Electronic, automated monitoring of commercial fishing operations in Queensland

Questions and Answers

The following questions were answered at the Information Exchange Day.

Q. Do you expect monitoring to be on tenders as well?

- Monitoring needs to be on working tenders.
- Fishers may not take all tenders out on a fishing operation, but they may take a primary and one or two tenders.
- Log books currently cover a whole licence, which would include primary plus tenders, documenting the catch for all boats.
- Need to understand effort (e.g. how many crab pots go out and for how long) and catch (e.g. how many crabs are caught) to help DAF understand the sustainability of fish stocks.

Q. What would be considered a reasonable per unit cost?

- As an example of what is considered affordable for current tracking is $230 per unit, and then $30-40 per month in polling costs.
- Final cost would depend on how much of the challenge is being addressed by the solution.

Q. Where is DAF's pain point – is it in checking compliance rather than monitoring trawlers?

- We have locational data on trawlers, but no information on catch or protected species interaction.
- There is currently a much richer picture for trawl fishing rather than net or crab.
- Anything which is captured in logbooks is not captured at this point of time. This is very resource intensive and there is no independent validation.
- Reliability of information is a current pain point – accurate information is vital to assess the status of our fisheries.
- DAF used to use independent observers on boats, but this is challenging from a workplace health and safety perspective, and did not provide a good representation across the fleet.

Q. What are your business rules around checking and compliance?

- For logbooks, there are range checks at the entry level, and data is analysed for inconsistencies (e.g. trends which don't look right).
- If the fisher hasn't completed the logbook, they will be phoned to provide that information.
- Current vessel tracking solution being trialled does not have any event-based monitoring (e.g. fisher has started fishing, fisher has stopped fishing), but locational data can be analysed to infer trawl speed etc.

Q. What is the incentive for fishers to be more engaged in the compliance process?

- An automated solution removes the onus on fishers to report information, which means less likelihood of interference in this data.
- Currently, there is an incentive for fishers to inflate their catches, as it may deliver benefits in the form of quota allocation; there is also incentives to not report things such as protected species interactions.
- Fishers would like to see the amount of paperwork they need to complete reduced, and DAF would like to reduce the amount of interference with a fishers operations.
- As an example from the trawl fishery:
    - Trawl fishers currently require Commonwealth approval to export their catch internationally
    - There are concerns around this fishery's impacts on non-target species.
    - From the latest ecological risk assessment of the trawl fishery, DAF can look at 15 years of satellite tracking data on where these vessels are operating within and outside of the Great Barrier Reef Marine Park.
    - Risks with trawling are associated with fishing effort, DAF want to be able to look at the actual fishing effort to identify the actual risk level.
    - This is favourable, in regards to the industry being able to maintain their export levels approvals.

Q. Will this automated monitoring become mandatory, and is there a priority for each fishery/component?

- Vessel tracking is DAF's number one priority, and will be mandatory on all vessels by 2020.
- Next priority is effort data, which is probably the next easiest, for example, sensors on gear, which will take out a lot of the bulk from logbook reporting.
- After effort data, our priority is protected species interactions, as there are significant pressures from communities and the Commonwealth Government.
- The next priorities would be retained catch and discarded catch.
- DAF are open to looking at what needs to be done with industry to incentivise the use of new technologies.

Q. Have DAF made a commitment to use the device which is currently being trialled?

- No, but as DAF are looking to have vessel tracking on all vessels by 2020, we have begun trialling some devices.
- DAF will maintain a list of approved units, and provide some kind of subsidy on these units. This list will be updated over time (for example, with new solutions from the SBIR process).

Q. What units are currently being trialled?

- Spot Trace is the new device being trialled, the SkyWave 800, Thrane and Thrane, Furno are all being used currently within the trawl fishery.
- There are quite small vessels being used, so units need to be small and mobile.

Q. In regards to automated catch detection, are there image libraries available to train algorithm?

- There is a little bit, but not a lot, and would look to build this library through the feasibility and proof of concept stages of the SBIR.
- Libraries of target species could be built quite quickly, but libraries for protected species would take longer, because they are a rarer event.

Q. Is there the possibility of a staged approach e.g. collecting data, training algorithm?

- It will likely take some time to develop a solution, and DAF is open to a staged approach.

Q. For offshore vessels is there a preference for data storage and transmission methodology?

- Some trawlers can be offshore for up to three months. These vessels currently have Vessel Monitoring Systems (VMS), and so we have locational data, but some information would likely need to be provided once they get back into cellular range.
- DAF would also be open to receiving some data at less frequent intervals if necessary.

Q. What is the current video quality?

- There are no video cameras on Queensland vessels currently.
- AFMA currently have video footage online.

Q. What is the current cost of data entry from logbooks?

- DAF currently employs four staff to do data entry.

Q. Is the intent to eliminate all video watching, or is DAF open to including some time spent watch videos?

- An ideal solution would be fully automated, but DAF acknowledges that this is a difficult challenge, and are interested in hearing all approaches.
- DAF may need to do some degree of data validation and checking.

Q. If a proponent does not have a Queensland business, will that be seen as a negative?

- One of the evaluation criteria is 'benefits for Queensland', and would be looking at how any applicant can demonstrate benefits for Queensland, whether those are employment/economic benefits for Queensland, or other broader benefits.
- Interstate or international applicants are not excluded, but must have an ABN or ARBN.

Q. Are there a number of vessels who go offshore and out of range for long periods? If an application had a solution for these isolated occasions should they be separated out?

- There are only about 30-40 vessels operating offshore.
- DAF is open to separating out multiple options, and even funding multiple different solutions.

- There is likely to be a range of solutions required to meet the needs of all fisheries.

Q. How does DAF look for integrity between the commercial competitiveness that comes from dealing with large researchers, universities and private contractors versus small businesses and startups?

- Review the criteria which are being used to assess the applications.
- DAF also encourages people to work together to address this challenge, which may mean existing companies partnering with startups and universities.

NOTE: Applications are open to organisations of any size, and will be assessed against the published evaluation criteria.

If you are interested in collaborating to address this challenge, you may wish to review or register for inclusion on the list of organisations seeking partners

Q. How much will DAF depend on a total package, compared to the individual components of a package?

- DAF's preference is for a complete package, but acknowledge that it is a difficult challenge and encourages applicants to look to address as much of the challenge as possible.

Q. What performance metrics will be used to assess applications?

- Applications will be assessed and shortlisted, with shortlisted invited to present their solutions. DAF will draw upon subject matter experts to help review these applications
- Successful solutions will then be tested over the feasibility stage, with the feasible solutions going into the proof of concept stage, where it will be trialled on boats.

Q. Would DAF be amenable to a solution that only targets one group of fishers, for example in-shore only?

- DAF is open to partial solutions, and encourages any organisation which could address part or all of the challenge to apply.

Q. Is there any information about industry's expectations, and what fishers' currently spend in time and equipment to comply with current requirements?

- DAF will be engaging commercial fishers as subject matter experts.
- Industry are keen to see limited intervention form government in terms of data being provided, but there is reasonable support for the current logbooks.
- There will likely be a transition period into the new technologies, as fishers may have concerns with technological capability and costs.
- There is no broad-scale survey data about the impacts of compliance on fishers, but there is qualitative feedback received through the compliance teams.
- Applicants interested in this information may wish to contact industry bodies such as the Queensland Seafood Industry Association.
- The Queensland Government needs to demonstrate that fishing operations are sustainable, and requires more information. However, there is a limit on how much information can currently be asked for from fishers without negatively impacting their operations.

Q. There was a study undertaken in the 1980s on trawler monitoring, including engine characteristics and loads on nets. Is data from this study available?

- May wish to look at the QFish database, and also look at the logbooks to understand what information we are looking for.
- These logbooks represent the limit of the information we can ask for from fishers, but if you're able to provide more effort data, DAF would be interested to see it.

NOTE: The full reference for the study mentioned is shown below. Data from this study is not available.

Robotham, B.G., Zeller, L.C., Woolin, A.S., Williams, L.E. (1988). A Data Acquisition System for Fuel Usage Studies on Otter Trawl Vessels. Conference on Agricultural Engineering. Hawkesbury Agricultural College NSW. pp 69-72.

The following questions were received outside of the Information Exchange Day.

Q. What would the optimal latency between a vessel breaching a geo-fenced area (e.g. marine protected area, closed fishery area), and a notification being received by the relevant authorities?

- Fisheries Queensland would set those alerts and the rules for those alerts within our existing platform so they would not need this to considered in the solution as long data is coming through in real time or near real time eg. 15 min

Q. Is it a requirement for the on-board hardware to be a "one size fits all" system, or would a customizable solution for different types of vessel size and fishing operation, that delivers data in the same manner and format, be a preferable solution?

- We would be happy to consider a customizable solution as fishing operations differ significantly across the fisheries.

Q. Achieving a number of the 10 reform goals (set out in the sustainable fisheries strategy) seems to rely upon multiple agencies being able to access certain types of the data to be collected.

Are there any requirements on the sharing of collected data between different agencies?

Would a system that incorporates centralized data storage, allowing access to the data from multiple agencies whilst also being able to control what data individual user have access to be preferable?

How should the system provide data to the Police and Maritime Safety authorities?

Would it be sufficient with online access to a map showing the position of all vessels equipped with the system? This way they could easily identify which vessels who are in vicinity of a MOB or distress call.

- Fisheries Queensland is looking for a solution that provides the data in a form that can feed into our existing platform. A centralized data storage already exists and we provide information to Police or Maritime Safety as required.

Q. What is the current number of fishing vessel licenses issued by DAF, and what is the license number growth per annum?

- As of the 14th Sep 2017 there are 1384 Commercial Fishing Boat Licences and 319 Commercial harvest fishery licences. We do not issue any extra licences, if somebody would like to enter the fishery they need to purchase an existing licence. You can access licences and permit information on Fishnet.

Q. Is the challenge seeking a solution which is more automated, i.e. one that doesn't rely on any input at all from the fisher? Would the panel consider solutions that involve the fisher manually entering data via a tablet or PC.

- We are looking for a solution that collects commercial fishing information independently from the fisher therefore we would suggest that solution probably would be something along the lines of AI technology. However Fisheries Queensland will consider all applications.