ISSUE BRIEF

Implementation of Mobile-Based Electronic Vessel Trip Reporting in the For-Hire Sector for the Mid-Atlantic Fishery Management Council

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Background

Issue: Paper submission of Vessel trip Reports (VTRs) has been a requirement of federally-permitted for-hire vessels in the Mid Atlantic for well over a decade. Preliminary steps have also been taken in recent years to develop electronic vessel trip reports (EVTRs) which allow direct entry of data by the vessel operator. The Mid-Atlantic Fishery Management Council is exploring the next step in this evolution: the feasibility of mobile electronic reporting by operators of for-hire vessels.

Project Goal: Investigate the current state of Electronic Vessel Trip Reporting systems for mobile applications and provide recommendations to the Mid-Atlantic Fishery Management Council on direction to proceed for most expeditious and economical means for implementation.

Analysis

Current Situation[1]: NOAA has approved two laptop-based platforms for submitting federal EVTRs. However, interest is growing in developing and implementing mobile-based applications for EVTR's. Although many mobile apps have been targeted at recreational anglers, relatively few have focused on the collection of fishery dependent data and/or for-hire operators for fishery management purposes. Among those mobile applications that have been developed with fishery management as a focus are:

- *IGFA Catch Log* developed by the International Game Fish Association for supplementing state and federal data collection in marine waters of Everglades National Park.
- *Angler Action*[2] developed by the Snook & Gamefish Foundation to supplement fisheries stock assessments (mainly in south Florida).
- *iSnapper*[2] developed by the Harte Research Institute at Texas A&M University-Corpus Christi for collecting data from charter boat captains, principally in the Gulf of Mexico red snapper fishery.
- *Chesapeake Catch*[2] developed by the Alliance for the Chesapeake Bay. This app is s a local affiliate of Angler Action.

[1] Note that systems incorporating Vessel monitoring System (VMS) technology were not considered in this comparison.

[2] Angler Action, iSnapper, Tails n' Scales, and other mobile-based reporting apps have all been developed (under contract) by a single company, Elemental Methods, LLC.

- *Tails n' Scales*[2] developed by the Mississippi Department of Marine Resources, is an electronic reporting system that will be used to record all red snapper landings in Mississippi. All captains or owners of recreational and for-hire vessels landing red snapper in Mississippi are required to report their catch.
- *SAFIS eTrips* developed by the Atlantic Coastal Cooperative Statistics Program (ACCSP) in cooperation with Rhode Island charter boat operators and Harbour Light Software Development, Ltd.

See Appendix A for a broad comparison of these applications.

Factors Considered in Analysis: Mobile-based EVTRs present unique challenges to data collection, but a well-designed user interface, reliable transmission mechanism, and stable backend platform can reduce submission errors, increase data availability/reliability, simplify reporting burdens, and provide new tools for vessel operators and managers alike to utilize when analyzing fisheries data.

To be useful for MAFMC purposes, mobile apps designed for fishery dependent data collection programs need to incorporate four basic principles:

1. *Be a census or a representative sample of the universe of potential data contributors. Any sampling biases should be measurable so that the resulting data can be interpreted accurately.*

   For purposes of a mobile-based app that would be used in the MAFMC for-hire sector, a complete census of users is required (i.e., no sampling) due to federal permit requirements and is assumed for all apps discussed.

2. *Completeness of data, or a measure of the extent of partial data coverage.*

3. *Accuracy in data collection.*[3]

   Completeness and accuracy of data are factors that need to be considered in all user-reported data systems. These attributes can be affected by many factors, including:
   - Poor or complex front-end design leading to confusion (misunderstanding) of proper data entry functions.
   - Users forgetting to enter data.
   - Recall bias, whether entering data one hour, one day, or one month following the trip.
   - User apathy – stemming from lack of ownership in the data and/or lack of appreciation for the value of the data.

[3] NOAA is investigating a variety of issues surrounding the ability to use logbook-based data in management, especially in terms of catch and effort validation. This project does not consider validation issues beyond considerations of how to maximize accurate data collection input up front. NOAA is currently attempting to develop protocols for sufficiently validating and adjusting self-reported logbook data such that logbook data could be a primary data source for management.

4. Compliance with NOAA EVTR protocols

NOAA has outlined requirements that EVTR systems must incorporate to satisfactorily meet their needs. These include data elements contained in the existing reporting sheet (Appendix B) many of which are contained (in various forms) within most existing apps as well as several unique features:

- Unique Trip identifier - Each trip must have a unique trip identifier based upon the concatenation of the vessels federal permit number (6 digits) the year (2 digits), month (2 digits), day (2 digits) and 2-digit hour based upon the 24 hour clock (military time).
- Vessel information: USCG number and NMFS permit number.
- Start Dates and End Dates.
- Number of crew + number of anglers.
- Immediately upon completion of a trip report, operators must enter their NMFS supplied operator number and password as a means of digitally signing their EVTR.
- Trip report files must be transmitted to NMFS using one of two secure methods. NOAA has developed data security and transmission protocols that must be followed when submitting the data between the EVTR and NOAA servers.

Beyond these required elements, additional *desirable* attributes for MAFMC include:

- Greater accuracy in location based reporting compared to existing paper submission without compromising confidential data.
- Ability for data providers (for-hire operators) to fulfill reporting requirements for multiple agencies (e.g. state and federal) through a single user interface and reporting mechanism.
- Implementation within the next year.
- Cost effective.

Summary of Options:

During the investigation of current mobile applications and discussions with developers, managers, and potential users, three aspects became very evident:

1. There is no system that completely satisfies the four required elements and is ready for immediate deployment in the mid-Atlantic region, although some are closer than others (see "Options" discussed below).

2. The MAFMC should maintain flexibility in adopting front-end user interfaces (mobile applications) , meaning that in all likelihood, several options may become available for use by the for-hire sector depending on individual preference or state agency mandates, each of which could meet NOAA EVTR requirements(and be certified for use).

3. There is a desire for a single user interface that is capable of meeting multiple reporting requirements, so that the for-hire community need only complete a single report that can be transmitted to several agencies. This doesn't mean that multiple interfaces can't be offered, but that any interface that is offered should provide this multiple reporting capability.

To meet the goal of offering a mobile-based EVTR within one year, the following options are available:

Option 1: **(preferred): Adopt the ACCSP *SAFIS eTrips***

In the short term, the *SAFIS eTrips* is the closest of any mobile application to meeting the four required elements outlined above. In particular, *SAFIS eTrips* is the only app actively undergoing certification to satisfy Northeast VTR requirements by NOAA. *SAFIS eTrips* was developed in conjunction with the for-hire sector (Rhode Island Charter Boat operators, particularly Rick Bellavance) and is described by those users as "having an interface that flows with the daily routine of charter vessels and is easy to use" (R. Bellavance, personal communication). Additionally, as the MAFMC was briefed during the June 2015 meeting, the Northeast Regional Ocean Council is using this app in an ongoing pilot project with 12-15 charter volunteers in Rhode Island, Connecticut, and New York to investigate the use of apps in ocean mapping. This project will provide further field testing of the app that has already been extensively utilized by the for-hire captains during the original development.

At a minimum, the quality of the data submitted through *SAFIS eTrips* could be expected to be at least as good as the quality submitted through current paper VTRs. However, despite having a basic back-end user log from which individual data providers can review and edit submissions (trip data), a major weakness in *SAFIS eTrips* as currently offered is the lack of tools to promote greater accuracy and completeness of data that are submitted. There is a widespread and generally accurate perception among the for-hire community that data provided in the VTRs (whether paper or electronic) are not well utilized in fisheries management, particularly the catch data. With this weakness in the confidence of the utility of data, unintentional variability in the accuracy of the data that are reported is likely to be more widespread. The act of submission of the data becomes more of a legal (compliance) obligation than motivated by any realized gain, direct or indirect, to the for-hire operator. This can be changed if the actual use of the data improves; *SAFIS eTrips* data from the Rhode Island charter fishery have influenced the planning of the locations of offshore wind generation structures and other infrastructure, thereby generating greater support among the local for-hire community for the utility of the data (R. Bellavance, personal communication). More needs to be done in this regard, but this example demonstrates that if data becomes useful the participants can become more interested in providing high quality data.

Two additional actions that may improve the accuracy and completeness of submitted data are:

1) Development of a well-designed backend data system providing easy and flexible tools that provide data providers with greater ability to thoroughly analyze their fishing practices and fishing success. Enabling such analyses makes recording of the data a valuable business tool (e.g., a robust searchable "fishing log" for each individual operator), and;

2) Adoption of a system that allows for multiple reports (e.g., federal VTR plus state required reports) to be submitted through a single mechanism. Neither of these is a component of *SAFIS eTrips* but both can be developed in cooperation with the data

providers and state agencies (in the case of a single-submission/multiple reporting capability).

According to ACCSP Director Mike Cahall, the basic *SAFIS eTrips* can be modified for use by MAFMC for-hire operators to submit required federal VTRs within 6 months. The cost of accomplishing this would be covered within the existing ACCSP budget. It should be noted that modifications would entail simply expanding the options available under the existing data elements where needed (e.g., adding gear codes not already covered, etc.) and not adding any additional data elements specific to individual state fisheries. Modifications to data elements desired by any of the individual states to make the application compatible with their individual state reporting requirements would need to be considered on a state-by-state basis but may be possible under the existing ACCSP budget depending on extent and complexity.

Some states (Maryland, for example) are implementing data reporting systems that require fishers to "hail in" and "hail out" for enforcement purposes. The *SAFIS eTrips* mobile app simultaneously processes the data into the SAFIS database and transmits it to NOAA. While *SAFIS eTrips* could be used for hail-in/hail-out (using the 'Start Trip" and "End Trip" features), state agencies would need to develop an arrangement with ACCSP assuring that law enforcement could reliably access the record of start and stop times at any time.

It must be highlighted that the most significant strength of the adoption of this app by the MAFMC is also the app's most significant shortcoming: pending certification by NOAA for use in submitting EVTRs. There is no definitive timeline for when this certification will occur. As of July 1, the major roadblock was the linkage between the app's application programming interface (API) and NOAA servers that allow data contained within the app to be accepted by the NOAA servers. Once this technical issue has been overcome, the complete submission process must be reviewed and certified before the data can be accepted in lieu of paper logbooks or one of the two existing pc-based EVTRs.

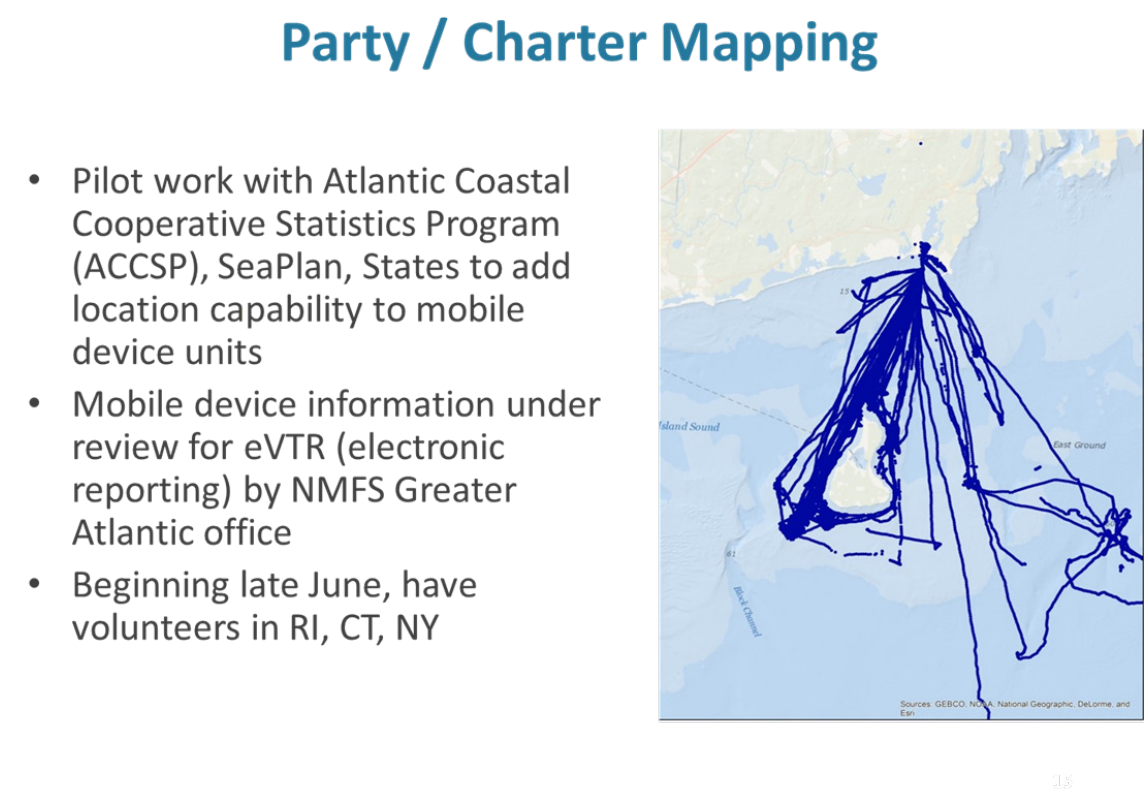
In summary, if MAFMC chooses to adopt the *SAFIS eTrips* app for use by for-hire operators, the Council should immediately: 1) convey to NOAA and ACCSP the urgency to achieve NOAA certification for this method of data submission; 2) initiate contact with ACCSP staff to determine what modifications may be required to adapt this app to maximize the utility to MAFMC member states; 3) Poll individual state members as to whether *SAFIS eTrips* could be modified to meet their unique state requirements for fishing reports and 4) develop and initiate a plan for providing a robust and useful back-end logbook system for users that will increase their investment in the completeness and accuracy of data submitted. Implementation of this last item need not delay deployment of the app to for-hire operators but should be developed as soon as possible to improve the quality of data collected. If full participation by the for-hire sector was voluntary then no regulatory action would be necessary; if electronic submission was mandatory then a regulatory action would need to be initiated (likely an omnibus framework).

It should be reiterated that adopting the *SAFIS eTrips* app for use by the for-hire sector would not preclude future development (by individual states or other entities) of additional front-end systems that could be used for submission of EVTRs. Some states have web-based reporting systems in place (or under development) for their commercial and for-hire fisheries that could be

modified for future NOAA EVTR certification, and which they may prefer their for-hire community to utilize in place of the *SAFIS eTrips.*

Finally, MAFMC expressed an interest in the possibility of obtaining catch and effort data with greater geographic specificity than is currently reported through VTRs. Most mobile devices contain the GPS hardware to provide point location for specific functions (e.g., at the point where a catch is entered). For example, Figure 1 is a slide presented to the MAFMC at their June 2015 meeting displaying location data (obtained with the captain's permission) for a charterboat's transects during an unspecified period of time that was captured through *SAFIS eTrips*. The issue of greater geographic specificity becomes more of a reporting and data entry issue than an issue specific to any particular app. From a reporting standpoint, the *SAFIS eTrips* (as well as some of the other apps discussed) can capture point location data, but VTRs do not require point location to be reported and therefore these data are not available through that reporting mechanism. To access point location data for fishery management purposes, a new reporting protocol would need to be established (in cooperation with the for-hire community) that provides reasonable safeguards for potentially confidential data of individual users. From a data entry standpoint, users would need to adopt a consistent practice of entering catches at (or close to) the location of where they caught the fish rather than waiting to return to port to enter their trip information (otherwise, all catches mapped using GPS coordinates would appear to have occurred in port). One potential means to promote entry of catches at the point of capture is to provide such data to individual for-hire operators as part of a more robust fishing log feature as discussed earlier. The Mississippi Department of Marine Resources *Tails n' Scales* app (mandatory for reporting red snapper catches) provides a surrogate to entering catches at the point of capture (and thereby capturing GPS coordinates) by allowing users to pinpoint on a map the *approximate* location of catches. While this feature allows users to enter data at a later time (e.g., when returning to port) the specificity may not be much better than currently available through VTRs.

Figure 1. Slide displaying transects of a for-hire fishing vessel over an unspecified period of time captured using *SAFIS eTrips*. Source: LaPointe, George. NROC Commercial Fisheries Characterization, Phase II. Presentation to the MAFMC, June 9, 2015 available at http://www.mafmc.org/s/Lapointe-MAFMC-9-June-2015.pptx .



Option 2: Revise an existing app

The MAFMC could opt to work with developers and sponsors of another existing app to modify their app for use in submitting EVTRs. The *IGFA Catch Log* and *iAngler* were both designed to capture data from recreational anglers, and the Mississippi *Tails n' Scales* and *iSnapper* were designed for use by the for-hire sector. All contain most of the basic data elements required by EVTRs but would require variable, and sometimes significant, revision to capture additional required elements. Among other issues, the *IGFA Catch Log* is designed for real time data entry (at point of capture) and does not contain the capability of entering location data after the fact (e.g., once a boat has returned to dock). The Mississippi *Tails n' Scales* app contains more features that are unique to for-hire vessels (e.g., Coast Guard License, Permit Number, etc.) but captures general location data from users pinpointing general fishing locations on a map. None of these shortcomings are insurmountable but would require time (that would likely mean that an app would not be available for the 2016 fishing season) and funding. Specific funding requirements were not explored with these developers and likely could not be accurately ascertained until exact app specifications were outlined. However, based on discussions with the sponsors of some of the apps discussed in this report, the design and implementation of a completely new app would cost in the neighborhood of $100,000 or more. Cost savings could be anticipated to occur by working to modify an existing platform and thereby reduce this cost to

some degree. Most significantly, none of these apps currently have many of the required fields, data security protocols, or the application programming interface (API) designed to transmit data to NOAA, requiring that both the app developer and NOAA invest time and resources to develop such an interface.

Option 3: Develop a new application from scratch

This option is not recommended, but should be listed as a possibility. It is highly unlikely that a design specification could be developed, a vendor chosen, and an application ready for implementation that is approved by NOAA for EVTR submission within a year. Further, a number of existing platforms (some discussed in this report) already exist from which a suitable application could be adapted for use by MAFMC in a more cost effective and efficient manner. Therefore, it is not recommended that MAFMC consider developing a stand-alone app solely for the purpose of providing an option to the for-hire sector to submit EVTRs. If additional data needs could be met beyond EVTR that could not be achieved through modification of an existing platform, then development of a new app may become more of a practical choice.

Appendix A. Basic Comparison of Mobile Applications Designed with Fishery Management as an Element

	Attributes of System Designed to Promote:				
	Completeness of Data	**Representative Sample or Measure of Bias**	**Accuracy in Data Collection**	**Compliance with NOAA EVTR**	**Comments**
IGFA CatchLog	User friendly front end interface; 0 catch trips recorded. Designed for capturing recreational data.	Measure of bias (avidity).	User friendly backend database/personal fishing log.	No	Designed for anglers; GPS coordinates automatic.
Angler Action iAngler/Chesapeake Catch	User friendly front end interface. Designed for capturing recreational data.	?	User friendly backend database/personal fishing log.	No	Designed for anglers; GPS coordinates voluntary.
Tails n' Scales (Mississippi Department of Marine Resources)	User friendly front end interface; Designed for capturing for-hire data as well as recreational.	Complete census if full compliance in the red snapper fishery.	User friendly backend database/personal fishing log but limited analysis tools.	No	Used to record all red snapper landings in Mississippi. All captains or owners of recreational and for-hire vessels landing red snapper must report their catch. Hail in/out feature; Location is general (based on map pinpoint).
SAFIS eTrips	Front end interface designed for commercial/for-hire; 0 catches recorded.	Complete census if full compliance	Incentive is compliance upon submission; Basic back-end personal log allows user to view/modify submissions.	Likely	Designed for commercial and for-hire.

Appendix B. NOAA EVTR Requirements

National Marine Fisheries Service Northeast Region
Electronic Vessel Trip Reporting (eVTR)
Technical Requirements

Policy Date 07/2011
Revised 06/2012
Revised 09/2013

Introduction

In July, 2011, the National Marine Fisheries Service (NMFS) Northeast Region (NERO) approved the use of electronic reporting of Vessel Trip Reports (VTRs) on a limited, voluntary basis. This document specifies technical requirements that must be satisfied to successfully implement electronic reporting.

The regulatory requirements that eVTR software must meet are outlined in 50 CFR 648.7(b)(1)(i) (http://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&tpl=/ecfrbrowse/Title50/50cfr648_main_02.tpl)

This document provides additional information such as file layouts, security and submittal protocols that aren't addressed in the regulation cited above. NMFS will review developed products to ensure they are compliant with the regulatory and technical requirements. Beyond the regulatory and specified additional requirements contained in this document, the look, feel and feature set of the product is left to the developer.

Background

A paper VTR (**Appendix A**) has three major sections. A trip section which identifies the vessel, trip type (commercial, party, charter or RSA) , number of crew/anglers and the dates and times for when it departed and returned to port (sailed and landed respectively). It should be noted that the sailing and landing ports don't have to be the same. The second section identifies sub-trip information (aka effort). This portion of the VTR captures the chart area where the vessel fished, gear information, haul/soak time, number of hauls/sets/strings, etc. The third section records the species, catch (kept and discarded), dealer it was sold to and the date and port of offload associated with a given sub-trip.

A sub-trip represents the effort and catch associated with given combination of chart area, gear type and mesh size. If any of these three change during the course of a trip an additional VTR page must be completed using the trip information from the first page with the effort and catch sections filled in as appropriate.

A well-designed eVTR program or application has the ability to significantly reduce the amount of time required for a vessel operator to comply with their VTR reporting requirements by eliminating the need to fill out redundant information (e.g., vessel permit, registration, gear type).

Technical Guidelines

Unique Trip identifier
Each trip must have a unique trip identifier based upon the concatenation of the vessels federal permit number (6 digits) the year (2 digits), month (2 digits), day (2 digits) and hour (2 digits based upon 24 hour clock or military time) when the trip identifier was created (e.g., 12345613051210; pppppppyymmddhh). The year, month, day and hour portion of the trip identifier can represent any point between the sailing and landing for a trip.

Once a trip identifier is generated by the electronic logbook (ELB) program it cannot be changed. The unique trip identifier is used to link a fishing trip to other fisheries dependent data collection systems such as dealer and observer reports. The trip identifier should be readily available to the vessel operator since they will need to provide the identifier to the dealer(s) purchasing their catch.

File Format
eVTR applications must;

1. produce a data file in the specified standard format (**Appendix B**) that can be successfully loaded into NMFS-NE databases using existing load routines.

2. meet NERO data collection requirements including the use of NERO support support tables (**Appendix C**).

Electronic Signature
Immediately upon completion of a trip report, operators must enter their NMFS supplied operator number and password as a means of digitally signing their eVTR. The eVTR software must require the operator to enter their password twice to ensure accuracy before the trip can be successfully signed. The password will be verified upon receipt by NMFS and files failing verification will be rejected.

The following password content information is provided so developers will know the format and content.

- The password will be between 8 and 12 characters in length
- It will have at least one capital alpha
- It will have at least one lower case alpha
- It will have at least one numeric
- It will have at least one special character from the following list: ~ ! @ # $ % ^ & * ( ) _ - + = { } [ ] \ | : ; < > , . ? /

The application must display the following text during the signing ceremony:
"*I certify that the vessel trip information I am providing is true, complete and correct to the best of my knowledge, and made in good faith. Making a false statement is punishable by law (18 U.S.C. 1001).*"

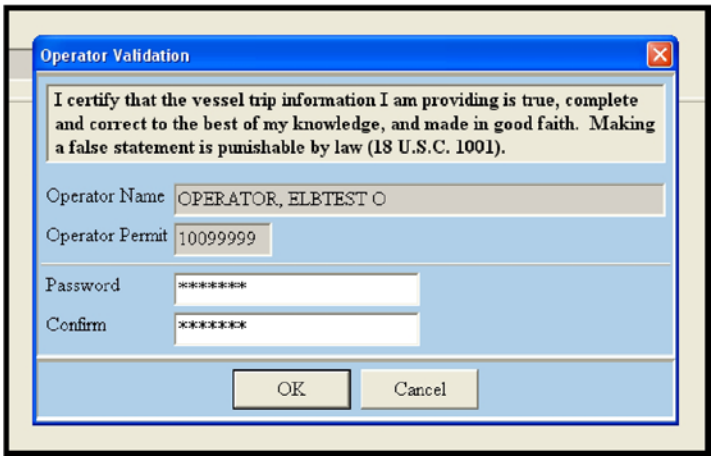


Figure 1. Example of the signing ceremony in an eVTR application.

File Transfer Security

Trip report files must be transmitted to NMFS using one of two secure methods. The first, and preferred, method is to upload using a HTTPS POST. To use this method:

- Request the page at: https://www.nero.noaa.gov/NMFSlogin/fol/evtr_api/
- Include the CSV content as described, including line breaks, in a POST header called 'evtr' (case-sensitive).
    - A successful submission will return 'Report Accepted'
    - A failure will return one of a variety of descriptive error messages
    - "Authentication Error" will indicate an invalid operator_id / password pair.

The second method is to upload the generated trip file via the Fish Online web portal. To use this method the end user would:

- Login to their Fish Online account
- Select 'Trip Report Upload'
- Click on the 'Browse' button
- Select the file you wish to upload
    - A successful submission will return 'Report Accepted'
    - A failure will return one of a variety of descriptive error messages
    - "Authentication Error" will indicate an invalid operator_id / password pair

Note: The Fish Online upload method will be available in 4Q 2013.

Quality Assurance/Quality Control (QA/QC)
When a trip report is submitted to NERO it will be subject to numerous quality control (QC) audits. eVTRs that fail audit checks will result in the rejection of the report and will require the vessel operator to correct and resubmit the report. We recommend that your application contain the same error checking logic as the NERO QC checks in order to prevent the submission of erroneous reports resulting in the rejection of the report. A list of the NERO QC audits can be found in **Appendix D**.

Corrections to a Previously Submitted eVTR
Certain errors in an eVTR can only be discerned after the eVTR is submitted and its data elements are compared to other data sources. When this occurs, NMFS will notify the vessel owner of the problem(s) so that they may correct the eVTR and resubmit. This will require that eVTR vendors provide a method for copying and then modifying, sometimes significantly, a previously submitted eVTR. The vessel owner must then have the ability to submit the amended eVTR in the same manner as the original submission. Note: It is critical that the trip identifier from the original submission be used when submitting the revised eVTR.

Display of Trip Reports
When requested by authorized personnel, a vessel must present for inspection vessel trip reports from the previous twelve months. Thus the product must have the capability to display a facsimile of the paper VTR form with a separate 'page' for each sub-trip. It is desirable for the eVTR software to be able to print, export or email VTR facsimiles.

Appendix A – VTR Form

FISHING VESSEL TRIP REPORT

NOAA Form No. 88-30
OMB No. 0648-0212
Expires 1/31/2013

DID NOT FISH
Start Date _____ / _____ / _____ (MM DD YY)
End Date _____ / _____ / _____ (MM DD YY)

VTR Serial Number: 12345678

1. Vessel Name	2. USCG Documentation or State Registration	3. NMFS Vessel Permit Number

4. Date and Time Sailed	5. Date and Time Landed
Date: _____ / _____ / _____ (MM DD YY) Military Time: _____ : _____ (HH MM)	Date: _____ / _____ / _____ (MM DD YY) Military Time: _____ : _____ (HH MM)

6. Trip Type – **check one box and record the number of crew including the captain. Party/Charter must also include the number of anglers.**

☐ Commercial: # of Crew_____ ☐ RSA/EFP: # of Crew_____ ☐ Party: # of Crew _____ # of Anglers _____ ☐ Charter: # of Crew _____ # of Anglers _____

COMPLETE A NEW FORM FOR EACH DIFFERENT CHART AREA, GEAR TYPE OR MESH/RING SIZE USED ON A TRIP.

7. Gear Code	8. Mesh/Ring Size	9. Gear Quantity	10. Gear Size	11. Fishing Depth (Fathoms)	12. Number of Hauls

13. Chart Area	14. Latitude	15. Longitude	16. Tow / Soak Time
	_____ : _____ (DEGREES MINUTES)	_____ : _____ (DEGREES MINUTES)	_____ : _____ (HOURS MINUTES)

17. Species Code	18. Kept	19. Discarded	20. Dealer Permit Number	21. Dealer Name	22. Date Sold MM/DD/YY	23. Offloading Port for each species: City	State

I certify that the information provided on this form is true, complete and correct to the best of my knowledge, and made in good faith. Making a false statement on this form is punishable by law (18 U.S.C. 1001).

24. Operator Permit Number	25. Operator Name	26. Operator Signature	27. Date Signed MM/DD/YY

NMFS COPY

Appendix B - Export File Field/Column Descriptions and Business Rules

Export file description
File is in CSV format.

- **File Header**
  - Record Type
    - 0 - Header
  - Program Name (e.g. ACME)
  - Program Version (e.g. 2.01)
  - Total Trip Record Count for File
  - Total Effort Record Count for File
  - Total Catch Record Count for File
  - Unique eVTR Data Transmission ID Number

Appendix B – continued

- **Trip Record**
  - Record Type
    - 1 – Trip Record
  - Effort Record Count for this Trip
    - Numeric
  - Trip ID (eVTR Number)
    - Numeric
  - NMFS Vessel Permit Number
    - Numeric
  - Vessel Registration or USCG Doc Number
    - String
  - Date and Time Sailed (local time onboard as of sail date)
    - String
    - Format: YYMMDDHHMI
      - YY = Year
      - MM = Month
      - DD = Day
      - HH = Hour
        - 24 hour clock
      - MI = Minutes
        - 00 thru 59
  - Date and Time Landed (first landing)
    - String
    - Format: YYMMDDHHMI
  - Trip Type
    - Numeric
    - Valid values in eVTR_Trip_Types_Current.xls
  - Number of Crew
    - Numeric
  - Number of Anglers (leave blank for commercial or RSA trips)
    - Numeric
  - Operator First Name
    - String
  - Operator Last Name
    - String
  - NMFS Operator Permit Number
    - Numeric
  - Operator Password
    - String
  - Trip Activity Type
    - Numeric
    - Used to further define type of effort used on a trip or reason why a trip was terminated (e.g. Mechanical Breakdown, Set Only, Good Samaritan, etc.)
    - Valid values in eVTR_Trip_Activity_Types_Current.xls
  - Trip Comments (blank if no comments)
    - String

Appendix B – continued

- **Sub Trip Record**
  - Record Type
    - 2 – Sub Trip (aka 'Effort')
  - Catch Record Count for this Effort
    - Numeric
  - VTR Gear Code
    - String
    - Limited to GEAR_CODE listed in eVTR_Gear_Codes_Current.xls
  - Mesh/Ring Size (set to blank if not applicable)
    - Numeric
    - Validated using MINIMUM_MESH_RING_SIZE and MAXIMUM_MESH_RING_SIZE columns in eVTR_Gear_Codes_Current.xls associated with GEAR_CODE selected above.
    - Values that fail validation will be allowed ideally with a visual warning to the user.
  - Gear Quantity (set to blank if not applicable)
    - Numeric
    - Validated using MINIMUM_GEAR_QTY and MAXIMUM_GEAR_QTY columns in eVTR_Gear_Codes_Current.xls associated with GEAR_CODE selected above.
    - Values that fail validation will be allowed ideally with a visual warning to the user.
  - Gear Size (set to blank if not applicable)
    - Numeric
    - Validated using MINIMUM_GEAR_SIZE and MAXIMUM_GEAR_SIZE columns in eVTR_Gear_Codes_Current.xls associated with GEAR_CODE selected above.
    - Values that fail validation will be allowed ideally with a visual warning to the user.
  - Latitude or Loran1
    - String
    - LORAN
      - Position supplied as 5 digit number
    - Decimal Degree
      - Minus sign if below the equator otherwise omit
      - DD.DDDD
    - Degree: Minute
      - Minus sign if below the equator otherwise omit
      - DD:MM
  - Longitude or Loran2
    - String
    - Format same as for Latitude except whole portion of degrees are in DDD format (instead of DD).
    - Minus sign if west of the prime meridian otherwise omit. Not applicable to LORAN.

Appendix B – continued

- **Sub Trip Record**
  - Chart Area
    - Numeric
    - Limited to values found in ‘NEMAREA’ column in FVTR_Location_To_Area_YYMMDD.xls.
  - Fishing Depth
    - Numeric
  - Fishing Depth Unit of Measure
    - String
    - Default is assumed to be fathoms.
    - Valid Values
      - FT – Feet
      - MT – Meters
      - FA - Fathoms
  - Number of Hauls (set to blank if not applicable)
    - Numeric
    - Validated using MINIMUM_NBR_OF_HAULS and MAXIMUM_NBR_OF_HAULS columns in eVTR_Gear_Codes_Current.xls associated with GEAR_CODE selected above.
    - Values that fail validation will be allowed ideally with a visual warning to the user.
  - Tow/Soak Time (set to blank if not applicable)
    - String
    - Format HHHH:MM Validated using MINIMUM_AVG_SOAK_TIME and MAXIMUM_AVG_SOAK_TIME columns in eVTR_Gear_Codes_Current.xls associated with GEAR_CODE selected above.
    - Values that fail validation will be allowed ideally with a visual warning to the user.

Appendix B – continued

- **Catch Information**
  - Record Type
    - 3 – Catch associated with a given Sub Trip
  - Species
    - String
    - Limited to values found in eVTR_Species_Codes_Current.xls.
    - Species lookup should be available
  - Kept
    - Numeric
  - Discarded
    - Numeric
  - Unit of Measure
    - String
    - Valid values:
      - LBS - Pounds
      - BSH - Bushels
      - CNT - Count
    - 'CNT' is only valid for use with Trip Type 2 or 3
    - If a TRIP Type of 2 or 3 is specified, and UOM is other than 'CNT', Dealer Permit Number, Dealer Name, Date Sold and Offloading Port must be populated.
  - Dealer Permit Number (for non-dealer catch, use "special" codes).
    - Numeric
    - Leave blank if catch consists only of discarded (no kept).
    - Validated using DEALER_NUMBER column in eVTR_Dealer_Listing_Current.xls
    - Values that fail validation will be allowed ideally with a visual warning to the user.
  - Dealer Name
    - String
    - Leave blank if catch consists only of discarded (no kept).
    - Free Text Entry
  - Date Sold
    - Numeric
    - Leave blank if catch consists only of discarded (no kept).
    - Format: YYMMDD
      - YY = Year
      - MM = Month
      - DD = Day
  - Offloading Port
    - String (must maintain leading zeros in port code)
    - Valid values found in eVTR_Port_Listing_Current.xls
    - Leave blank if catch consists only of discarded (no kept).
    - This field is populated with the 6 digit PORT_CODE associated with a selected PORT_NAME & PORT_STATE combination.
    - The PORT_NAME and PORT_STATE should be used when generating the facsimile.

Appendix B – continued

Export file example

```
0,ACME,1.01,1,3,18, 12345613041009
1,3,12345613041009,123456,MS1234XX,1304040000,1304051845,1,4,,"OP FIRST NAME","OP
LAST NAME",10099999,"12345aA!",,
2,8,OTF,6.500,1,150.0,40:51,-067:05,525,60,FA,7,14:45
3,COD,3500,300,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,DGSP,0,150,POUNDS,,,,
3,FLBB,500,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,FLGS,50,0,POUNDS,9876,"MY CUSTOM DEALER",130405,240301
3,FLGS,250,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,HADD,450,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,WHAK,4800,200,POUNDS,9877,"NEW CUSTOM DEALER",130406,240115
3,POLL,2500,0,POUNDS,9877,"NEW CUSTOM DEALER",130406,240115
2,5,OTF,6.500,1,180.0,41:31,-068:25,522,40,FA,5,6:0
3,COD,400,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,WHAK,1100,0,POUNDS,9877,"NEW CUSTOM DEALER",130406,240115
3,WHAK,100,0,POUNDS,8,"LANDED, UNMARKETABLE CATCH (LUMF)",130406,240115
3,POLL,900,0,POUNDS,9877,"NEW CUSTOM DEALER",130406,240115
3,SKATE,80,10,POUNDS,3278,"ZEUS PACKING INC",130405,240301
2,5,LLB,,240,2.1,42:01,-067:59,522,50,FA,5,5:42
3,COD,250,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,DGSP,0,25,POUNDS,,,,
3,FLYT,150,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,MONK,110,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
3,HADD,200,0,POUNDS,3278,"ZEUS PACKING INC",130405,240301
```

Appendix C – Lookup Tables

eVTR_Dealer_Listing_Current	Provides dealer code, dealer name, port and state along with special codes for Home Consumption, Bait, etc.
eVTR_Gear_Codes_Current	Provides valid gear codes along with additional information that can be used for range checking values such as mesh size, quantity, soak time etc. associated with a given gear code.
eVTR_Location_to_Area_Current	Provides for the conversion of a specified latitude, longitude and a ten minute square into a chart area
eVTR_Port_Listing_Current	Provides the port code for a specified port and state combination.
eVTR_Species_Codes_Current	Provides synonym(s), species code and common name for species in the NER. The synonyms provide for lookups using colloquial names e.g. DAB = American Plaice Flounder
eVTR_Trip_Activity_Types_Current	Sub categories used to refine a trip type
eVTR_Trip_Types_Current	Valid trip types

Appendix D – Quality Control Audit Rules

AUDIT RULE
DATE LAND AFTER TODAYS DATE
DATE LAND BEFORE DATE SAIL
DATE LAND MISSING
DATE SAIL AFTER TODAYS DATE
DATE SAIL MISSING
DUPLICATE OF EXISTING TRIP WITH SAME PERMIT AND DATE SAIL
DUPLICATE TRIP REPORTED
MISMATCH BETWEEN SUBTRIPS REPORTED AND SUBTRIP RECORD COUNT
NO EFFORT TRIP MISSING REQUIRED VALUES
TRIP ID DOES NOT MATCH VESSEL PERMIT NUMBER
TRIP ID INVALID
TRIP MISSING SUBTRIP RECORDS
VESSEL PERMIT NUMBER MISSING
VESSEL PERMIT NUMBER SUBMITTED INVALID
AREA INVALID
GEAR REPORTED WITHOUT A SPECIES
GEARCODE INVALID
MISMATCH BETWEEN CATCH REPORTED AND CATCH RECORD COUNT
ORPHAN SUBTRIP RECORD
SET ONLY TRIP MISSING REQUIRED VALUES
SUBTRIP MISSING CATCH RECORDS
INVALID PORT CODE
ORPHAN CATCH RECORD
PORT CODE IS MISSING
SPECIES CATCH WEIGHT MISSING IN KEPT AND DISCARDED
SPECIES CODE INVALID
SPECIES CODE MISSING