 and again in January, February and early March 2020 to assess the development of the app and provide feedback on the look and functionality.

In March 2020 the implications of COVID-19 became evident with States starting to close borders and implement travel restrictions. It had already been agreed that the Fishing Operations app had advanced to a stage where rather than viewing the progress through demonstrations with Only Cloud the latest edition could be loaded onto iPads and sent to the Project Investigators to test and provide feedback. This required sending the iPads back to Only Cloud after each round of testing. After the first time the app had been viewed with all sections loaded and hands-on testing conducted, there was considerable feedback to be given. Sending iPads back and forth worked without much issue to begin with but soon encountered difficulties due to Covid-19 in Victoria and significant delays in the mail system between Melbourne and Adelaide. Subsequently, these delays pushed the project's timelines out a number of months. However, until a level of functionality with the app was achieved iPad testing was the best option. Some of the

documentation that had been prepared for the app also required some further revising once it was being loaded into the digitised app format and tested and functionality assessed.

Once the iPad testing of the app had reached a level of functionality where it was more about fine tuning (i.e. all the data input and manipulation was meeting expectations as was the look and feel of the app, and no parts missing from any section) each revised edition could then be uploaded and accessed through the web using TestFlight. TestFlight was used to review several more updated versions of the app before the Project Investigators were satisfied it would meet industry expectations.

Once the Fishing Operations app was fully functional, further testing was undertaken by several existing CGP fishers. Their feedback was generally positive and a couple of items that were suggested will be incorporated into an update of the app to be rolled out to industry before the project is finalised. The Project Investigators have agreed this would be a beneficial exercise for the CGP Program Manager to experience distributing an update of the app once it is being used by industry.

Once the testing of the Fishing Operations app had commenced, the content for developing the Post-Harvest app were given to Only Cloud to commence the next stage. The Post-Harvest app is considerably smaller in content and functionality requirements and was developed requiring less versions and reviews to approve the functionality.

The Fishing Operations and Post-Harvest apps both require Log In details to be set up through the backend management portal by the CGP Manager to access the relevant app. Once a Post-Harvest app user has downloaded and set-up the app, they are no longer monitored by the CGP Manager. Whereas the users of the Fishing Operations app are monitored through the backend to ensure all their documentation has been completed as required to meet the certification requirements of the CGP.

There is also a lot more management functionality between the Fishing Operations app and the backend in regards to receiving notices, any updates to the content and notification for auditing and closing out any Corrective Action Requests (CARs) following an audit. The Program Manager can email and message participants (users) through the on-line portal connection to the app and the recipient can email and send documents i.e. closing out an audit CAR, back to the Manager. All of this functionality has been tested by the Project Investigators and the CGP Manager during the review process.

Overall, the engagement of industry stakeholders has been a more challenging process during the development and testing of the apps than it normally would be. Starting with the COVID-19 pandemic, and the associated travel restrictions, and then the collapse of the industry's biggest market, China, have created a number of issues that have made it a challenge to get focus and support on this project while these other important matters have been so distracting for fishers and exporters.

Since the initial release of the app some amendments were made in an updated version to better align with the terminology used in AMSA's MO504. The update also included a cross-mapping compliance checklist of where MO504 requirements can be found in the app CGP.

Additional Project IT Work

In August 2021 the project engaged Crawford IT to undertake further work to assist in the roll-out of the Fishing Operations app to industry. Originally the project roll-out to industry had been planned to be delivered in workshops across Tasmania, South Australia and Victoria between August and October 2021. Then, due to another COVID-19 outbreak in Victoria resulting in further state border closures, an alternative to holding workshops needed to be considered. This led to discussions with Crawford IT who proposed to develop an e-Learning Platform (ELP) where existing CGP participants, and those considering joining, could undertake their relevant training via web-based online program.

A proposal to amend the project to include the ELP in place of training workshops was prepared and presented to SRL and FRDC, noting the additional work would be undertaken and completed well within the original budget i.e. no additional funding would be required. The proposal for Crawford IT to develop and host the ELP was approved.

The development of the ELP was based on the PowerPoint presentation (PPP) material the Project Investigators had already prepared for the workshops, plus the Fishing for Safety video and an instructional guideline document for downloading and using the Fishing Operations app. The ELP was set up in two streams. The first stream is for existing CGP participants who are required to work through the PPP

explaining why the app was introduced and what has changed or been included in the updated CGP. They are then required to watch the video and then download the app's instructional guidelines document to complete their training. The second stream of the ELP for new or returning participants to the CGP work through the first PPP, watch the video then complete a second PPP before downloading the app guidelines document.

The ELP was structured in a way that the training needed to be completely finished by ticking off at various stages, not being able to access the next step without fully completing everything as you worked through the PPPs and the video could not be played in fast forward mode. Each participant has to register for training to receive login details and, at this point, the CGP Manager would allocate what training stream the individual is required to complete based on being an existing participant or whether they are re-joining / new to the CGP.

More details on the content and requirements of the ELP and roll-out to industry will be provided when Objective 4 is addressed.

Participant Log in Details – Access Security

With the Fishing Operations app and the ELP, access to these programs can only be through registering via https://cleangreenapp.southernrocklobster.com to undertake the training and by supplying the information requested at that point to be included in an automated email to the CGP Manager. Once that email is received, the person's relevant details are recorded and an individual Username and Password i.e. their login details, are generated and set up in the backend management systems for both the ELP and the app. These details are emailed back to the intending participant. The same login details are used for accessing both the ELP and the app.

All login details are managed by the CGP Manager and cannot be re-set or altered by the individual users undertaking the ELP or using the app. The Fishing Operations app is set up this way to ensure only authorised users are accessing and using the app and benefitting from the program. For reasons such as not remaining financial (paying annual subscription) or failing to close out CARs, the CGP Manager can turn off the Login access and the app will no longer work for that user. This way, only compliant participants can use the app, unlike the former paper-based program where once you had all the documentation it could continue to be used after exiting the CGP program and still claiming to be a certified skipper / vessel when this was not the case.

OBJECTIVE 4: *Launch and roll out the revised and digitised clean green program*
Phase 4 Roll Out
The workshop materials and activities initially planned for this phase of the project required a complete re-think due to ongoing COVID-19 travel and border restrictions. In the first half of 2021, when travel and boarder entry restrictions that were in place for much of 2020 eased, the Project Investigators scheduled training for South Australia, Tasmania and Victoria to occur throughout August to October. The workshops were timed for just prior to fishing seasons commencing in each jurisdiction. Unfortunately, another COVID-19 outbreak in Victoria in July and the consequential travel and border restrictions across States meant the planned workshop had to be cancelled.

e-Learning Platform (ELP) to deliver on-line training
The cancelling of the workshops required the Project Investigators to consider what the options were to continue with the roll-out of the CGP in the revised and digitised app format. As already described under Objective 3 and Phase 3 of the project, Crawford IT were engaged to develop an ELP to continue with the roll-out phase of the project to existing CGP participants and for new or re-joining participants. As it had been intended that any new or re-joining CGP participants would be required to undertake additional training to participate, as compared to those fishers already active in the program, the ELP was designed to accommodate two streams within the one online program.

New Vessel Safety Video – *Fishing for Safety*
The new vessel safety video, *Fishing for Safety,* of which the development was addressed under Objective 1 Phase 1, was always going to be a key component of the roll-out workshops. The video was included in the development of the ELP and forms an integral element of the presentation material as it has become central to the CGP vessel and personal safety message.

Industry Notification
An industry flyer detailing the ELP roll-out process, the technology required to use the app (Apple iPad specs) was developed and distributed via SRL to each of the State Rock Lobster industry bodies to then distribute to their respective license holders. It is important to note that all CGP participants had been advised several times in the past two to three years of the project to digitise and update to a device application (app) based format for use on an iPad.

Component 1: *Develop workshop and training materials for fishers, exporters and processors.*

Fishing Operations Presentations:
Starting with the existing presentation material and then evaluating what should be included from the updated material for the fishing operations app, the content was mapped out for two separate presentations for industry:

PowerPoint Presentation 1 – providing an update on what has been included in the updated version of the Fishing Operations app that replaced the previous On-Boat Induction Manual. This PPP also included the work done on the research into options for Water Quality Monitoring Systems.

All training participants i.e. existing, re-joining or new, would start working through this presentation which would be followed by the video. The ELP use of the PPP operated so that training participants had to tick off at the end of presentation 'sections' so that working through all the material was required before recognising completion. With the video, while it was able to be stopped at any stage (important for skippers training and inducting crew) it could not be watched in fast forward mode and needed to be played until the end before being able to 'tick off' as a completed step.

Instructions for Setting Up and Using the Fishing Operations Digitised Application (App)
Access to a downloadable instructional guidelines document (PDF format) for setting up and using the Fishing Operations app was included within the ELP content. The document, which could only be accessed by existing participants after watching the video, provides detailed explanations of all the features and functions of each icon used in the app and a part-by-part guide on how to set-up each element i.e. enter and save data, and navigate through all the content as if they were working with a manual version. The participants are encouraged to save a copy of the instruction manual so the document can be accessed for reference and assistance at any time.

PowerPoint Presentation 2 – is required to be worked through by all re-joining and new participants to the CGP. The presentation details the evolution of and background to the CGP as well as the expectations and requirements for ongoing participation. The presentation details how the Clean Green Standard establishes a best practice benchmark for a suite of standards within the one standard and how it addresses individually each of these core elements of the overall program. It also addresses how the requirements of an AMSA Vessel SMS overlap with the various Safe Work Authorities WH&S responsibilities.

The ELP stream for re-joining and new participants to the CGP provides access to the Fishing Operations app's downloadable instructional guidelines document once PPP 2 has been completed.

Post-Harvest Operations Training:

Post-Harvest PowerPoint Presentation
A PPP has been developed for the Processor / Exporters Operations based on the Clean Green Standard Part 2 (Post Harvest) and the Best Practice Guide for Southern Rock Lobster Post Harvest and Processor Industry Operations. The PPP has been structured so that it follows the contents of the Standard and the Best Practice document so it can be worked through systematically with either of those documents being used as an additional reference.

Instructions for Setting Up and Using the Post-Harvest App
A guideline document has been developed to assist users of the Processor / Exporter app with instructions for how to download, set up and use it.

The number of post-harvest operations users of the app will be considerably lower in total number than those who will be trained in, and access, the fishing operations app. Therefore, when interest is received to access and use the post-harvest app, once the intending participant has been set up with a username and password (their log in details) by the CGP manager, they will also be issued, at the same time, with a copy of each PPP and the Instructional document.

Component 2: *Conduct workshops for current fishers - participants providing instruction on moving from the paper-based program to working with an app.*
This has been replaced with using the ELP.

Component 3: *Conduct workshops for processors / exporters.*
Through SRL, the Australian Southern Rock Lobster Exporters Association (ASRLEA) will continue to be advised of the App and the process for training and using the program. The material developed for using the app and complimenting material it contains (CG Standard and Best Practice Guide) will be distributed as interest is received by the CGP to access the app.

Component 4: *Promote revised CGP to potential new participants.*
The notification flyer has only been recently distributed to industry through relevant industry representative bodies for the catching sectors in South Australian (Southern and Northern Zones), Tasmania and Victoria (Eastern and Western Zones) and weekly follow-up reminders will continue with ongoing need for this gauged by uptake. Relevant information in relation to the 'Exporters App', has also been distributed, via SRL, to the Australian Southern Rock Lobster Exporters Association.

Component 5: *Conduct new training workshops for new participants -1 Victoria and 1 Tasmania.*
The ELP has replaced conducting any of the proposed face-to-face workshops that were initially being scheduled.

Component 6: *Provide articles in relevant publications on the revised, digitised and expanded Clean Green Program.*
The only publication released to-date was the 'Release Notice' for the launch of the Fishing for Safety Video in August 2019 at the Trans-Tasman Rock Lobster Congress held in Queenstown, New Zealand. That notice was released widely and a number of complimentary acknowledgements were received. The content of the safety video is presented quite generically making use applicable to most fishing sectors with several non-Rock Lobster fishing operations using it for inductions and training.

Component 7: *Promote transfer of program to other fishing and post-harvest sectors.*
At the 2019 Trans-Tasman Rock Lobster Congress the Project's Investigators held promising discussions with members of the Western Australian Rock Lobster Council (WRLC) regarding the potential for their members to adopt the app version of the CGP. WRLC were keen to arrange a meeting with the Project's Investigators to receive a demonstration of the app when it was available. Unfortunately, again, COVID-19 travel and boarder restrictions have not allowed for scheduling such a meeting to take place.

There had also been some very preliminary discussions with fishers from the Eastern Rock Lobster fishery in NSW regarding the potential of taking up the app version of the CGP.

Generally speaking, in the past two years there have been a number of fishing / seafood industry events cancelled e.g. 2021 Rock Lobster Congress, Seafood Directions conferences, etc, that otherwise would have provided the opportunity to meet with other industry sectors to demonstrate the app version of the updated CGP. These opportunities should be available again in the future as life normalises around living with COVID-19 and enforcing further border travel restrictions becomes less likely.

Phase 5 Scoping for program transfer
As noted under Component 7 in Phase 4 (Promote transfer of program to other fishing and post-harvest sectors) there has been little opportunity to progress this final phase of the project due to COVID-19 travel and state border restrictions.

Results & Discussion

From the outset, this project always intended to deliver its key outcomes based on the 'D' in Research & Development by adapting an existing, successful, paper-based program and using 21st Century Information Technology (IT) and delivering it in the form of a digitised device-application (app). While there was some research required to revise and expand the content used to deliver the digitised CGP, the Project focus was mostly about updating and developing the CGP to operate as an app supported by an on-line web-based management portal (backend).

OBJECTIVE 1: *REVISE AND UPDATE THE CLEAN GREEN MATERIAL (CATCHING SECTOR) TO MEET STAKEHOLDER REQUIREMENTS AND FORMATTED FOR DIGITISATION*

Outcomes for this objective were to completely review the entire package of material used to deliver the CGP to the Southern Rock Lobster catching sector and prepare it for digitisation to use on an Apple tablet / iPad device. The revision work did not just focus on revising and updating material to accommodate changing legislative requirements that impact on Clean Green fishers, there was also new and additional content included as well. The new content mostly provided guidance on heightening the management of environmental interactions and further enhance the CGP as a benchmark in demonstrating best practice for responsible fishing.

FISHING OPERATIONS – APP MATERIAL

To produce the content for the Fishing Operations App the following documents were reviewed, updated or developed if required:

Fishing Operations Manual – previously titled the On-Boat Induction Manual, this document contains the most content of any single component in the CGP. There are 11 parts that make up the manual for a total content of 229 pages of which 85 require input of data and have functionality to manipulate and adapt that information to the operational requirements of the vessel the CGP app is being applied to.

Clean Green Record / Logbook – is the most regularly used component of the app once all the required input for the Fishing Operations Manual has been completed. Every individual part of the Logbook has the function to generate and save a page. The page, once established, can be further edited at any time e.g. undertaking crew safety and induction training that could be conducted over several sessions, can at any time stop and save what has been completed, then open again at any time and recommence recording again.

The sections that make up the Logbook are:

- Monthly Record - which requires at least once a week logs to be made for checks of:
  - Accessibility of safety gear & equipment
  - Daily safety checklist
  - Vessel cleaning & sanitation
  - Vessel waste management
  - Vessel engine maintenance
  - Refuelling
- Accident / Incident Report – such as any marine accident or incident involving people, vessels and groundings and / or causes injury or illness, when / where assistance is rendered to other vessels, unusual incidents and all communications sent or received in regards to an emergency. This part of the app also contains a weblink for reporting directly to AMSA, and relevant State SafeWork agencies, including phone numbers for verbal reporting.
- Work Injury / Illness Record – for logging details of any injury or illness resulting from vessel and fishing operations i.e. caused by a WH&S related incident. This part also contains weblinks to the WorkSafe authorities in SA, VIC & TAS for downloading the required reporting forms.
- Ecological Observation Record – for recoding observations such as, Threatened Endangered protected Species (TEPS), Marine Pests, an Oil Slick or an algal bloom. Particularly important for recording details that may require follow up by relevant authorities.
- General Observations – for recording other observations of general interest to the industry e.g. other fishing operations (Trawler) interacting with lobster fishing gear.

- Good Manufacturing Practice (GMP) – checklist for inducting crew into best practices for handling Rock Lobsters to ensure a premium product.
- Crew Safety Induction & Training – to be conducted by the skipper for every crew member on the vessel for the first time and as refresher training prior to the start of every season.
- Register for Crew Safety Induction & Training – for keeping a record of when every crew member has received Safety & Inducting Training.
- Register of Crew Details – ensuring crew contact details as well as a nominated next of kin details are at hand at all times.
- Skipper Induction – specifically for recording when the skipper is not the owner of the vessel to ensure the owner (or their representative) has done a proper induction with the skipper. Part 10(c) of the Fishing Operations Manual sets out a checklist for this procedure.
- Visitor On-Board Induction – to ensure all visitors who will be spending time on the vessel when it is underway are familiar with basic safety.
- Training and Qualifications Register – this part can record all the qualifications / training that the skipper and crew hold / have completed.
- Annual Review of Drills & Safety Procedures – for recording when all key life-saving / safety procedures that require annual drills are undertaken by the vessel's designated person (usually the skipper) including reviews of specific safety procedures.
- Vessel Hygiene Checklist – all fishing vessels that produce a product that is exported are required by Department Agriculture, Water and the Environment (DAWE) to be audited against specific criteria in regards to the vessel's hygiene. Usually, this audit should be undertaken by the export company who purchases the product from the fisher / vessel operator, however for CGP trained participants they are permitted by DAWE to undertake their own hygiene audit

Clean Green Standard (Fishing Operations) – apart from separating the CG standard documentation into 2 Parts i.e. Fishing Operations and Post-Harvest Holding and Exporter Operations, the actual content has undertaken a considerable revision. The background and introduction to the Standard has been updated and a new set of goals for the CGP have also been included. The content that sets out the operational and auditing requirements has been updated based on new information and increased focus on managing environmental interactions of fishing and vessel operations.

Clean Green Audit Protocol – was reviewed and required very little revision as it had undertaken a considerable update several years prior to commencing this project.

Clean Green Audit Checklist – a revised audit checklist has been produced based on the changes to the CG standard so that CGP participants can demonstrate their compliance with the increased requirements for managing environmental interactions / responsible fishing practices.

Clean Green Management Manual – was developed based on conversations with AMSA prior to the commencement of the project to have a document that sets out the goals of the program, defining the objectives and the systems to manage the CGP.

WH&S and Vessel Video – titled *Fishing for Safety* is already established as a successful output from the project and due to the focus on the general nature of the content is suitable (and being used by) fishing sectors other than just Rock Lobster. It was officially released in August 2019 not long after being completed and therefore has been available and being used for more than 2-years. It is a combination of live footage filmed on lobster fishing vessels, material from other fishing sectors, personal stories and experiences and combining the use of info graphics. In particular, the infographics have been able to convey a very concise message on safety requirements, that would otherwise require a much longer production if presented via verbal content. *Fishing for Safety* will be a successful means for conveying the message of safe vessels operations for many years to come.

Water Quality Monitoring Equipment (additional project output) – was included in the Project based on recommendations that had been included under Vessel GMP (Part 5 Fishing Operations app) to measure and maintain water quality within specified ranges for temperature, dissolved oxygen and salinity. While these specifications had always been recommended for holding Rock Lobster in processor / exporter facilities, measuring and maintaining water quality to actual specifications had not previously been recommended on fishing vessels. Ultimately, the use of this technology can be used to demonstrate

complete supply chain management to differentiate and promote Southern Rock Lobster from market competitors.

The research quickly revealed that there is no equipment designed specifically for monitoring water quality in the holding tanks or wells on Rock Lobster fishing vessels. There are a number of options for equipment that can measure a range of elements considered important for maintaining good water quality. The technology is available in the form of portable hand-held battery-operated devices with interchangeable probes through to fixed monitor / controllers operating on 24VDC or 240VAC power supplies that measure, display, record and store data while measuring a number of water quality elements at the same time using multiple sensing probes.

From there, research and speaking with a number of equipment suppliers the Project's Investigators began referencing the technology as Water Quality Monitoring Systems (WQMS) as they concluded from their research a fixed *in-situ* system that consistently performed multiple functions at once would be the best option for use on Rock Lobster finishing vessels. From a specification prepared by the Investigators, based on their research, the German designed and made **Senect Two** WQMS was considered to be the most suitable of the available technology and several systems were purchased to trial.

One finding from this research was that while fishers are very interested in monitoring the water quality in the holding tanks / wet-wells, many are not so keen on making any changes (even if relatively minor) to accommodate installation requirements for fixed components. In the future industry should be encouraged to make provisions for such installations when vessels are being built or undergoing a refit.

The following are some dot points noted from industry in trialling the Senect Two WQMS:

- The system did not link up well with the application installed on phone. After investigation it was apparent that a router was required to allow the system to work off a common network.

- The cables were too short and could not be extended as they are finished with plastic mouldings. Therefor had to 'make do' with the installation (different length cables are available from the supplier).

- An electrician was utilised to install the system - two hours of work.

- Some of the cables were damaged inserting / removing Lobster baskets from the 'Well'.

- Some effort / knowledge is required to keep sensors clean etc

- Audible alarm - went off at the jetty once, no fish on the boat, somebody had pumped out their bilge water and set it off. Interesting the impact of such an event can have on local water quality.

- Needed to be shown how to set upper and lower limits for each water quality parameter- not easy to do, but got there.

- Clive Perryman intends to utilise parts from the WQMS held by IMAS to repair the system on his vessel and IMAS have committed to provide a router to 'connect' the system. IMAS also intend to install data loggers in Clive's Well to collect the data on the same parameters, this will allow a comparison / analysis of information collected via the WQMS.

Overall, the system was viewed as useful. It provided Clive with a level of security i.e. he stated "as a skipper you can see the water change colour and you can infer what may be going on with water quality parameters, but the WQMS actually tells you the DO and salinity (and temp)". Clive also noted how reassuring it is to know what is happening actually inside the Well, as opposed to in the water outside the Well.

OBJECTIVE 2: *FULLY REVIEW AND REVISE EXISTING, AND DEVELOP NEW, MATERIAL FOR EXPORTER / POST HARVEST OPERATIONS*

POST-HARVEST APP MATERIAL

The revision of existing, and development of new, material for this objective and phase of this project coincided with the outcomes being presented from the project *Improving post-harvest survivability of Southern Rocklobster in a changing environment* undertaken by UTAS and led by Dr Quinn Fitzgibbon. The availability of that work contributed significantly to the development of the material for the CG Post Harvest app and formal arrangements were made with Dr Fitzgibbons through UTAS to develop the

document, *Best practice guide for Southern Rock Lobster post-harvest holding and processors industry operations.*

While all the material is there for the Post Harvest sector to become accredited under the Clean Green Program the same as fishing / vessel operations, at this stage, that is not a consideration. This is mainly due to processor / exporter operations already requiring accreditation as 'Registered Establishments' with the Federal Department for Agriculture, Water and the Environment (DAWE).

Their premises are already required to comply with food safety and export regulatory requirements. The material presented within the Post-Harvest app is about taking the most up-to-date available research into handling and managing live Rock Lobsters, then documenting and presenting as best practice for the industry and providing material to self-assess against benchmark criteria. Under the CGP, the material is now there for a post-harvest accreditation program – it just requires a need and a willingness to go to the next stage. The potential for a whole of supply chain accreditation for the Southern Rock Lobster industry under the CGP could be achieved with the material now available – it may just need market forces to drive it.

Clean Green Post Harvest Standard – as previously noted, this project has seen the CGP initial Standard split into two parts to focus on providing guidance and content material for the two apps. In this instance, for the second part of the Standard for post-harvest operations, the required documentation was revised, updated and new material included based on the UTAS work and best practice guide. It is set out to follow the supply chain stages from receiving to dispatching Rock Lobster. Interestingly, the UTAS project had already noted that the original CG Standard was one of the few documents that had been developed as an available resource to provide guidance on transporting, handling and managing live Rock Lobster in processor / exporter facilities. Incorporating UTAS's recent work has made the Standard (Part 2) an even more relevant document.

Implementation Manual – was presented in the form of the *Best practice guide for Southern Rock Lobster post-harvest holding and processors industry operations* available for the project through the agreement with UTAS. The initial guide of 35 pages was then further revised into a shorter less technical version of 21 pages that was considered to be more appropriate for training staff in handling and managing live Rock Lobsters. Both the full and the abridged versions of the best practice guides are included as reference material in the new Post-Harvest app.

Both the Standard and the Best Practice guides are presented in a sequential format that follows the supply chain from receiving Rock Lobster from a fisher to packaging for transport to overseas markets.

Clean Green Post Harvest Audit Protocol – at this stage, the fishing operations protocol would provide a guide for an audit protocol document. If the post-harvest sector considered going down an industry accreditation pathway that existing protocol document could be a template to be revised to set out the processes and procedures for audit requirements in processor / exporter facilities.

Clean Green Post Harvest Audit Checklist - this document is based on auditing guidelines that are set out in the CG Standard (Part 2 - Post-Harvest) and follows the control criteria in the same order i.e. from the point of receiving from the fisher to dispatch from the processor / exporter facility.

OBJECTIVE 3: *DIGITISE THE REVISED CLEAN GREEN PROGRAM SO IT CAN BE IMPLEMENTED IN A DEVICE APPLICATION (APP) SOFTWARE FORMAT*

All the development work to build the backend management portal and the fishing operations and post-harvest apps to enable adapting the paper-based CGP to a digitised application device program was undertaken and completed by Adelaide based Only Cloud (Crawford IT). The IT component of the project to digitise the CGP and develop an application device app to deliver and manage the program through an on-line web-based portal (backend) has provided the following:

On-line Web Based Portal – the backend management portal operates like a central hub to administer the digitised CGP and allowing the apps to function and communicate with the Program Manager. It provides a more effective and efficient system to manage the total CGP allowing the Program Manager to grant and withdraw access to the apps, conduct reviews of every participant (catching sector), app set-up to ensure all required content has been entered and completed and the Logbook is being used as required. The CGP Manager can also provide limited access for the auditor to review each app user's set-up and use of the app

e.g. where the auditor used to visually inspect the paper-based manual and use of the Logbook by a program participant at an audit, they can now look at that same content in the app (fishing operations manual and logbook) through the on-line portal.

Independent / third party auditing has always been an important component of the CGP for vessel and fishing operations. The development of the app and the management portal included the functionality for using the Auditors Checklist in the audit component of the app to record an audit and submit it to the on-line portal. The program administrator is able to review the completed audit via the portal and, importantly, the Correction Action Requests (CARs) where a checklist item(s) has failed, is appropriately recorded to identify what follow up actions to close out any CARs are required.

The Audit App, combined with the backend portal, has been tested, and proven to allow the ability for the Administrator (including the Auditor, with limited access provided to the backend portal) to schedule audits and have them appear in the Members' Calendar together with email notifications being provided.

The Audit App and Catching App, allow the participant to view all outstanding CARs, provide visual evidence (photo) to the Auditor to 'close out' any CARs (and for those CARs to be closed out in the management system). The participant is also able to view all historical and current audit reports and email those to a preferred address.

The portal can also generate various reports based on the information inputted by users. Another important function of on-line portal management system is the ability to update any part of the app e.g. amend or add a section in Part 9 the Vessel safety management system (SMS) due to a new regulatory requirement. After the update has been completed, the next time the app users log on they receive a notice from the CGP Manager regarding what has changed and that change automatically installs to their app on their iPad device. The notice from the Program Manager will also provide any advice if action such as data input is required to finalise the app update.

Fishing Operations App – functionality of this app, including the Logbook component, undertook a very rigorous testing program to achieve the level of functionality the Project's Investigators considered necessary to meet expectations. The app includes the fishing operations manual and the Logbook that combined have 243 pages of which 100 require data content to be added and saved as well as a number of other CGP reference documents including the CG Standard, a complete section for conducting vessels audits and receiving & sending associated communications and the Fishing for Safety video.

There is a lot of content in this app and the level of functionality and the use of icons on the screen ensure the user can navigate efficiently and effectively through all the sections and the parts within each section. Front of mind for the Project Investigators and IT Developers was to produce an app that has clear and easy to follow functions and operational consistency. To support CGP participants a guideline document is available with instructions for setting up and using the fishing operations app. The document is included in the ELP training stage is downloadable so the participants can refer to as required.

As previously noted, just prior to wrapping up the Project, some updates were made to the fishing operations app in regards to terminology used in MO504 including an additional Icon on the 'Home Page' to provide direct cross-mapping between AMSA's requirements and the content of the CGP app. The updated app version when downloaded also provided an important opportunity to successfully establish that all existing input from the app users is still preserved when updates are released.

Post-Harvest App - provides the means for exporters to collect water quality data from their tanking systems and also quality-related stock movements in their facilities. The exporters can view this data via a 'dashboard function' and / or export the data in a more manipulatable format. Exporters are also provided with access to the Best Practice Guide for SRL Post-Harvest Holding and Processors Industry Operations as a reference tool (including the abridged less technical version), together with the relevant components of Clean Green Standard and Auditor Template. These documents have been developed and included with the provision for future inclusion of post-harvest sector operators becoming CGP certified, in mind.

Access Security – at all times access to using the apps and participation in the CGP is controlled by the Program Manager issuing every user with their personal login details i.e. Username & Password. Any changes to the login details can only be made by the Manager so at all times only authorised and compliant CGP participants will access and benefit from using the app.

Additional Project IT Work – was undertaken by the Crawford IT to develop the e-Learning Platform (ELP) to support the training of industry with the implementation of the app when the proposed workshop in SA, TAS & VIC were cancelled. The development and use of the ELP will be discussed more under objective 4.

OBJECTIVE 4*: LAUNCH AND ROLL OUT THE REVISED AND DIGITISED CLEAN GREEN PROGRAM*

Phase 4 Roll Out

As already noted, the roll-out program proposing to conduct workshops in SA, TAS & VIC had to be considerably revised due to the COVID-19 border and travel restrictions in the second half of 2021. Following discussion with SRL, FRDC and Crawford IT a proposal to develop a e-Learning Platform (ELP) to roll-out the training to industry was agreed to in September 2021 and the on-line program was developed and ready for implementation by mid-November.

The ELP was designed in two streams, the first for existing CGP participants and second for re-joining or new participants to the Program. An industry notice was prepared detailing the finalisation of the digitisation / app project, how to register for the ELP and receive their login details and then undertake the appropriate training stream. The industry notice was subsequently forward to all Rock Lobster fishers in each of the three States by their respective industry bodies.

Develop workshop content for fishers and exporter / processors – prior to the decision to roll-out the training using a ELP (for fishers) in lieu of holding face-to-face workshops in each State, the presentation material had already been developed for the workshops. This material was then used as the content for the ELP.

Fishing Operations App Training Materials

The material developed for the workshops and then utilised by the ELP included:

1. A presentation (PPP 1) that covered the conversion of the original paper-based CGP to a digitised app format supported by an on-line management portal and the key changes that had taken place with revision and update work. This first presentation includes information on the research into the use of water quality monitoring systems (WQMS) on vessels. It was originally planned for this presentation to be presented first up at the workshops in a morning session attended by existing, re-joining and new participants to the CGP.
2. Viewing the Fishing for Safety video following the first presentation.
3. Downloadable guidelines document providing instruction on how to set-up the app (once login details are received), familiarisation with all the icons and navigation between the app's discreet parts as well as how to input and save data.
4. A second presentation (PPP 2) for those who were re-joining or new to the CGP and was based on updated content from past workshops. This was planned to be held in the afternoon following the first presentation, the video and guidelines in the morning.

Post-Harvest App Training Materials:

For the processors / exporters a PPP was developed based on the Clean Green Standard Part 2 and the Best Practice Guide. An instructional document for downloading and using the exporter / processor app was also developed.

Conduct workshops for current fishers – as noted this was replaced with the ELP requiring current fishers to take the first stream that included, the PPP 1, followed by the video and then downloading the instructional document for setting up and using the app.

Conduct workshops for processors / exporters – Processors / Exporters will now, on application to CGP Program Manager, receive the PPP and the instructional document for setting up and using the app.

Promote revised CGP to potential new participants (fishers) Victoria & Tasmania – this has been done through the industry notice sent out by the state representative bodies.

Conduct two training workshops for new participants, 1 in Victoria and 1 in Tasmania – any new participants will undertake the second stream in the ELP to become active in the CGP.

Provide articles in relevant publications on the revised, digitised and expanded CGP – to date the only publicity the project has undertaken is the widely distributed Release Notice when the Fishing for Safety video was launched in August 2019 at the Trans-Tasman Rock Lobster Congress in New Zealand. The

project's investigators will consult further with FRDC before finalising the project on any opportunities to provide articles for relevant publications.

Promote transfer of program to other fishing and post-harvest sectors:

As previously noted, apart from some preliminary discussions with WRLC and the Eastern Rock Lobster fishery, COVID-19 travel and border restrictions prevented opportunities to meet with other industry sectors and demonstrate the outcomes of the digitisation project to transform the CGP into an app based-format.

Phase 5 Scoping for program transfer

Refer to previous comments in previous point.

Conclusion

Unlike a lot of R & D projects that are undertaken to research an important issue or a subject that needs a solution and / or to be better understood to benefit or assist industry, this project was mostly about adapting an existing successful program to operate using a modern IT platform. The project's outputs were clearly understood to start with, so it was more about engaging the appropriate expertise to deliver those pre-determined end results.

Objective 1 – Phase 1

This project has delivered the key goal it set out to achieve, that was to review and revise the Clean Green Program materials, then apply it in a digitised application device (app) format managed through an online web portal (the backend). The CGP can now be successfully delivered using 21st Century technology replacing the paper-based format.

The revising of all the content within the many components of the CGP has provided the opportunity to address new legislative amendments under AMSA's NSCV – MO405 (Marine Order) requiring a number of inclusions in making a vessel's SMS compliant. In addition to these inclusions in the Fishing Operations Manual (app) the credentials of the CGP were further strengthened in regard to managing the environmental interactions of fishing / vessel operations, a procedure for fire extinguisher servicing and recommendations for monitoring and managing water quality in tanks and wells.

Producing the *Fishing for Safety* video has resulted in an outcome that sets the benchmark for conveying the message safe fishing and vessels operations and not just for Rock Lobster, but for other sectors of industry to use as well. The combination of live footage filmed on lobster fishing vessels, material from other fishing sectors, personal stories and experiences and combining the use of infographics has produced a great educational resource that will give many years of value.

Objective 2 – Phase 2

The development of the post-harvest app was preceded by a significant review and update of the CGP material previously prepared for processor and exporters. Undertaking the review proved to be well timed as in coincided with U-TAS releasing the results of the research project into management practices for handling and live holding (circulating tanks and systems) in processing and export facilities.   All the revised or new material used in the app is consistent with the results and recommendations of the U-TAS research which also makes it the most comprehensive and up-to-date guidance material available for Southern Rock Lobster post-harvest operations.

Objective 3 – Phase 3

The digitised application (app) format will provide Clean Green fishers with a more effective means of keeping on top of their documentation requirements i.e. filled in and up to date, it will provide direct access to the *Fishing for Safety* video and allow them to self-check their vessel against audit requirements. Importantly, it will also provide increased opportunity for fishers to implement the vessel SMS in a user friendly format. The on-line web portal provides a more efficient management system for the digitised app CGP and also streamlines the independent audit program. The ability for the CGP Manager to monitor how users of the Fishing Operations app are completing the required data input and using the logbook will contribute significantly to ensuring compliance.

The Post-Harvest app provides new option for processors and exporters of to record and monitor the performance of their individual purge and holding tanks and track the performance over a period of time using the dashboard component. The app also provides guidance on applying the most up-to-date research for handling and holding live lobsters and being able to guide staff in best practice.

Objective 4 – Phases 4 & 5

The plan to roll-out the revised and digitised app format of the CGP to industry by conducting workshops in each of the three states had to be cancelled due to the COVID19 pandemic and the associated travel and border restrictions. All the material to deliver the workshops had already been mostly prepared when it was agreed to cancel and reconsider an alternative. Following negotiations with the project's contracted IT developer a proposal was received and agreed to by the investigators with the support and approval of SRL and FRDC.

The agreement was for Crawford IT to develop and e-Learning Platform (ELP) to replace the workshops for training CGP participants in using the app. The material that was already developed for the workshops provided the content for the ELP. Some may have preferred in person workshops where those not so savvy with their IT capabilities could be encouraged and coached. However, now the ELP is established it can be accessed and training undertaken at any suitable time, now and into the future. The ELP has two streams, one for existing participants and those who may wish to re-join or new to the program. The on-line training through the ELP and the take up of the fishing operations app by the catching sector will continued to be promoted to industry with reminder notices up until the project concludes.

Through SRL and ASRLEA the adaptation of the post-harvest app will be promoted to the processors and exporters. The Project Investigators will also continue to review the potential to communicate with other fishing sectors and promote to them the potential to adapt the digitised app CGP.

The overall extension program for the final stages of the project was not been able to be undertaken as planned given COVID-related travel and meeting restrictions. The ELP, developed to assist in overcoming these issues, now serves as the primary extension tool and can be updated and utilised on an ongoing basis.

In the final wrap up there was saving (underspend) against the original approved budget and costings to deliver project 2017-224 and these funds are available for further extension work if SRL deem necessary and when there is a more suitable environment to travel, meet with industry representative bodies and present at relevant events. Any activities such as these should be planned to avoid times of peak industry fishing activities. The use of unspent funds is the basis for one of the key recommendations for this project.

Implications

Over the past 2-years there has been an unfavourable climate to really obtain a lot of focus and support with industry in the delivery of this project due to several factors. The first being the collapse of the main market in China and the other being the travel and boarder restrictions associated with COVID-19. Basically, the first factor has financially smashed the bottom line for Rock Lobster fishers, establishing an environment that is not conducive to introducing change to the CGP and being warmly embraced like recent past updates to the program have been. The COVID-19 factor has been more of an issue for the project's Investigators through the already noted impacts in the development phase of the apps and then on the ability to travel and meet with industry for trialling the apps and then with the roll out training phase.

The project has been able to deliver on all the key deliverables under the first 3 Objectives and 3 Phases of this project. It is within Objective 4 Phases 4 and 5 of the project, the roll-out to Industry and scoping for transfer to other sectors that implications for the project were experienced. These implications mostly stem from the previously raised travel and boarder restrictions due to COVID-19. The ability to meet, communicate and demonstrate the key outputs of this project i.e. the Fishing Operations app and the Post-Harvest app, cannot be completely substituted by using online options to convey what has changed, how it works and what the benefits are.

To overcome the main implication of this project around roll out and uptake is the requirement to keep communicating with and supporting Southern Rock Lobster fishers to adapt with the move from a paper-based CGP to the digitised application format.   The ELP was released when all the fishery jurisdictions were open for fishing, whereas the original workshops had been scheduled across SA, TAS & VIC prior to each jurisdiction opening.   Reminder notices will continue to be sent out to industry till the project is wrapped up, however ongoing extension work will be required.

Recommendations

There is really only one key recommendation for this project and that is for phases 4 & 5 the extension / roll out of both the Fishing Operations app the Post-Harvest app to industry and promotion to other sectors be continued and resourced from savings that have been made within the original forecast costings.

At the time of writing AMSA have a key focus on the active implementation of SMS platforms on commercial fishing vessels. Continued uptake of this the Fishing Operations app amongst participants in the Australian Southern Rock Lobster Industry, will ensure these requirements are met.

Extension and Adoption

The extension and adoption phases of this project main outputs (Fishing Operations app and Post-Harvest app) will continue to be worked on until the project's final report is submitted.

An industry notification has been sent to all Rock Lobster fishers in SA, TAS & VIC (several times) through the respective state representative bodies advising of the completion of the Fishing Operations app and how to complete the e-Learning process (ELP) process to then access the app.

As already noted, the planned extension work for this project that were key part of the original Extension and Communication plan has been impacted by COVID-19 travel restrictions and when the scheduled workshops were not able to proceed the ELP was introduced instead. As there will be an underspend in the project's allocated budget considerations should be given to keep supporting the communication and extension work. Particularly as the roll out phase has coincided with a peak fishing time in the fishery (workshops originally scheduled to avoid this) so encouraging take up when industry has more "downtime" will enhance the level of adoption.

Project coverage

At the Trans-Tasman Rock Lobster Congress held in Queenstown New Zealand in August 2019 a Release Notice was forwarded to all available industry contacts (with FRDC's support) for the release of the ***Fishing for Safety*** Video. At that same Congress the project's investigators gave a presentation on project to promote the release and availability of the video as well as overview of adapting the CGP to operate in a digitised devise application (app) format.

Project materials developed

There was a considerable amount of documentation required to deliver this project, some of which was original material that needed to be reviewed and, where required, updated as well as additional material needed to be created. All of the material that has either been revised or created for this project has already been described in considerable detail within this report.

Fishing Operations App

As already noted in this report, the material and content for the Fishing Operations app was based on what had been titled the CG On-Boat Induction Manual and CG Record (Logbook). All the material from the original manual was reviewed and, where required, updated and / or additional material was developed. Additional material that was revised and updated and / or developed included the CG Standard (Part 1: Fishing Operations), CG Audit Protocol, CG Audit Checklist and a CG Program Management Manual.

Material / Content for Post-Harvest App

Apart from the existing CG Standard, all the other material and content for the Post Harvest app was newly created for the project. The original CG Standard, which was originally developed as a 'Pot to Plate' model for best practice, was separated from the Fishing Operations requirements and presented as a Standard for Post-Harvest Operations (Part 2). Other material contained in the app is the 'Implementation Manual' presented as a *Best Practice guide for post-harvest and processor industry operations* which also comes with an abridged, less technical version, and there is also available an audit checklist based on the guidelines in the Standard. Templates for monitoring water quality in holding tanks as well as well as lobster quality (dead & downgrades) were also developed to use in the app.

Guideline Documents for Downloading and Using Apps

Two separate guideline documents were developed explaining how to download and use each of the apps, i.e. Fishing Operations and Post-Harvest – Refer:

Attachment 1 – Fishing Operations App Guidelines

Attachment 2 – Post Harvest App Guidelines

Industry Notification for Training

An industry notification was developed for the catching sector advising how to register (i.e. receive Log In details) to access the e-Learning Platform (ELP) to undertake the training program and then download the app (same Log In details required) – Refer:

Attachment 3 – Industry Notice for Clean Green App Training

Training – Fishing Operations

Two training presentations were developed for the Fishing Operations app, the first being an introduction to the CGP in the app format with a 'what and why' of what has changed including the review into Water Quality Monitoring Systems. At the end of that first presentation participants are required to watch the *Fishing for Safety* video. The second presentation provided more information on the CGP for new and returning participants to the program, in particular addressing vessel / fishing operations SMS and WHS and general compliance requirements of the program. The new or returning CGP participants are required to watch the first presentation and video as well. Existing CGP participants are only required to watch the first presentation.

Training – Post Harvest Operations

A training presentation has been developed that provides guidance for applying The GG Standard (Part 2 - Post Harvest) and the Best Practice Guide for Post-Harvest and Processor Industry operations. This presentation is provided (with the Post-Harvest App Guidelines) when an application is received to download the Post-Harvest app.

Fishing for Safety Video

The fishing for safety video can be view on the SRL website media section, by following the weblink below and clicking on *Fishing for Safety*, at:

https://www.southernrocklobster.com/media

Attachment 4 – Release Notification for the launch of the Fishing For Safety Video

Appendices

Project participants

Ross Hodge – Principal Investigator SRL

Justin Phillips – Co-Investigator SRL

Tom Cosentino – SRL Executive Officer

Dr Quinn Fitzgibbon – University Tasmania (U-TAS) Post Harvest Best Practice Guide.

Phillip Chau – IT development Crawford IT (Only Cloud)

Hoang Nguyen – IT development Crawford IT

Heng Chhoy – IT Development Crawford IT

Harrison Dunn – IT Development Crawford IT

Alex Kebbell – IT Development Crawford IT

Matthew Blyth – Millstream Productions – Fishing for Safety Video

Alaneo Gloor – Millstream Productions – Fishing for Safety Video

Michelle Grech – Australian Maritime Safety Authority

Joshua Haines – Fishing Vessel (Above Average)

Paul Regnier – Fishing Vessel (No Fear)

Scott Redman – Fishing Vessel (Trixie)

Joel Redman – Fishing Vessel (Belvedere)

Kym Redman - Redman Fisheries

Clive Perryman – Fishing Vessel (Minnamurra II)

Attachment 1 – Fishing Operations App Guidelines

Instruction For:

Setting Up and Using the Clean Green Fishing Operations Digitised Application (App)

Downloading from the App Store

Open App Store – type in (search for) 'Clean Green Catching'

It should come up with the following – use Open prompt and then insert your email address (linked to your Apple ID) and then your App Store password.

Tap the Icon and it will open up to a Log In. You will need to use the Username and Password that have been provided by the Clean Green Program (CGP) administrator (Tom Cosentino – SRL EO)
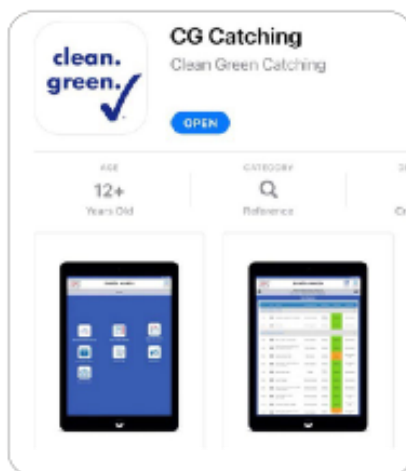
Once the app is downloaded the following icon will be on the screen of your iPad– this will always be your entry point to the app whenever you have logged out.
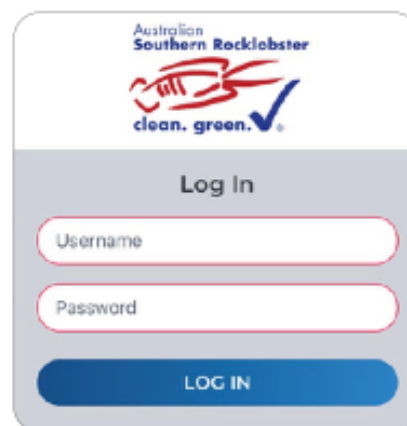
Note: as already noted, the Username and Password you have been provided with to Log In to the App can only be set and changed by the CGP administrator. This is to ensure only eligible program participants are granted and retain access to the app. As with personal Log In information it should only be disclosed to those who will require access to input, update and review the content of the App e.g. skipper (and vessel owner if not skipper) and crew.

Once you have completed the Log In step you will access the following **Home Page**:

(Note: images below are for example vessel Andiamo and your vessel's name will appear in the same spot when details are entered and saved)

The top three icons provide the access for CGP input and guidance material.

The **Clean Green Video** Icon will access the 'Fishing for Safety' video which explains the required content to document the requirements for the Operational Procedures for Vessel Emergency and Safety as well as any WH&S hazards associated with specific fishing operations e.g. Rock Lobster Fishing. It also provides important information for inducting and training crew.

Vessel Audits – provides details for audit appointments, any Corrective Action Requests (CARs) that are required to 'close out' an audit and the history of audits the vessel has undertaken.

Notifications – this will highlight any notifications that have been sent to you from the CGP Manager e.g. advising a section of the fishing operations manual that has been updated

Report Emailer – allows you to select key sections from the app and email them to yourself, or others, as a standalone PDF document e.g. you may wish to have a standalone copy of your vessel's SMS. *PLEASE NOTE: information required to close out CARs e.g. photo evidence, will need to be emailed / texted directly to the Clean Green Administrator (as is currently the requirement).*

AMSA SMS Requirements – this Icon provides guidance for cross-mapping where the requirements of AMSA's Marine Order 504 SMS Assessment Checklist are all addressed in the relevant Parts of the Clean Green Fishing Operations App.

Start with the **Fishing Operation Manual** – tap on Icon and it will open up into the following – just like opening the hard copy manual folder to the 'Contents Page' advising of the various parts of the manual. This page provides a number of "Infographic Icons" to navigate to each part of the app 'manual'.

In addition to the actual Icons for navigating through the various parts of the app, there are several Icons that enable key functions of the program and the following explains what these Icons enable.

Note: Icons at top **RH** of the image:

This will take you back to the Home Page

This will take you out of the app and requires using the Log In with User Name and Password to get back into the app.

Note: Any data entered, requires saving before leaving a Part of the app that has been edited – we will explain how to save data shortly.

Instruction For:

Setting Up and Using the Clean Green Fishing Operations Digitised Application (App)

PART 1 INTRODUCTION – tap on this icon and will open up into the 'Title Page'

Note Icons at top **LH** of this page:

Drop Down Menu Bar

The Menu allows any pages / section within that Part of the Fishing Operations Manual to be selected and opened, by just tapping on that page. Menu Bar will close when a selected page is opened or by just tapping elsewhere on the page.

Back / Return Button

This will return to the Title Page of the Fishing Operations Manual where you can access any Parts through the relevant Icon

Time to now spend a few minutes navigating around the App using the Icons to get a feel for opening and closing the Icons for the various Parts of the manual and the pages within those parts – no need to enter any data yet.

Let's Open **Part 2 (Vessel Information)** and open the Menu Bar then tap on **Vessel Authority Information** page once it opens you will notice a new Icon:

This is the **Cogs Icon** and it appears on **any page** where data input is required – tap the Cogs Icon and a number of yellow highlighted sections (data input fields) open down the page and note the name of your vessel has already been included when establishing your account to provide Log In details.

Tap on the first field (opposite Unique Identifier No) and note the keyboard automatically opens across the bottom of the page. Enter the information requested for that field. Couple of important points to note:

1. The keyboard provides pre-emptive text so the word you are inserting may appear at the top of the keyboard after first couple of letters are entered – assists with getting spelling correct
2. The "delete" button on the keyboard allows back spacing / erasing letters

Fill in a couple of lines then just tap anywhere on the page and the keyboard will close – note in the bottom LH corner two more Icons:

This is the **Cancel Icon** enabling the Cogs data input function to be turned off and return to a mode where can move to another page or just review any data that has been inserted.

This is the **Submit Icon** enabling data input to be saved after it is entered and before exiting the page.

Note: Can return to a page anytime and edit / change / update data that has previously been entered.

Spend some time entering data in the required fields (yellow highlighted sections) and then hit the Submit Icon followed by the 'Yes' this will save your data input and close the input enabling function.

Note: The Blue Bar at the top of the page has the following **Directional Arrows**:

The directional arrows allow scrolling (back and forward) through the part of the document currently open as an alternative option to using the Menu Bar.

PART 2 VESSEL INFORMATION: Important starting point of the app to begin editing / entering data as it not only requires Vessel details is also needs the names of the vessel's owner and designated person (Master / Skipper) and once this detail is entered it will self-fill (automatically inserts name of owner and or skipper) through the remainder of the app / parts as required.

Note: Because of the self-filling function of the app the data / input content required in Part 2 should be **completed first** to provide efficiency when inserting the rest of the required content of the app.

PART 3 DOCUMENTATION REQUIRED FOR AUDITS: This Part provides details of the Documents that need to be made available when an independent audit is being undertaken of the vessel (usually one every 4-5 years). **No data input required for this section**. Now use the back arrow ⟳ at the top of the page to return to what we previously referred to as the Contents Page and tap on **Part 4 Flip Cards Icon.**

PART 4 FLIP CARDS: Basically, the same information as provided in the hard copy manual with updates to seal locations, reporting stranded and injured animals, reporting environmental events (algal blooms / fish kills) and a new Emergency Resuscitation Guide.

One new component to Part 4 is a **Flip Cards Checklist** to ensure all of the Flip Cards have been read, understood and complied with – the checklist further underscores compliance with meeting the Environmental Objective of the Clean Green Program – remember to complete the Checklist.

PART 5 VESSEL GOOD MANUFACTURING PRACTICE (GMP). Similar to all the GMP information provided in the folder manual. The page for Fisher Details is the only section in this part of the manual requiring data input. With the page for **Handling, Transport and Holding** there is a new recommendation included in regards to using water quality monitoring equipment to measure and maintain water in holding tanks to the specifications noted in the Clean Green Standard.

PART 6 CLEANING, SANITISATION AND WASTE MANAGEMENT PLAN. Same as past requirements Part 6A Vessel Cleaning and Sanitisation Plan requires data input. Part 6A Chemicals Checklist requires data input for chemicals being stored on the vessel – one entry required for each chemical. Part 6B Waste Management Plan requires data input (same as Manual Folder requirements. A **new section Part 6C** (also requires data input) has been included to ensure control measures for managing on-board rubbish during a fishing trip are implemented to comply with national and international Rules and Regulations and further underscore the Clean Green Environmental Objectives.

The remaining pages in this Part provide Safety Data Sheets (SDS) for Chemicals that have been noted in the past as being regularly applied on lobster fishing vessels. SDS's should be available for all chemicals carried on vessels and can usually be found through googling the product name.

PART 7 WORK, HEALTH AND SAFETY (WH&S) STANDARD. The key role of Part 7 is to provide background information to the responsibilities for providing Workplace Health & Safety as well as Safe Vessel operations. While the requirements of AMSA and SafeWork Authorities may have considerable overlap the legislative obligations, individually, from each of these entities do not totally address all safe vessel operations / safe work tasks. By combining both requirements in Clean Green, a total safety package can be achieved. Basically, this Part 7 details the legislative requires of what / why needs to be

addressed to achieve a total safety package for safe fishing operations, whereas other parts of this Fishing Operations Manual / App provide guidance on how to achieve a total safety package.

While **Part 7** predominately serves as a reference document, in the Appendices section there are some links to key government websites where incident report forms can be downloaded e.g. AMSA and WorkSafe Authorities in SA, TAS & VIC. There is also a link to download an option for a company incident report form supplied by SRL. While much of the information contained in Part 7 is revised and updated to what has been previously provided with Clean Green, one new component in the appendices section provides information on the Small Business & Fair Dismissal Code. Engaging workers and then dismissing them, particularly if the engagement has been longer than 12-months can sometimes be a minefield for employers. This information and the link to Fair Work Authority are included as externally available reference material and are not a Clean Green compliance requirement.

PART 8.1 INDUSTRY HAZARD AND TASK ANALYSIS. No data

entry required for this part and it explains the requirement to firstly identify a potential Hazard and the subsequent consequence and then undertake a Risk assessment to identify the likelihood of it happening. The following explains what these key terms are:

Hazard:
In relation to a person, means anything that may result in an injury to a person or harm to the health of the person

Risk:
In relation to any injury or harm means the probability of that injury or harm occurring

Once a hazard has been identified and the risk assessed then documented Control Measures are identified for implementation that will manage the hazard and reduce the probability of occurrence.

PART 8.2 HAZARD AND RISK REGISTER. This Part documents the

Hazards and Risk assessment for a number of Activities / Tasks. The activities / tasks are grouped under three headings Pre-Season, Fishing Day and General Operations.

There are a couple of key functions in this Part that enable the Risk Register to be tailored to suit individual vessels. Using the ⚙ Cogs Icon will enable an edit function with an edit / add data ✎ Icon appearing down the far-right-hand column which will allow the Risk Register to be edited to tailor the requirements of individual vessels by adding new data to the page. New data requires saving (use submit Icon) or just use the cancel button to exit. On the left-hand side under the **Info** column appears an ❶ Icon which provides access to specific information for each activity / task.

Note: The functions of the ❶ and ✎ Icons provide access to the same detail / information that the original hard copy risk register spreadsheet contained in the previous Clean Green Manual Folder. All the information on the hardcopy foldout spreadsheet would not fit onto the screen, so these Icons provide access to all the detail as well as a function to edit and customise the content. All sections should be read and understood

When using the ✎ Icon at the bottom of the page appears an option to hide / remove a particular activity / task that might be considered unnecessary for your vessel / fishing operations. If you choose to use this hide / remove button for a particular activity / task it can be "reinstated" again through using the ⚙ Cogs Icon which allows you to access and "un-tick" the hide / remove option. Rather than actually removing a particular activity / task you might just use the edit function to note it is not required for this vessel.

If there is a particular task / activity undertaken in regards to your vessel / fishing operations in which is not included the Risk Register, use the ⚙ Cogs Icon followed by the Add Entry ⊕ Icon to include it as a new listing in the Risk Register.

Importantly, to ensure any new activity you may enter using the 'Add Entry Function' appears in sequential order, you will need to number the entry accordingly. For example; if you wish your new entry to appear between the existing activities number 6 and 7, you should number your new activity 6.10. This will ensure the sequential order is maintained. Note you are required to use the Group Section (drop-down menu) so your activity is listed under one of the three options i.e. Pre-Season, Fishing Day or General Operations.

Remember to use the ♣ Submit Icon to save any added section or edits to the Risk Register.

PART 9 OPERATIONAL PROCEDURES FOR VESSEL EMERGENCY AND SAFETY (OPVES).

Part 9 requires the most editing / data input of any part in the Fishing Operations Manual / App. It is the key part to addressing AMSA's legislative requirements under Marine Order (MO) 504 requiring every vessel to have documented safety Procedures, Checklists and Control Measures which are also required by SafeWork Authorities for WH&S compliance.

Any page that requires editing / data input will have ⚙ Cogs Icon appear at the top RH corner of that Section of the Part 9. Using the drop-down menu Icon at the top LH of the screen, select the **section 5 Man Overboard Procedures** then hit the cogs Icon. Note a box with **Edit List** appears at the top of each list of steps (Procedures or Checklists or Control Measures) to follow – tap on the Edit List box and it will open to another screen with the list of procedures now highlighted in yellow. The options now are to either edit / change the existing text or add additional lines to include additional directives by using the ⊕ Icon or even delete a line by using the ⊗ Icon then use the update box to save the edits that have just been made and close that page with any changes. All the Edit Lists options for each list work the same and at the bottom of the section / screen there is a **Comments** line to add any additional notes. For each section in Part 9 that has an Edit function

once it has been read and / or any edits made (this includes additional lines) add in the Comments lines *"I have read understood and endorse these procedures"*. Then use the **Submit Icon** to save any changes.

Should a section in Part 9 not be relevant to your fishing operations e.g. Section 6 Man Overboard Procedures for Single Operators just add in the highlighted section at the bottom of the section something to the effect of "These procedures not relevant to this vessel" or even still use the previous comment – this requirement for adding text is there to demonstrate that the page has been read and acknowledged.

Note: where an additional comments line **hasn't** been included just add an extra line on the **end of the final Edit List** using the suggested text to acknowledge the section has been read and understood.

To get a feel for how the editing functions work spend some time completing several sections of Part 9 starting with **Section 5 Man Overboard Procedures**. Next, go to **Section 12 Electrical Hazard Procedures** – this has **Yes / No** options for most of the required responses with Comments lines for adding text at the bottom – complete this Section for Electrical Hazard Procedures and add something in the Comments at the bottom, e.g. in Additional Control Measure if applicable add something along the lines of: *"Where possible battery operated or pneumatic tools are used when undertaking vessel maintenance"*.

Next go to **Section 33 Manual Handling** and have a go at completing all questions, noting wherever a Yes response is required usually a Control Measure response is required.

Sections 42.1 – 43.3 Other Fishing Operations is for documenting Procedures/ Checklists/Control Measures for other fishing activities that might be undertaken on the vessel e.g. scallop dredging or using a net.

Sections 43.1 – 43.3 Additional Safe Work Requirements is for documenting Procedures/Checklists/Control Measures that might be specific to a Hazard on the vessel this Part 9 applies to, but may not have been addressed within the content provided. **Always think: Can an injury to a person or harm to the health of the person occur in relation to the vessel's operation or specific tasks being undertaken.** If the answer is yes, and nothing is already documented, then use this section 43 of Part 9.

Part 9 Additional Notes:

1. Ensure each section of this Part 9 OPVES are reviewed and completed

2. Remember to read the Fact Sheet Appendices at the end of Part 9

3. From the previous Manual Folder new sections included in this Part 9 include Master Incapacitated, Refuelling procedure and a Section for addressing Dry Dock /Annual Vessel Maintenance that can also be edited.

PART 10 VESSEL CHECK AND MAINTENANCE provides lists in regards to safety and maintenance and allocating responsibility for specific items with any section in Part 10 having a ⚙ Cogs Icon requiring editing and / or data input.

Section Part A Daily Safety and Maintenance Checklist – as with the previous Manual Folder this is a list of key daily responsibilities to allocate between Skipper and Crew with a tick box to record the actual allocation of each responsibility. Additional items can be included at the bottom of the page.

Section Part B Vessel Regular Maintenance Plan provides a list of the key maintenance items for the vessel and in addition to the tick box to record the allocation of responsibilities there is also a function for allocating the frequency.

Part B also contains additional sections regarding the maintenance of Fire Extinguishers. First, there is a guidance note provided by AMSA clarifying

the requirements around inspection of portable fires extinguishers. The following section sets out the actions required to conduct and record a 6-monthly service on the vessel's portable fire extinguishers including inserting a date to record when it was last done.

Section Part C Workplace Safety Checklist for Owners and Skippers provides a checklist of items that can either be the Owner's or the Skipper's responsibilities (should they not be the same person). All the items relate to content contained within Clean Green and serve as reminder / reference checklist for all the key safety responsibilities for conducting safe vessel and fishing operations. Remember to use the Cogs Icon to enable tick function and record the date at the bottom.

PART 11 INDUCTION AND TRAINING serves as a reminder of the areas that Training and Inductions are required for skippers (when they are not the owner), crew and visitors as well as a section to record the General Training and Qualifications for the skipper and crew.

Note: All the actual recordings for Training and Inductions are captured in the Clean Green logbook – refer Part 12 Home page.

Sections 43.1 – 43.3 Additional Safe Work Requirements is for documenting Procedures/Checklists/Control Measures that might be specific to a Hazard on the vessel this Part 9 applies to, but may not have been addressed within the content provided. **Always think: Can an injury to a person or harm to the health of the person occur in relation to the vessel's operation or specific tasks being undertaken.** If the answer is yes, and nothing is already documented, then use this section 43 of Part 9.

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Note: All the actual recordings for Training and Inductions are captured in the Clean Green logbook – refer Part 12 Home page.

Setting Up and Using the Clean Green Fishing Operations Digitised Application (App)

Using the CGP App Logbook

Time to now familiarise with the operation of the Logbook. Firstly, on the Homepage of the App under an Icon Clean Green Administration an Icon with the title **Clean Green Admin Documentation**. The 'Clean Green Logbook Example' document provides a scroll through view of each section of the Logbook including some examples of detail to be recorded in regards to Accidents / Incidents, Illness / Injury, Ecological Observations and General Observations.

On the Home Page of the App next to Fishing Operations Icon is **Part 12 Clean Green Logbook Icon** that provides access to the following page which is basically the 'Contents Page' again using a lot of Infographic Icons to navigate to each part of the Logbook.

Starting with **Monthly Record**, when this section is opened it very much a blank page (to start with) with an **Add Entry** ⊕ Icon on the top RH side. Using the ⊕ Icon the details to be recorded will open and then fill in some of the requested information and then using the **Submit Icon** ⬆ at the bottom of the page this will save the page just worked on and

return to what was the initial blank page, but now has a line with information on who submitted and date submitted. The line now also has a ✎ **Icon** on the far RH side which enables to the page to re-opened for further editing. Each time new / additional details are required just use the Add Entry ⊕ Icon for a new page add details or for an existing page use the ✎ Icon add additional information and then save. This creates a history of Logbook use that can be checked by the Auditor and also reviewed by the program manager via the backend management portal.

Each section of the Logbook operates the same way starting with a blank page until the ⊕ Icon is used to open the content page in the required section enter the required detail and once saved being able to either further edit that page using the ✎ Icon function or start with a new page. Use of the ⊕ Icon is also another important function to return to the 'Contents Page' for navigating through the various sections of the App.

Note: Every Part of the Logbook uses these same functions for establishing, editing, saving and accessing for either establishing a new page or editing an existing one.

Remember in the Clean Green Admin Documentation section of the App there are Logbook examples to provide assistance with the type of information that that should be recorded in the various sections. Some explanation to assist with using each of the individual Parts that make up the Logbook component of this App are as follows:

Monthly Record is required to be regularly filled in during the fishing season and is a compliance requirement of the CG Program. Once a page has been created it can go back and be edited using the ✎ Icon the or a new page can be created by using Add Entry ⊕ Icon. A history of using the Logbook is automatically created for record keeping whenever a page is saved (remember to do this using the Submit ⬆ Icon on the bottom LH of the screen).

Accident / Incident Reporting could be in response to emergencies, accidents and incidents that either involve this vessel or witnessed by the Skipper or Crew happening to another vessel. This page provides for key information to be recorded that might be required in a more formal report e.g. to AMSA at a later date or to be shared with another skipper or an industry representative association. There is also a link at the bottom of the screen to AMSA to use their on-line reporting form.

Workplace Injury / Illness is for recording exactly what the title suggests. It is important to record work related injuries or illnesses as if a pattern starts to emerge of the same injury or illness a risk assessment of the matter should be undertaken to identify a possible cause / hazard and so controls can be introduced to reduce the risk. In cases of serious injury or illness occurring requiring professional medical attention a WH&S incident report form to the appropriate state SafeWork Authority maybe required. Links the State WH&S Authorities and the reporting procedures are provided at the bottom of the screen.

Ecological Observations is for recording sightings of the likes of stranded and injured animals or Threatened and Endangered Protected Species (TEPS), or a marine pest or an environmental event such an oil slick or an algal bloom. For anything that requires reporting to an authority there are phone numbers for the various agencies in each state in Part 4 Flip Cards of the Fishing Operations Manual component of the App.

General Observations is for recording notable events or sightings that might require further follow up e.g. fishing gear being interfered with or an observation of something that seems out of place.

GMP Crew Induction is required to train and induct new crew into the requirements of on-board Good Manufacturing Practice in regards to handling live lobsters to ensure a premium high quality, healthy and safe product. The page uses a tick the box

format and can be saved and then further edited if more than one session is required to complete the GMP induction. Completion of this page is required for compliance with the CG Program for any fishing operations that engages crew.

Crew Safety Induction Training is to be conducted for every crew member on the vessel for the first time and as refresher training prior to the start of each season. Completion of this page is required for compliance with the CG Program for any fishing operations that engages crew.

Crew Safety Induction Training Register is an additional document to the previous page to record when crew are inducted and training and refresher training takes place.

Crew Details is for recording specific details of crew that the skipper should have access to at all times. AMSA requirement for all crew employed on a commercial vessel.

Skipper Induction is to record that where the Skipper of a vessel is not the Owner an Induction has taken place based on the **Workplace Safety Checklist for Owners and Skippers** in **Part 10** of the Fishing Operations Manual. AMSA required that all skippers / designated person (when not the owner) are appropriately inducted and recorded.

Visitor Induction is a guide for inducting visitors who will spend time on the vessel, particularly when undertaking fishing operations and keeping a record of such.

Training & Qualifications Register provides a page to record that information for each person who works on the vessel, noting once again that a page can be edited each time information to be recorded is updated.

Annual Review of Checklists, Procedures and Schedules provides a page to record all key safety procedures that require an Annual Drill or annual review of the procedures for a specific safety hazard. Undertaking Annual Drills are an AMSA requirement as are reviewing the procedures for specific hazards and then documenting when this has taken place, who was involved and if any changes were required. Importantly, conducting Annual Drills provide an opportunity to physically test procedures that otherwise might only be undertaken when there is the added pressure and stress that would go with experiencing a genuine life-threatening situation.

Vessel Hygiene Checklist is an approved option for Clean Green Skippers to conduct an audit of the vessel against specific criteria in regards to the vessel's Hygiene. Any business that exports Rock Lobster is required by the Department of Agriculture, Water and the Environment (DAWE) to annually undertake a hygiene audit assessment of the vessels that supply product. Clean Green accredited skippers are approved by DAWE to self-audit their own vessels based on this checklist.

Other important information included in the App. On the Home Page under *Clean Green Admin Documents* section, you will find a copy of the Clean Green Standard as well as a copy of the Auditor's Checklist. These documents provide important reference and guidance into the benchmarks for Best Practice that the Clean Green program establishes for the Australian Southern Rock Lobster Industry.

Footnote – converting all the Clean Green fishing operations documentation, into a functioning digitised application (app) format has been a considerable task especially for the former On-boat Induction Manual and Logbook. Now all this material has been converted into this format, future changes and updates can be made and will just appear when you log into the app with a notification of what's changed. Much more convenient that mailing individually new / amended pages. Constructive feedback from industry with suggested improvements will always be welcome and any comment from your initial experience with the app can be forwarded to rosshodge@southernrocklobster.com.au – thank you.

Attachment 2 – Post Harvest App Guidelines

Instruction For:

Setting Up and Using the Clean Green Exporter Digitised Application (App)

Downloading from the App Store

Open App Store – type in (Search) 'Clean Green Export'

Should come up with the following – use Open prompt and then insert your email address (linked to your Apple ID) and then your App Store password

The following Icon will appear on your device:

clean.
green. ✓

Tap on the Icon and it will open up to the Log in. You will need to use the Username and Password that have been provided by the Clean Green Program (CGP) administrator (Tom Cosentino – SRL EO)

Australian Southern Rocklobster

clean. green. ✓

Export Log In

Username

Password

LOG IN

The Username and Password used for access to the App to ensure only eligible program participants are granted and retain access to the App.

Important Note: once the export facility has access to the CG app unlike the Fishing Operations App all data entered and recorded can only be viewed and accessed by those who use the app at the export facility.

When the export app opens the first page is titled *'Water & Stock Management in Export Facilities'* has three Icons from Left to Right the Icons provide access to: three sections.

Best Practice Guide (Left Hand Icon)

Best Practice Guide

Tap the best Practice Guide Icon and the following Icons will appear:

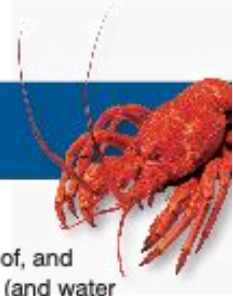Abridged Version   Full Version

The Best Practice Section provides access to two documents both Titled: *Best practice guide for Southern Rock Lobster post-harvest holding and processors industry operations.* The first is an abridged version (20-pages) of the 2nd document which is the original document (35-pages). The original longer version is from a research project undertaken by IMAS / U-TAS funded through the SRL / FRDC IPA. The project undertook a major review of how Southern Rock Lobsters are handled and managed from being off-loaded from a fishing vessel through to packaging for export.

The abridged version has been provided as a shorter, less technical option to assist processor / exporter facility managers to initially induct and train their staff in best practice for handling and managing lobsters.

Now use this Back / Return ⊙ button at the top left of the Facility Reporting page – this will return you to the first page.

Please note there is also a 'search' icon at the top of each version (abridged and full) this can be used to search for key words to assist in identifying relevant information.

Facility Reporting (The Middle Icon)

Facility Reporting

Tap the Facility Reporting Icon and the following three Icons will appear:

Dashboard | Water Quality | Stock

Dashboard – this enables the user to view, manipulate, analyse and summarise results entered into the 'water quality' and 'stock' data reporting template – see immediately below.

Water Quality – this enables the user to record water quality parameters for a specific tank location at a specific date and time, together with recording any relevant notes and also dosing action that may have been taken. All data entered is recorded and stored, securely, for the user to access and review at any time via the Dashboard.

Stock – this enables the user to make record of any stock losses or product quality downgrades at specific tank locations at specific dates / times.

This should assist to build a picture of, and identify using data, any tank-related (and water quality-related) issues over time. Again, all of the data entered is available to review at any time via the Dashboard.

Using the **Return / Back Arrow** to return to the first page.

Tools – Clean Green Standard and Auditing (Right Hand Icon)

Tools - Clean Green Standard and Auditing

Tap the Clean Green Standard and Auditing and the following two Icons will appear:

Standard - Post Harvest Operations | Auditor Template

Standard – Post Harvest Operations – The Clean Green Program has developed an overarching Standard (control document) that established Best Practice across catching, transporting, grading / handling, processing, distributing (including exporting) and retailing Australian Southern Rock Lobster. This Part 2 of that Standard "*Post-Harvest Holding and Processors Industry Operations*" (Part 1 *Fishing Operations*) breaks down into stages with control criteria the management of live lobster from transporting to distributing. The Standard also provide Auditing Guidelines to measure achievement against control criteria.

Note: The **control criteria** within the **Standard Post-Harvest Operations** is consistent with the information and recommendations outlined in the Best Practice Guide.

Auditor Template – provides a document to actually conduct an audit of a processor / export facility against the performance requirements set out in the Clean Green Standard Part 2.

Whole of Supply Chain Accreditation – While industry may not currently be operating in the space to consider a whole of supply chain accreditation process, the Clean Green Standard and associated support materials provides fully documented and supported Best Practice system handling and managing Southern Rock Lobster that could be considered in the future. The Fishing Operations (Part 1) Clean Green material does establish best practice guidelines for handling and managing lobsters on fishing vessel .

Note: There is no cost or requirement for any processor / exporter operation to use the Export App and / or adopt the Clean Green Standard and audit guidelines. At this stage, it is made available to provide support, guidance and consistency to the industry.

Attachment 3 – Industry Notice for Clean Green App Training

NEW & FREE
Clean Green Catching App
Have You Switched Over Yet?

To undertake the required training and access the app, please read the following information thoroughly and then use the web link provided to register for, and then access the required online training.

As previous industry notifications have advised, Southern Rocklobster Limited's (SRL) Clean Green Program (CGP) 'Digitisation Project' has successfully transformed the original paper-based program into a digitised application (app), for use on an Apple iPad.

Towards the end of the project's development phase, AMSA introduced Marine Order (MO) 504 which superseded the National Standard for Commercial Vessels (NSCV) Part E - Operations. The amendments from MO504 which impact on a fishing vessel's SMS have been addressed in the app version of the CGP.

A Senior AMSA Staffer reviewed the app and advised SRL 'it meets the intent of MO504'. AMSA also provided feedback on a few suggested enhancements to the app, most of which the Project's Investigators had already identified. The IT developers have now incorporated these changes into an update of the app. Those who have already changed over from the paper-based CGP to the APP just need to download this latest version from the App Store, noting all the data they have entered will be automatically included.

Accordingly, it is important to note the CGP in the paper-based format is no longer compliant with AMSA's latest MO504 SMS requirements. If you wish to be AMSA compliant, head to the e-Learning Platform (ELP), register to undertake the training (max. 2 hours) and then download and complete / use the app (more info on that below).
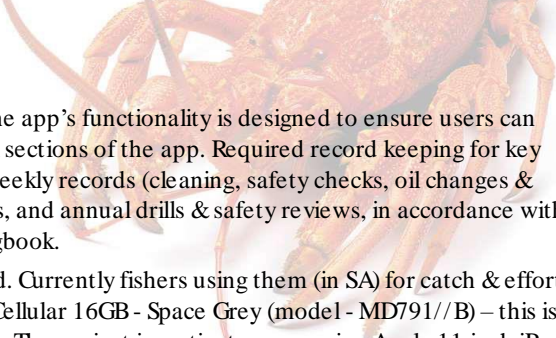
With the ELP there is no longer a requirement for face-to-face training, it can be all done quickly and easily online. Training requirements differ slightly on the ELP for existing Members (easier / quicker) and for new / returning entrants to the CGP (still very quick / simple).

Advantages of utilising the ELP include, amongst others:

* Greater flexibility regarding where, how and when you choose to complete the training;
* Training can be undertaken at home, on the vessel, anywhere you have internet access;
* Training can be undertaken using a home PC, laptop, iPad or even iPhone;
* Training can be undertaken at any time (provided you have registered in advance);
* Skipper and crew can complete the training together (preferred if at all possible);

The ELP consists of:

* Presentation detailing changes to the CGP, why and how it was digitised and revisions / additions to content;
* Requirement to watch the 'Fishing for Safety Video';
* Granting of access to download and access PDF format detailed guidance notes for the app, detailing all elements of functionality plus how to access the app.;
* Requirement for new entrants to undertake an additional presentation provided in the ELP detailing the key principles and standards underpinning the CGP.

With the use of icons and pre-emptive text, the app's functionality is designed to ensure users can navigate efficiently and effectively through all sections of the app. Required record keeping for key items like; crew safety training & induction, weekly records (cleaning, safety checks, oil changes & refuelling), reporting incidents, injury & illness, and annual drills & safety reviews, in accordance with MO504, is recorded via the app's digitised Logbook.

The app is optimised for use on the Apple iPad. Currently fishers using them (in SA) for catch & effort reporting are using an Apple iPad Air Wi-Fi + Cellular 16GB - Space Grey (model - MD791//B) – this is the minimum spec to access the new CGP app. The project investigators are using Apple 11-inch iPad Pro Wi-Fi + Cellular 256 GB - Space Grey (model - MU102X/A) to test / trial and demonstrate the app.

The app is supported by an online back-end management portal administrated by the SRL Executive Officer / CGP Manager. This management system ensures only approved participants (trained and paid, current Members) have access to the CGP using Log In details provided by the CGP Manager (individual Log In information will be provided via the ELP process).

As well as managing access to only those who are entitled to use the CGP material, this portal management system provides the facility to quickly and easily update the app with required changes and update users about such changes and any action required of them.

The project's investigators will be available for support either by email or phone. It is important to note the app is totally replacing the old hard-copy manual format of the Clean Green Program as it incorporates a number of AMSA's changes to Safety Management System (SMS) compliance requirements.

To access the ELP please visit: https://cleangreenapp.southernrocklobster.com where you will be given instructions to register.

Once you have registered you will receive your individual Username and Password login details to undertake the training (registration and provision of Log In details could take up to 24 hours so please do it in advance of when you intend to do the training). Once your training has been completed, the final step with ELP allows the downloading of an Instructional Guide to set up and start using the app. The personal Log In details you are given to access the ELP will also be the same to login into and set up the app.

Again, we recommend all intending users register as soon as possible, so that they have their Log In details available and are then able to undertake the training and set up the App at a time that suits them best.

Project Co-Investigators:

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justin@jp-consulting.com.au

Attachment 4 – Release Notification for the launch of the Fishing for Safety Video

Release Notice

12 August 2019

The Australian Southern Rock Lobster Industry's Clean Green Program

Fishing for Safety Video

Southern Rocklobster Limited (SRL), and the Australian Southern Rock Lobster Industry's Clean Green Program, are pleased to announce the official release of the video;

Fishing for Safety

Creating a Safety Management System

Fishing for Safety was produced via a collaboration between SRL's Clean Green Program and the Australian Maritime Safety Authority (AMSA), as part of a broader, ongoing, project, titled: *Southern Rock Lobster Clean Green Program; revision, digitisation & extension across the supply chain.*

With funding for the project and video production generously provided by the Fisheries Research and Development Corporation (FRDC) on behalf of the Australian Government, Fishing for Safety is based on AMSA's Safety Management System (SMS) Guidelines. It also addresses general Work, Health and Safety (WH&S) requirements.

The video, of 16 minutes duration, is an engaging and superbly shot production which really makes the subject matter come to life. It puts an industry-focussed take on SMS development and adoption within the Australian commercial fishing industry through the sharing of real-world stories and experiences.

While the production was driven by the Australian Southern Rock Lobster Industry, Fishing for Safety includes inspiring footage and stories across a range of fishing industry sectors and operations - it is intended for use as a freely available training and induction tool in vessel safety and SMS development. We encourage you to view and share the video widely.

Fishing for Safety was filmed and produced by Matthew Blyth and Alaneo Gloor of Millstream Productions, with oversight from the project's investigators Ross Hodge and Justin Phillips. It is available now to view or download from both the SRL and Millstream Productions websites:

Southern Rocklobster Limited: www.southernrocklobster.com

Millstream Productions: www.millstreamproductions.com.au/our-work

FRDC Project 2017-224; Southern Rock Lobster Clean Green Program; Revision, Digitisation & Extension Across the Supply Chain.