FACTS™

FISHING ACTIVITY & CATCH TRACKING SYSTEM

Response to:

DRAFT DOCUMENT

National Marine Fisheries Service
Southeast Region
Electronic Monitoring and Reporting
Regional Implementation Plan

February 2015

Table of Contents

1. Background

I am Bryan Stevenson, the CEO of Electric Edge Systems Group Inc. – the maker of the electronic reporting platform known as FACTS™ (Fishing Activity & Catch Tracking System).

Electric Edge has worked with the Pacific Region of the Department of Fisheries and Oceans Canada (DFO) since 2002. During that time (and ongoing) we have built, upgraded, and supported major fishery IT systems for the region including recreational licensing, scientific and special access licensing, harvest, and quota management. As such we are not only expert systems developers, but fisheries experts as well.

We have handled all the data behind the comprehensive BC Groundfish Integrated Fishery Management Plan (IFMP) which includes 100% dockside and at sea observation. This includes hails, dockside monitored offloads, at sea observer logs, skipper logs, EM logs, and very complex quota tracking and trading. As the reader may know, Archipelago Marine Research provides monitoring services to the groundfish fleets on the west coast of Canada and that includes their EM system. We have managed all of the data created by that program that the government needs.

In 2008 we decided to build a system for the electronic collection of fishery dependant data that included all stakeholders and all data sets (hails, logs, landed catch, and quota or catch shares) typically used in various combinations in fishery monitoring. This system would validate all data as it was entered and would allow all stakeholders to access fishery monitoring data via a central website. Fishers would only see their data, fishery managers would see data from all vessels in the fishery they manage, dockside monitors or dealers would only see the data they submit, and so on for other stakeholders (science, NGOs, enforcement, etc.). This system would include a mix and match set of customizable data collection modules that could be used in isolation or as an integrated set.

The idea was to challenge the notion that these systems have to take a long time to produce and/or be cost prohibitive. By having various modules available and by charging a transaction fee for use of the system, we provided a new way to think about electronic reporting in fisheries. We can implement far faster than traditional software development allows and our initial customization for a fishery is free or at our cost (once the per trip fee starts all other customization is included in that fee).

In April 2010 the first incarnation (EasyHails™) was launched for interested vessels in various BC hook & line groundfish fisheries. That was closely followed by starting service for several sectors in the multispecies groundfish fishery in the Northeast US (approved as an eVTR solution there in May 2013). In 2011 the system was re-branded as FACTS™ and in 2012 it was introduced as a pilot in Maryland's blue crab fishery (the pilot was extended for the entire 2013 season and is ongoing). In 2014, FACTS™ was selected to transition all fisheries in Maryland to electronic reporting.

Our technical background coupled with our expertise in fisheries monitoring and management put us in a unique position to help a great deal in the transition to electronic reporting in the US.

2. Response and Recommendations

This Southeast document pulls in a lot of details put forward in the 2013 NOAA document titled "DISCUSSION DRAFT Electronic Monitoring and Electronic Reporting: Guidance & Best Practices for Federally-Managed Fisheries" which I also responded to. In order to stay focused on some key observations for the Southeast, I will not be commenting on items that have not changed and are in common between the two documents.

To see my comments on themes in common in the 2013 document and this one, please find a copy of my 2013 NOAA document response here:
http://www.nmfs.noaa.gov/op/outreach/Comments/electric_edge_comments.pdf

Overall we are very pleased at the practical and well thought out advice that has been put forward in the draft document. Altering reporting mechanisms is a large and complex undertaking and there is no single solution – and acknowledging that fact is a great start.

As senior systems developers, we often find there can be quite a gap in what people think technology can or cannot do. That coupled with many opinions (especially found online or part of organizational culture) and hearsay can make getting to the truth so effective solutions can be implemented is a challenge to say the least.

That being the case, we have added responses and recommendations to subjects that we feel could benefit from a fresh perspective and in some cases to challenge assumptions and provide alternatives or other elements to consider.

2.1 Cost of Paper-Based Reporting

I don't see much if any mention of the potential cost savings (or cost re-assignment) of implementing electronic reporting over the current prevalent paper-based reporting. There are many mentions of how expensive electronic reporting will be, but very little about what paper-based systems to be replaced actually cost to operate.

It is important to understand what it currently costs to operate a paper-based system. By that I mean not just the cost of designing the programs, laying out the forms, printing the forms, distributing the forms, and data entering the collected data. There is also the cost of staff time to chase down quality issues because paper forms do not validate the data as it is entered (meaning completely inappropriate/impossible answers can and are given), the cost of adjusting data as QA/QC efforts proceed, the opportunity cost of staff time that could be used to manage the resource instead of chasing data issues that could easily be stopped, the cost of all the effort fishery data analysts and others put in to filling in gaps in data with educated guesses or imputation, and the cost (financial and to the resource) of getting all of that wrong.

It is my assertion that the various costs of paper-based reporting are much higher than assumed. This means that the money is already being spent and can be shifted to cover electronic reporting in part or in its entirety.

2.2 Cost of Electronic Reporting

2.2.1 Challenging the Belief that ER has to be Expensive

When reading documents such as this I have seen a common theme that there is a belief that a transition to electronic reporting will be very costly. To be fair, often electronic monitoring and electronic reporting are being discussed at the same time and it can be difficult to know when the cost comments speak of one or the other (or both).

This belief most likely stems from the way most IT projects occur. Typically an RFP is put out to tender, awarded, and then the system development process begins. That process typically involves building a system from scratch and comes with a large sticker price for the planning and development of the system. Then on an ongoing basis, upgrades and fixes are applied to the system – either by the original developers or by internal fisheries staff – all with additional cost.

There is another way.

As mentioned in the Background section above, FACTS™ does not involve a large upfront development cost, instead it is customized to meet each fishery it is introduced to (far faster than starting from scratch) for free or our cost (if the customization is a major shift from what the various versions of the modules of the platform already do), and provides upgrades/fixes/maintenance/system support with ***no additional charges*** beyond the transaction fee charged. This makes costs easy to estimate based on volume of activity in any given fishery.

Another element that seems to be driving the assumption that ER has to be expensive is the belief that hardware needs to be purchased for all participating fishers. Although it can be advantageous from a cost perspective to have a single device or small set of devices to support (due to not having to worry about as many permutations of device capabilities to consider when building a system), it is not that difficult to support the concept of BYOD (bring your own device). In fact it can be quite catastrophic if the selected device(s) turn out to have a flaw which then impacts the entire fleet.

BYOD is a major philosophy behind FACTS™ which we adopted because many vessels already have some form of computer onboard (i.e. for navigation or VMS etc). In those fisheries, there is no need to burden the harvesters with redundant hardware and a cost savings to not have to. We are however very aware that this is not the case in every fishery and must be addressed ona case by case basis.

2.2.2 Reduce Costs with NMFS as a Rule Setter and Auditor

There is a lot of mention about how much extra cost will be assumed by NMFS to hire IT staff etc. to manage all the new things going on. While it is true some new positions may be needed, I think the NMFS internal cost of hardware and infrastructure is not as large as it seems to be made out to be.

This is especially that case if NMFS acts as a rule setter and auditor (as opposed to creating and operating ER systems). In this scenario, all that is really required (in broad terms) is a method to accept data and validate it as it comes into NMFS (web services provide for this and would be far better than CSV file formats), and a data warehouse(s) to store the data. It would alleviate NMFS from the burden of electronic reporting system support, maintenance, and upgrades. Most of the effort could likely be handled by existing staff. The building blocks of this already exist in some form in most regions including the Southeast. Those building blocks may simply need some “propping up” to bring them inline with future goals.

2.3 Stakeholder Acceptance/Support

I'm a very big proponent of including as many stakeholder groups (especially technical people and industry representatives) as early as possible in the process and the Southeast document seems to support the notion.

This can certainly lead to some strife as details are ironed out. In more extreme situations it seems that lobbying can stop very practical and needed changes from occurring. It is fully understood how difficult it is to manage expectations of all stakeholders while still moving forward.

I find myself wondering how much latitude NMFS has to force specific changes into effect that are deemed critical for the resource when stakeholder concerns seem unwarranted? This is something that should be considered and perhaps will spark some regulatory changes to provide that kind of latitude when needed.

2.4 Use of VMS Data

I was somewhat shocked to see VMS data being used as it is in the Southeast because what I typically am told is that access to VMS data is limited at best and that understanding the data structure can be a challenge.

Our experience with VMS providers in terms of adding data collection forms to be used on top of the underlying VMS system has not been the best. The forms we've seen created often lacked the application of business rules of the fishery to the validation of these forms and they often allowed for free form text entry of critical data elements that need to be collected precisely (i.e. port names instead of selecting a port from a pick list). When validation is lacking, an electronic form is just essentially another version of a paper-based form and can be filled in with completely inappropriate or non-standardized responses. This is not meant to slight VMS providers – after all data collection is not their primary line of business.

2.5 Technical Professionals at the Table Early in the Process

Having technical people (from outside NMFS as well as from within) during the early planning phases can only enhance the efforts underway in the Southeast and avoid taking an assumed direction before hearing all the details. With external expertise coupled with internal in-depth knowledge of how NMFS systems currently operate can only enhance if not greatly benefit program design.

I can't count how many times in Canada that IT staff were brought to the table after promises to industry were made. Often times those decisions could have been handled in a slightly different way and the cost to implement the changes would have been drastically reduced.

2.6 Each Fishery is Unique

I would like to challenge this belief.

I fully expect each fishery manager or scientist to think the fishery they operate is quite unique to one being managed by their counterparts in another fishery. That said, professional systems developers see things quite differently.

Don't take the above to mean that systems developers see every fishery the same – we don't. What we do see is that the issues that exist in fisheries from system, data, and business rule standpoints is

that there are common categories of issues. These common categories of issues are typically addressed in standard ways and are far fewer in number making them manageable. Once these common categories of issues are understood, creating a system (like FACTS™) that is flexible enough to handle these differences with ease can be accomplished. What this really means is although many differences may be seen, once categorized they fall into a much smaller set of common categories

2.7 Regulatory Changes

The Southeast document does a great job of explaining the regulatory hurdles that do or may exist moving towards electronic reporting. My only advice is move as soon and as quickly as possible to address any known needed regulatory impediments ASAP. This advice is given as it can often take much longer to get resolution than expected.

2.8 Conclusion

If any of my interpretations (based on my replies above) of issues discussed in the draft document were wrong, my apologies. Without face-to-face communication, many mis-understandings can occur – I take no offence to a rebuttal and in fact would welcome it.

I would like to stay current with Southeast all ER and EM efforts and to be involved in any way I can beyond the e-logbook pilot coming soon.

Please do not hesitate to contact me for any reason – in an official capacity or simply for a phone chat and brainstorming session.

Best Regards,
Bryan Stevenson