



Geoff White, Director
Atlantic Coastal Cooperative Statistics Program
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

July 30, 2024

Dear Mr. White,

Rhode Island Division of Marine Fisheries, Massachusetts Division of Marine Fisheries, New Hampshire Fish and Game Department, and Maine Department of Marine Resources, are pleased to resubmit the new proposal titled “*Vessel Tracking Data and Program Management Improvements: Expansion of Vessel Tracking Data Access Controls and Upgrading the SAFIS Vessel Tracking Application*” for your review. We believe this proposal is critical to successfully managing vessel tracking programs at the state partner level. Improvements to existing applications and data access points will streamline both compliance monitoring and analyses of tracking data.

The contributing partners acknowledge there may be some hesitation regarding submitting this proposal as a “new” project. We are submitting this proposal as new for the following reasons: 1) the proposed work is an expansion of a single objective from the FY22 funded proposal, “*Integration of vessel monitoring systems and electronic reporting in SAFIS and SAFIS applications through API development and field testing of multiple hardware options: Phase 2*” and the scope of that single objective is significantly expanded into five new objectives, 2) additional state partners are now involved in this proposal, 3) there was a one year lapse in funding, and 4) a sixth objective regarding data access controls that was not addressed by previous proposals has been added.

Please address questions jointly to Rich Balouskus of the Rhode Island Division of Marine Fisheries, Anna Webb of the Massachusetts Division of Marine Fisheries, Robert Atwood of the New Hampshire Fish and Game Department, and Nathan Willse of the Maine Department of Marine Resources.

Sincerely,

Rich Balouskus (RIDMF) Anna Webb (MADMF) Robert Atwood (NHFGD) Nathan Willse (MEDMR)
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Enclosures: ACCSP Proposal: “*Vessel Tracking Data and Program Management Improvements: Expansion of Vessel Tracking Data Access Controls and Upgrading the SAFIS Vessel Tracking Application*”

Appendix A: Principal Investigators’ Curricula Vitae
Memo from ACCSP regarding proposed work

Proposal for Funding made to:
Atlantic Coastal Cooperative Statistics Program
Operations and Advisory Committees
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22204

**Vessel Tracking Data and Program Management Improvements: Expansion
of Vessel Tracking Data Access Controls and Upgrading the SAFIS Vessel
Tracking Application**

Submitted by:

Rhode Island Division of Marine Fisheries
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Jamestown, RI 02835

Massachusetts Division of Marine Fisheries
30 Emerson Avenue
Gloucester, MA 01930

New Hampshire Fish and Game Department
11 Hazen Drive
Concord, NH 03302

Maine Department of Marine Resources
194 McKown Point Road
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Applicant Name: Rhode Island Division of Marine Fisheries, Massachusetts
Division of Marine Fisheries, New Hampshire Fish and Game
Department, Maine Department of Marine Resources

Project Title: Vessel Tracking Data and Program Management Improvements:
Expansion of Vessel Tracking Data Access Controls and
Upgrading the SAFIS Vessel Tracking Application

Project Type: New Project

Principal Investigators: Rich Balouskus (RIDMF), Anna Webb (MADMF), Robert
Atwood (NHFGD), Nathan Willse (MEDMR)

Requested Award Amount: \$108,000

Requested Award Period: For one year, beginning after the receipt of funds

Date Submitted: July 30, 2024

ACCSP Funding Proposal: Vessel Tracking Data and Program Management Improvements

Sections of the proposal identified to help with the ranking process are highlighted in green with a summary on page 13.
Revisions are highlighted in yellow.

Terminology:

The contributing partners acknowledge there may be some hesitation regarding submitting this proposal as a “new” project. We are submitting this proposal as new for the following reasons: 1) the proposed work is an expansion of a single objective from the FY22 funded proposal, “*Integration of vessel monitoring systems and electronic reporting in SAFIS and SAFIS applications through API development and field testing of multiple hardware options: Phase 2*” and the scope of that single objective is significantly expanded into five new objectives, 2) additional state partners are now involved in this proposal, 3) there was a one year lapse in funding, and 4) a sixth objective regarding data access controls that was not addressed by previous proposals has been added.

Objective:

Within the scope of the project, the following objectives and deliverables will be met:

- Update the trip report to positional data matching procedures to be more efficient and comprehensive.
- Enhance the vessel tracking application (VTA) housed within Standard Atlantic Fisheries Information System (SAFIS) to improve workflows.
- Develop the ability for partners to define and implement new compliance frameworks within the VTA.
- Implement a report to identify vessels fishing in a specific region over time.
- Enhance the existing ACCSP tracking API to accept additional data fields.
- Resolve any outstanding administrative and data consumer restricted data access issues.

Need:

Satellite-based vessel-monitoring-systems (VMS) have been deployed for years on federally permitted vessels and utilized by NOAA Fisheries and NOAA Office of Law Enforcement (OLE) successfully. Most ACCSP state partners have not yet implemented this technology due to high costs and logistics. VMS technology using cellular transmission has emerged that is relatively less expensive to purchase and use, thus providing opportunity for vessel tracking management strategies to be implemented by partners with limited resources. Within the scope of this proposal we exclusively refer to cellular VMS technologies as those adopted by Addendum XXIX. State managers and law enforcement are eager to explore the utility of this technology to meet management and assessment needs as well as to allow for more flexible management programs in various fisheries.

VMS data allows for significantly more robust accountability for management programs especially where the current level of reported location data is insufficient. Furthermore, with the increasing presence of other ocean uses in recent years (e.g., renewable energy, aquaculture) in historically utilized commercial fishing areas, the ability to track spatiotemporal use with catch may be of interest to various commercial fishery participants in addition to management groups.

The robustness of spatiotemporal analyses gained from VMS data led the Atlantic States Marine Fisheries Commission (ASMFC) to publish Addendum XXIX to Amendment 3 to the Interstate Fishery Management Plan for American Lobster in March 2022. The Addendum implemented electronic cellular-based tracking requirements for federally-permitted vessels in the American lobster and Jonah crab fishery, with the goal of collecting high resolution spatial and temporal effort data. In previous proposals to ACCSP, MADMF and RIDMF collaborated with both ACCSP and ASMFC to support the successful development of a basic administrative interface, what is now

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known as the VTA, for viewing tracking and trip data built within the SAFIS suite of applications. This interface was solely designed to be used by state managers for compliance issues related to Addendum XXIX. However, the backend of this interface was designed to be scalable to allow for additional frameworks (e.g., individual state opt-in programs) to be added.

By early 2024, all states with federal lobster trap permitted vessels principally ported in their state had implemented rules to establish the tracking requirement from Addendum XXIX and administrative staff began using the VTA available to state managers. Several additional needs, which became the objectives of this proposal, were quickly identified to build upon the existing application and to increase functionality of the program for both managers and enforcement.

Post hoc linking of positional data generated from VMS devices with trip-level vessel trip report (VTR) data, as well as efficient access to these data for further review, are necessary to analyze the spatiotemporal patterns of fishing activity within various fleets. This trip (VTR) to track (VMS) matching is the key procedure underlying the existing VTA and is critical to not only tracking compliance with regulations, but also analyzing spatiotemporal effort. Additionally, current data access controls restrict the ability to use these data in a consequential way due to limitations on the volume of data that can be extracted. This proposal will create an opportunity for more broad scale use of these data by managers and analysts within the bounds of confidentiality. Improving matching procedures and developing regulated data access points in order to collate the matched data into functional data products are objectives of this proposal. One example of a functional data product includes the aggregation of matched catch and effort data into an input for a stock assessment.

The ability to implement new VMS programs by partners without relying on already strained time of ACCSP staff is another objective. This work will allow partners to seamlessly build new compliance frameworks as new regulatory requirements are implemented. Already, both Rhode Island and Massachusetts have additional VMS programs in the queue that will need new compliance frameworks within the VTA. The State of Rhode Island currently administers a black sea bass/summer flounder weekly aggregate program that requires participants to report catch electronically and to have a cellular VMS device onboard. Currently state administrators are utilizing a combination of vendor provided interfaces for VMS data interrogation and an internal system for VTR aggregation. By implementing this black sea bass/summer flounder aggregate compliance framework into the VTA the workload of administrators on data accounting minutia will be greatly reduced, thus increasing efficiency and allowing for both higher compliance rates and greater analysis capabilities.

The proposed work represents the next steps necessary to continue the development of the programmatic systems needed to fully take advantage of VMS technologies, to simplify the onboarding process for new partners, and efficiently manage new and existing VMS programs.

Results and Benefits:

The addition of geographic/positional fisheries-dependent data streams is becoming a priority of many jurisdictions with improved spatial understanding of fisheries necessary to continued successful management. As such, during previously funded work, ACCSP acquired appropriate GIS licenses and dedicated staff time to advancing ACCSP's spatial data storage and use. Additionally, the Commercial Technical Committee initiated a spatial coordination working group to assist and guide ACCSP in spatial data development. ACCSP is the ideal location for this type of data

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compilation as they encompass both state and federal systems and thus is usable among all partners. Having a central repository for storage and display of VMS data at ACCSP makes multi-jurisdiction management of such programs more streamlined and data more easily available and accessible to fisheries managers.

This project ultimately addresses the ACCSP's catch and effort priority by further integrating and advancing the presentation of data collected through location tracking, which further supports emerging spatial management issues and improves the quality of data used to make decisions. This work is integral to SAFIS and SAFIS applications keeping current with emerging technologies. Most likely, requests for spatial analyses will only increase over time as seen with the recent implementation of Addendum XXIX and ongoing shared ocean use conflicts.

This proposal intends to improve upon the gains made during previous work and significantly improve efficiencies regarding management of VMS data collection programs, primarily within the SAFIS VTA. While the current iteration of the VTA is operable and provides managers with numerous tools to manage compliance and analyze data, months of initial use with a now significant data set have clarified to users where upgrades can and should be made. By more accurately and precisely highlighting out of compliance vessels and improving the matching of trip (VTR) to track (VMS) processes, partner program managers will be able to streamline workflows and focus more attention on data quality, which has been identified as a problem for certain device types and requires additional review. Incorporating additional data elements into the API will further facilitate reviewing potential device failures within the VTA. Through improving quality control measures of tracking data, end users and analysts will have a more easily consumable dataset.

Data access is another pillar of this proposal. Within the bounds of confidentiality, managers and analysts need access to a clean and robust dataset. Expanding the access to layers of data under a tiered approach based on confidentiality laws will provide this function. This will benefit not only program administrators and managers, but other data consumers such as state and federal fisheries managers, stock assessment scientists, and more. After accomplishing the objectives of this proposal, partners can expect to have the ability to significantly streamline the vessel compliance management process within a given compliance framework, expand access to fully matched trip and track data within the bounds of confidentiality laws, and seamlessly and efficiently implement additional compliance frameworks for new programs.

Upon success, the results from this effort would make VMS programs more accessible to all partners. A spatiotemporally explicit catch reporting system that seamlessly joins location data to trip data will allow for easier adjustment of catch and effort information into discrete spatial units, thus precluding the need for some of the assumptions currently being used for more progressive assessments. Additionally, the availability of this type of spatially defined catch and effort information could allow for other population assessments to progress to more spatially refined structures, thus improving the stock assessment enterprise as a whole. This type of management strategy is particularly valuable for stock assessments that are spatially refined, such as those used for menhaden, black sea bass, tautog, and proposed for striped bass. Managers, harvesters, and various stakeholders may also find utility in aggregated tracking data in relationship to proposed ocean uses such as offshore renewable energy development and aquaculture, or the spatial extent of protected species and their population density estimates. While this project will not make harvester's personal tracks available for use by the public, the value of these data in large scale analyses is apparent.

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By utilizing new technologies, expanding an avenue of integrated reporting, and streamlining the effectiveness of existing and new programs, this project will open new opportunities for quasi-real-time data collection and utilization by all state partners. This project emphasizes partner collaboration, including four partners as co-PIs, all while developing a product that can be used by any single partner, particularly for inshore fisheries.

Data Delivery Plan:

All data will be stored at ACCSP following established protocols. Tracks from completed trips will POST via API into ACCSP tables. Authorization schemes at the application and database level ensure that administrators only have access to location data under their jurisdiction or approved via another jurisdiction. Reports are accessed through applications in the SMS portal, and data will be available to export in multiple formats. Database connections would also be available to directly analyze trip location data from partner locations and within the bounds of confidentiality.

Approach:

Overall:

The proposed work necessitates a heavy commitment from ACCSP and/or their contractors, but this work is backed by the included letter of support. Development to be conducted by ACCSP and/or their contractors includes a range of modifications and new code resulting in application enhancements, report query updates, and database/API adjustments.

Objective 1: Trip to Track Matching

Data submitted by current ASMFC approved tracking devices include only vessel identifiers, time stamps, and vessel positions. To link vessel locations to a trip and gear type, tracking data must be matched to a VTR using solely these fields as additional information such as fishery declarations used in federal VMS programs are not included in these programs. ACCSP conducts a nightly procedure that matches VTRs to tracks that occurred between a start and end date and time reported on a VTR for a given vessel. Additionally, for efficiency purposes, only trips with a trip start date within the past 60 days are matched to vessel tracks as part of this nightly matching routine. Currently, this system is only set up for federal lobster vessels administered under Addendum XXIX.

Since April of 2024, all federal lobster permitted vessels are now required to report to NOAA Fisheries via federal VTRs. Additionally, since early 2023, another nightly routine moves a copy of all federal VTR data into the SAFIS database tables, which allows the matching of all trips regardless of the jurisdiction to which the trip was reported. Though NOAA fisheries specifies that VTRs be submitted within 48 hours of landing, late submissions of vessel trip reports are common. Additionally, failures may occur during the copying of VTR data from NOAA Fisheries to SAFIS. These delays in receiving trip reports lead to tracks failing to be associated properly to a trip during the nightly matching routine. It is estimated that roughly 20 percent of VTRs submitted by vessels with a federal lobster permit between May 1, 2023, and April 30, 2024, were received in SAFIS over 60 days past the trip end date, and therefore would not be matched under the current program design. To mitigate this delay, a monthly process will be developed and implemented to match late VTR submissions to vessel tracks and run at a time that will not negatively impact the processing power necessary for the nightly matching process.

Due to the 24/7 tracking requirement, extraneous, non-trip tracking data are collected and stored. However, using start and end date and times to bin vessel tracking data has proved problematic, as VTRs often are submitted with inaccurate start and end times. This creates additional derelict tracking data for fishing trips that are not associated with a VTR. Managing this unmatched tracking data from legitimate fishing trips has become difficult due to the large volume of data. To reduce this error, matching procedures will be updated to match tracks that occur between start and end date for a given trip rather than rely on the reported times. By removing start and end times from the matching procedure, partners foresee that most tracks will properly be associated with a trip and reduce the impact of inaccurate VTRs.

Though rare in lobster trap fisheries and therefore not a problem for the Addendum XXIX framework, this proposed matching procedure will be problematic for programs targeting fisheries with multiple trips in the same day. A new tool will be created in the VTA to properly match tracks when multiple trips may exist on the same date. This tool will be an Oracle APEX report that isolates and highlights when multiple VTRs are assigned to the same tracking data.

Objective 2: VTA Enhancements

The SAFIS VTA was developed during previously funded tracking projects, and the administrative interface of the application has been utilized by state managers to conduct compliance management and post-hoc analysis required for Addendum XXIX. While the development of the SAFIS database and administrative interface was completed prior to the initiation of Addendum XXIX, the use of the VTA has highlighted the need for enhancements to streamline the compliance management framework. The work proposed here intends to create enhancements to identify device failures in a timely manner, improve the ability to isolate activity when needed, and improve report formatting (Table 1). Proposed enhancements will streamline and standardize vessel tracking management across different state jurisdictions.

An estimate of workload is included in Table 1 after consideration by the ACCSP Software Team.

Objective 3: Compliance Framework Management

ACCSP initially developed the SAFIS administrative interface of the VTA to address Addendum XXIX but requires users to select the framework prior to entering the application. Both the program's back-end database as well as the end-user facing interface were designed to scale, allowing for the integration of additional frameworks in the future, however, the current implementation requires significant coding by ACCSP staff to complete and initiate a new framework. An objective of this project is the ability for partner administrators to seamlessly implement additional frameworks within the SAFIS VTA or SMS administrative interface and without involving ACCSP staff unless absolutely necessary.

This new module for the SAFIS vessel tracking compliance framework administrative interface will either reside within the VTA or within SAFIS SMS with other administrative tools. This interface will allow partners to initiate the creation of a new framework and manage existing frameworks for which the user has update permissions. Creating a new framework will include several steps including creating a unique identifier, defining compliance parameters, and identifying participating vessels and their reporting agency (state vs. federal).

Table 1. VTA Enhancements expected to be completed, in order of priority. Estimated workloads are based on feedback from the ACCSP Software Team and relate to number of hours needed for completion. In general, if a single developer is working on a task, Low workload enhancements would typically take 1-3 days of work, Medium is 4-7 days, and High is 8 days or more.

Feature	Need/Justification	Development Needed	Est. Work-Load
Force assign a Trip ID to location data	Changing the matching procedure as outlined in Objective 1 improves many of the issues encountered with this problem, however, this will create the need to assign a location to a specific trip when multiple trips occur within the same calendar day, or a track occurs outside of the dates reported.	Matching procedure modification	High
Create report identifying tracks matching to multiple trip ids	More efficiently identifies tracks that need to be reviewed for assigning Trip IDs based on multiple Trips per day.	Query writing, implementation of new report	Medium
Ability to query all reports by coastguard documentation number or state registration number	Currently can only query by vessel name, and this change would increase ease of searching or downloading desired data.	Query modification	Low
Create report identifying devices that have not sent a location to the API in the last day and devices where locations are impossibly far apart	Identifying device failures has been one of the more complicated tasks in the current VTA. This change would allow managers to more quickly identify potential device failures before a harvester report is submitted.	Query writing, implementation of new report	Medium
Remove automatic filtering of opt-out vessels from compliance reports and add as queryable field	Improves identification of vessels that improperly submitted opt-out paperwork.	Query modification	Low
Automatically show potential tracking points when viewing Vessel Transit page	Reduces steps needed to add unassigned location data to a trip and ensures state managers always view unassigned points when viewing a trip in the transit report. Dependent on objective 1's outcome the need for this change may be reduced.	Query and Interface/ app modification	High
Standardize time display in reports to 24hr clock. Default queries to a time period of one calendar day maintaining the ability to change the queried time.	Viewing time based on a 24hr clock reduces miscommunications. State managers are generally interested in viewing data based on a specific date, and defaulting to a calendar day reduces steps in a standard query.	Query modification	Low
Search for a trip in the Trip Viewer by trip ID	Increases ease of use of Trip Viewer when assessing a specific trip.	Query and Interface/ app modification	Medium
Add ability to mark a trip as non-fishing within a compliance framework in Unreported Vessel Transit Report so it can be filtered out of the report	Reduce time state managers spend investigating a non-fishing trip within a compliance framework.	Query, Interface/ app, and database modification	Medium
Standardize field names between different reports	Improves ease of use of report outputs in analysis.	Interface/ app modification	Low
Addition of eVTR number to reports and Trip Viewer selection options	Improves ability to identify eVTR errors or trip matching errors. May also be used for joining catch and spatial data for analysis.	Query and interface/ app modification	Low

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The new framework interface must first be initiated with a unique name – which must be unique across all jurisdictions and programs so that it can be selected through the generic VTA application home page. Next, administrators will be asked if they would like to copy settings from an existing framework or start from scratch. If they choose to copy, business rules will auto-populate, but vessel lists will not. If they choose to start from scratch, no information will auto-populate. Administrators will then move into the framework builder module. From this module, a list of vessels participating in the program will need to be uploaded. The module will then prompt users to establish the baseline business rules for the program such as defining a set of compliance rules, opt in/opt out options, and potentially manipulating the trip matching algorithm frequencies or rules for number of trips per day depending on the outcome of Objective 1. Lastly, the administrator will need to grant view and update permissions for the framework to groups of users.

Finally, this framework builder module must also allow administrators to modify frameworks as needed. This can be as simple as adding new vessels or ending a vessel's participation in a program, or as complicated as modifying compliance rules to accommodate regulatory changes. Additionally, permissions should be able to be maintained through this module. Frameworks cannot be deleted, but they can have a sunset end date.

Objective 4: Identify Vessels in a Given Region over Time

An interface catering directly to the specific needs of law enforcement is needed, not only to fully address the goals Addendum XXIX as well as the Rhode Island Aggregate Program, but to utilize these data to their full extent. While some funds are requested to begin creating an interactive multi-vessel track viewer, additional scoping is necessary to define the approach for development of a full standalone application. This application will incur a significant cost, and in 2024, and with assistance from ACCSP and outside funding, the proposal PIs and other project personnel will convene with law enforcement personnel familiar with VMS data to outline requirements and investigate vendors and existing technology (V-TRACK, AIS, etc.) to find the right fit for implementation. A subsequent proposal is expected to be submitted for this standalone development after requirements are defined.

For the interim time period funded through this proposal, a few tweaks to the existing VTA are requested. This includes modifying the existing Vessel Heat Map to be able to quickly identify vessels in a specific region, likely an approximate 10-minute square, across a specific amount of time, perhaps limiting time to a specific number of days at most. Additionally, adding a speed filter to the output would allow managers to identify probable fishing activity to further reduce the output. This provides a quick access report to answer pressing concerns from law enforcement until a standalone application can be developed.

Objective 5: API

As part of the initial development of the VTA, ACCSP built a new API that would ingest the ping data sent from the devices. Currently, this API collects data on the location, date/time, vessel, and device. This project suggests that the API be enhanced to include the collection of device voltage, which is a commonly displayed field available on vendor data portals and valuable to analyze problems with the vessel device hardware. Specifically, this will be a non-required field; however, data submissions should be validated by field type. **Other additions may be added pending Addendum modifications potentially in development.** This task requires a small amount of ACCSP staff time and is not considered significant.

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As regulations requiring the use of trackers on the vessels were implemented and devices were installed and activated, ACCSP saw a significant increase in API traffic. Since the fall/winter of 2023, the location endpoint of the API has received up to 400 calls per minute and 300,000 calls per day on peak activity days. This is resulting in over 3 million calls per month, which is over a 50-fold increase in API traffic. Bottlenecks in AWS/cloud connections and database processing can cause connection failures. ACCSP has already tuned the database and optimized the cloud hosting infrastructure, which reduced processing times and connection failures. However; there are still a significant number of vessels and trackers to come online as the fishing season begins and traffic is guaranteed to increase again. ACCSP would like to isolate the host for the locations API and implement redundant cloud instances for failover and load-balancing. Inflation Reduction Act (IRA) funding has been secured to fund the IT upgrades to handle the API traffic.

Objective 6: Data Access

VMS data can be useful to diverse audiences and end users outside of tracker management personnel with necessary data access modifications. Data release is controlled through existing ACCSP and partner standard operating procedures independently of this proposal. As part of this work, we propose a tiered data access approach to make these emerging data available to approved collaborators completing relevant analyses while ensuring uniform outputs, maintenance of confidentiality laws, and preventing diverging database formats. Levels of data accessibility through the ACCSP Data Warehouse can be differentiated by what views, rows, and/or columns are visible to end users upon log in based on the privileges of the user.

Raw data coming into the existing ACCSP database is available only to staff working directly within the tracker program for QC and analysis, and researchers with confidentiality agreements. These staff are best positioned to QC/QA these data without mischaracterizing fishery behavior. Issues with data collection, like partial trips and fishery attribution, as well as basic analyses like vessel speed and trip attribution will be completed at this tier to ensure the methodology is consistent across all subsequent access tiers. Critically, concerns about data confidentiality can be addressed at this stage to produce levels of confidential and non-confidential modeled outputs of gear distribution and QC tracker pings.

QC/QA spatial data can be committed to a separate level once reviewed and made available to the next tier of users. These users will develop modeling approaches to describe gear distribution, density, and end use products without the burden of validating mechanistic tracker program operations. Approaches to modeling gear layers and spatial analyses collaboratively developed within this group of users can be passed on to subsequent tiers of users, to prevent development of alternative gear layers without proper validation from program staff. Methodology validated by regional administrators will ensure singular versions of these data are used in end user data outputs.

Modeled data outputs represent another tier of users. This level would be able to pull modeled non-confidential data for broad purposes. These data represent an unparalleled spatial footprint of the fishery and have immediate relevant use for management and conservation cases across the Northwest Atlantic e.g. stock assessments and offshore renewable energy development. The breadth of research applications for these data drive the need for a comprehensive metadata and best practices to prevent competing versions of these data and betrayal of confidentiality in data access.

Geographic Location:

Work will be conducted between Rhode Island and Maine at all partner agencies and at ACCSP. Current data collection is occurring from Maryland to Maine in state and federal waters.

Milestone Schedule:

Task	Month												
	1	2	3	4	5	6	7	8	9	10	11	12	13
Finalize requirements gathering	X	X											
Objective 1		X	X	X									
Objective 2			X	X	X	X	X	X	X	X	X		
Objective 3					X	X	X						
Objective 4							X	X	X				
Objective 5									X	X			
Objective 6										X	X	X	
Report writing						X	X					X	X

Project Accomplishments Measurement:

Project Goal	Measure of Accomplishment
Trip to track matching is less sensitive to VTR time reporting errors	Percentage of tracks of vessels' fishing activity missing trip ids is reduced as compared to current
Trip to track matching occurs for late VTRs on a regular cadence	Regular schedule for late matching is established and running successfully
Administrators have a more seamless experience managing compliance within a framework	Data quality and the ability to identify device failures quickly (before a VTR is submitted) will improve
New frameworks can be created and managed independent of ACCSP staff	Framework building module successfully developed, tested, and launched with testing if not production implementation.
Identification of a vessel in time and space is possible and can be done quickly	Response to such requests is completed within minutes.
API collects additional optionally sent information about devices	API deployed to production and vendors are notified of the new available elements.
Data consumers have tools at their disposal to use the spatial data for analyses and management decisions	Within the bounds of confidentiality, at least one method producing data outputs available to data consumers is developed, tested, and implemented.

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Cost Summary:

Description	Calculation	In-Kind	Requested from ACCSP
Personnel (a)		\$0.00	\$0.00
Fringe (b)		\$0.00	\$0.00
Supplies (all divided evenly amongst partners) (c)		\$0.00	\$0.00
Contractual (d)		\$0.00	\$108,000.00
ACCSP Contractors	Development for 800 hours @ \$135/hour = \$108,000	\$0.00	\$108,000.00
Other (all divided evenly amongst partners) (e)		\$0.00	\$0.00
Total Direct Charges		\$0.00	\$108,000.00
Indirect Charges (f)		\$0.00	\$0.00
Totals		\$0.00	\$108,000.00
Total Project Cost		\$108,000.00	
In-kind versus Direct Percent Contribution		0.00%	100.00%
Requested Amount		\$108,000.00	

Cost Details:

- a. Personnel (\$0 Requested; \$0 Match):** Partners commit to working with ACCSP contractors on the proposed work but are not requesting directed funds for personnel. Therefore, no personnel costs are included.
- b. Fringe (\$0 Requested; \$0 Match):** Partners commit to working with ACCSP contractors on the proposed work but are not requesting directed funds for personnel. Therefore, no fringe costs are included.
- c. Equipment/Supplies (\$0 Requested; \$0 Match):** No supplies are necessary for this work as all tasks are software and application development.
- d. Contractual (\$108,000 Requested; \$0 Match):** All costs for the proposed work are contracted application, report, and API development hours. This is inclusive of all work for all objectives. Funds should be distributed to ACCSP for payment to contractors and no funds should be distributed to the partners. ACCSP staff time is not included in the budgeted work, and their commitment is outlined in the attached memo.
- e. Other (\$0 Requested; \$0 Match):** No other costs are necessary for this work as all tasks are software and application development.
- f. Indirect Charges (\$0 Requested; \$0 Match):** Partners commit to working with ACCSP contractors on the proposed work but are not requesting directed funds for personnel. Therefore, no indirect costs are included.

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Summary of Proposal for Ranking Purposes

Proposal Type: *New Project*

Primary Program Priority:

Catch and Effort: 100% - This proposal focuses on enhancements to the collection and integration of positional data with catch and effort data already collected through SAFIS applications.

Data Delivery Plan: See outline on page 6.

Project Quality Factors:

Multi-Partner/Regional impact including broad applications:

This is a joint project between several Northeast partners. However, the results will be directly applicable to any partner interested in developing a location monitoring program in inshore waters. Additionally, any partner with federal lobster vessels impacted by Addendum XXIX will benefit from this work.

Contains funding transition plan/defined end-point:

This is a one-year project with a defined end goal. The goal is to enhance the existing product to better serve both managers and data consumers.

In-kind contribution: Please see the costs table on page 12.

Improvement in data quality/quantity/timeliness:

The enhancements to the SAFIS VTA will improve the ability to quality control location data collected through cellular based vessel tracking devices and posted to the ACCSP tracking API. Additionally, the improved matching procedures will make matched trip to track data more readily available to end users and reduce processing time.

Potential secondary module as a by-product:

None

Impact on stock assessment:

Access to these location and matched catch and effort data, within the bounds of confidentiality, is particularly valuable for stock assessments that are spatially refined. The availability of this type of spatially defined catch and effort information could allow for other population assessments to progress to more spatially refined structures, thus improving the stock assessment enterprise.

Appendix A: Curricula vitae for the principal investigators

Richard G. Balouskus

3 Fort Wetherill Rd · Jamestown, RI 02840
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EDUCATION:

Graduate Education:

Master's of Science Degree, Marine Biosciences, *College of Earth, Ocean, and Environment*,
University of Delaware, 2011

Undergraduate Education:

Bachelor of Science Degree, Environmental Science, University of Vermont, 2005

WORK EXPERIENCE:

Principal Marine Biologist, Rhode Island Division of Marine Fisheries, Jamestown, RI
February, 2019 - Present

Ongoing Responsibilities:

- Manage RI federal lobster tracking program including device distribution, harvester customer service, VTA management and development, and data analysis.
- Oversees the RI aggregate fluke and black sea bass program development. Performed extensive data analysis of fishing activity to determine efficacy of program. Works with harvesters to ensure compliance with VMS and reporting requirements.
- Lead PI for the Rhode Island ventless fish pot survey. Collects monthly samples of structure oriented species in state waters. Performs data entry and analysis on collected biological samples; maintains project database. Conducts research with state partners.
- Lead PI for the Rhode Island winter flounder spawning stock survey. Conducts weekly fyke net surveys in RI coastal ponds in winter months. Maintains winter flounder tagging project conducted since 1999. Performs data entry and analysis on collected biological samples; maintains project database. Conducts research with state partners.

Fisheries Biologist, INSPIRE Environmental, Newport, RI
July, 2017 – February, 2019

- Developed protocol and secured funding for a hook and line survey to address concerns of federal and state agencies regarding locations of spawning cod aggregations on Cox Ledge with regards to offshore wind development.
- Served as chief scientist for research; responsible for procurement and maintenance of equipment, contracting and community engagement with vessels and anglers, dissection and assessment of collected cod, data analysis and reporting.
- Additional work includes assessment of sediment profile and plan view images to assess seafloor habitat characteristics.
- Preparation of proposals to private, federal, international, and NGO RFPs. Responsible for scoping and monitoring of project budgets through to completion and delivery of final products to clients.

Project Manager, Applied Science Associates (dbs RPS ASA), Wakefield, RI
April, 2011 – July, 2017

- Performed marine fisheries and coastal habitat research calculating injuries and reporting scientific findings for the DeepWater Horizon oil spill NRDA. Conducted analyses of large fisheries and environmental datasets.
- Developed novel methodologies for assessment of marine fish and invertebrate population dynamics.

- Project manager for development, application, and training of environmental risk assessment regarding oil and offshore wind development and operation in marine and coastal waters.
- Conducted risk assessments for coastal waters incorporating socioeconomic and ecological resources, including climate change planning.
- Preparation of proposals to private, federal, international, and NGO RFPs. Responsible for scoping and monitoring of project budgets through to completion and delivery of final products to clients.

SPECIAL SKILLS:

- Relational database management including MS Access
- Proficient in Microsoft Office Suite, R, and GIS
- Small boat handling including safe boating courses

SYNERGISTIC ACTIVITIES

- Atlantic States Marine Fisheries Commission Winter Flounder Technical Committee; Chair (2020 – Present)
- Atlantic States Marine Fisheries Commission Lobster Tracking Technical Committee; Member (2022 – Present)
- New England Fisheries Management Council Groundfish Plan Development Team; Member (2019 – Present)

Anna R. Webb

30 Emerson Ave · Gloucester, MA 01930
anna.webb@mass.gov · (978) 491-6212

EDUCATION:

Continuing Education:

Intro to Programming University of Massachusetts, Lowell; Fall 2016
Relational Database Concepts, University of Massachusetts, Lowell; Spring 2015
Hands-On Technology Transfer, Inc.: SQL Programming; Fall 2014

Graduate Education:

Master of Science degree, Marine and Atmospheric Science, *Focus: Fisheries*, School of Marine and Atmospheric Sciences, Stony Brook University, 2011
Thesis title: *Understudied Species in Coastal U.S. Waters: Issues, Solutions, and Implications for Ecosystem-Based Fishery Management*

Undergraduate Education:

Bachelor of Science Degree, Marine Vertebrate Biology, Stony Brook University, 2007

WORK EXPERIENCE:

Environmental Analyst IV, Massachusetts Division of Marine Fisheries, Gloucester, MA
February, 2023 – Present

Ongoing Responsibilities:

- Program leader for Division's Fisheries Statistics Program managing up to seven employees.
- Oversee and provide support for harvester and dealer data collection, entry, quality control, and compliance, quota monitoring of various species, all special projects including the swipe card dealer reporting system and implementation of a VMS program, and data dissemination to internal personnel, other partner agencies, and the public.
- Collaborate with other Division projects, state and federal partners, and ACCSP on various applications of fishery-dependent data that support fishery management.
- Act as the business project manager for internal permitting front-end applications and a liaison between end users and developers.
- Manage and oversee development and enhancements to the statistics Oracle databases.
- Apply for new and manage ongoing federal grants as the principal investigator.
- Present information compiled by the project to the general public via public meeting forums.
- Chair of the Commercial Technical Committee, Past Chair and current member of the Information Systems Committee, and Chair of the SAFIS Outreach Committee at the ACCSP.
- Division IT liaison to the Department and EOEEA to support technological advances within the Division. Act as Division project manager for ongoing technical projects. Provide IT support, within limits, to Division staff.

Environmental Analyst III, Massachusetts Division of Marine Fisheries, Gloucester, MA
November, 2015 – February, 2023; Supervisor: Story Reed

- Project leader for Division's Fisheries Statistics Project managing up to seven employees.
- Oversee and provide support for harvester and dealer data collection, entry, quality control, and compliance, quota monitoring of various species, all special projects including the swipe card dealer reporting system, and data dissemination to internal personnel, other partner agencies, and the public.
- Collaborate with other Division projects, state and federal partners, and ACCSP on various applications of fishery-dependent data that support fishery management.
- Manage internal permitting and statistics Oracle databases and application development.

- Apply for new and manage ongoing federal grants as the principal investigator.
- Vice Chair of the Commercial Technical Committee, Past Chair and current member of the Information Systems Committee, and Chair of the SAFIS Outreach Committee at the ACCSP.
- Act as a Division IT liaison to the Department and EOEEA and support technological advances within the Division.

Program Coordinator I, Massachusetts Division of Marine Fisheries, Gloucester, MA

April, 2014 – November, 2015

- Oversee the harvester data collection, entry, quality control, and compliance for Massachusetts
- Instituted the online video tutorial series for harvesters using SAFIS and a newsletter focusing on electronic reporting for dealers and harvesters.
- Participate in the swipe card dealer application project with ACCSP and Maine Department of Marine Resources.
- Member of the Commercial Technical Committee, Vice Chair of the Information Systems Committee, and Chair of the SAFIS Outreach Committee at ACCSP.

ACCSP Fishery Specialist (Coordinator), Rhode Island Division of Fish and Wildlife-Marine Fisheries Section, Jamestown, RI

April, 2012 – April, 2014

- Oversee SAFIS data entry and compliance by dealers, harvesters, and staff.
- Participate on the quota monitoring team to make decisions regarding seasonal closures and possession limit changes for summer flounder, black sea bass, tautog, bluefish, striped bass, scup, menhaden, and monkfish.
- Manage the research-set-aside program in Rhode Island.
- Write and submit progress and final reports for ACCSP grants.
- Provide data to staff and external users while monitoring confidentiality issues.
- Member of the Commercial Technical Committee, Vice Chair of the Information Systems Committee at ACCSP, Chair of the Data Warehouse Outreach Committee.

Seasonal Field Technician, New York State Department of Environmental Conservation, East Setauket, NY

June, 2011 – April, 2012

- Conduct seining surveys of juvenile striped bass in Western Long Island bays.
- Assisted with the monitoring of 35 fish pots in a Long Island Sound fishery-independent survey of tautog and a trawl survey of Peconic Bay, NY targeting juvenile finfish species.
- Participated in onboard sampling and measurement of recreational charter boat catch including local species such as summer flounder, black sea bass, and scup.
- Monitor and collect commercial striped bass fishery samples from local fish markets
- Press and age striped bass scales.

SPECIAL SKILLS:

- Relational database management including MS Access and Oracle based databases
- Data mining large datasets for repeating errors
- Proficient in SQL in Oracle and SQL Server, Microsoft Office Suite - expert in Microsoft Excel
- Experience with R, GIS, HTML, Visual Basic

AWARDS:

- 2022 Performance Recognition Individual Citation Recipient, Department of Fish and Game
- 2020 Manuel Carballo Governor's Award for Excellence in Public Service recipient as part of the CARES team

Robert Atwood

225 Main Street · Durham, NH 03820
robert.atwood@wildlife.nh.gov · (603) 868-1095

EDUCATION:

Graduate Education:

Master of Science Degree, Zoology, Department of Biological Science, University of New Hampshire, 2016

Thesis: Oyster (*Crassostrea virginica*) Recruitment Studies in the Great Bay Estuary, New Hampshire

Undergraduate Education:

Bachelor of Science Degree, Natural Resources – Fish and Wildlife, Northland College, Ashland, Wisconsin, 2004

WORK EXPERIENCE:

Biologist II, NH Fish & Game Department, Marine Division, Durham, NH
August 2022 – Present

Ongoing Responsibilities:

- Commercial Fisheries Unit leader. Oversee commercial fisheries projects in New Hampshire.
- Oversee the harvester data collection, entry, quality control, and compliance for New Hampshire.
- Member of the ASMFC Habitat Committee, Atlantic Herring Technical Committee, Atlantic Herring PRT, Northern shrimp PDT and American Eel PDT
- Member of Atlantic Coastal Fish Habitat Partnership Steering Committee.

Biologist I, NH Fish & Game Department, Marine Division, Durham, NH
February 2010 – August 2022

- Oversee marine aquaculture activity in New Hampshire, which involves issuing licenses, conducting biological SCUBA site surveys, grant writing, and coordinating with multiple state and federal agencies.
- Plan and coordinate estuarine and marine fisheries projects including Rainbow smelt fyke net survey, Young-of-year American eel survey, and Northern Shrimp Research.
- Member of ASMFC Northern Shrimp Technical Committee, American Eel Technical Committee, Chair of ASMFC Northern Shrimp Technical Committee from 2016-2018.
- Member of ACCSP Information Systems and Commercial Technical Committee from 2010-2014.

Biological Aide, NH Fish & Game Department, Marine Division, Durham, NH
April 2008 – February 2010

- Assist biologists with marine fisheries projects. Duties included creel surveys, fieldwork with anadromous and juvenile fish, and aging rainbow smelt scales.

Everglades Field Technician, University of West Florida Pensacola

February 2006 – August 2006

- Manage and collect field samples for project on the predation of apple snails (*Pomacea paludosa*) in the Everglades and Central Florida lakes. Supervise part-time field assistants. Operate and maintain airboats and vehicles.

Wetland Technician, Voyageurs National Park, International Falls, MN

June 2005 – September 2005 & June 2004 – December 2004

- Conduct wetland vegetation field projects. Map density of *Typha* and *Phragmites*. Locate peatlands using satellite imagery and identify plants.

Desert Biological Monitor, Bureau of Land Management, El Centro, CA

February 2005 – May 2005

- Collect plant and reptile species data in the Imperial Sand Dunes. Hike approximately 8 hours a day in extreme weather conditions. Reside in a remote base camp for three months.

Hatchery Intern, Red Cliff Tribal Fish Hatchery, Red Cliff, WI

October 2003 - April 2004 & August 2001 - December 2001

- Work with Brook Trout, Walleye, and Lake Sturgeon. Maintain raceways and other parts of hatchery. Fin-clip and floy-tag Brook Trout. Identify common fish diseases and treated fungus on fish. Identify the contents of Lake Trout stomach samples.

Fisheries Biological Aide, Idaho Fish and Game Department, Lewiston, ID

June 2003 – August 2003

- Assist with implanting and tracking Bull Trout using radio telemetry. Collect stomach and blood samples from Bull Trout.

CERTIFICATIONS AND TRAINING:

- Intermediate Stock Assessment training series, ASMFC, 2016-2017
- Principles and Practices of Group Facilitation, ASMFC, March 2016
- Introduction to Stock Assessment training series, ASMFC, 2015
- Foundations of Supervision, NH Bureau of Education and Training, August 2015
- PADI Open Water Scuba Certification

PUBLICATIONS:

Atwood, R.L. and R.E. Grizzle. 2020. Eastern Oyster Recruitment Patterns on and Near Natural Reefs: Implications for the Design of Oyster Reef Restoration Projects, *Journal of Shellfish Research* 39(2), 283-289.

Grizzle, R., K. Ward, R. Konisky, J. Greene, H. Abeels, and R. Atwood. 2021. Oyster Reef Restoration in New Hampshire, USA: Lessons Learned During Two Decades of Practice. *Ecological Restoration*. 39. 260-273.

NATHAN WILLSE

(781) 660 2425 ◊ Nathan.Willse@Maine.Gov

EDUCATION

University of Massachusetts, Dartmouth Bachelors of Science in Biology, Minor in Sustainability Studies	2008 - 2012
National Taiwan University: Chinese Language Division Study of Chinese Language and Traditional Chinese Characters	2016 - 2017
PhD Candidate in Marine Science University of Maine: School of Marine Sciences Stony Brook University: School of Marine and Atmospheric Sciences	2018 - Anticipated Graduation: 2024 2018 - 2020 2020 - 2024

TECHNICAL STRENGTHS

Languages	English (native), Chinese (working knowledge)
Software & Tools	R Programming Studio, ArcGIS, L ^A T _E X, NOAA Stock Assessment Toolbox.
Awards	Sea Grant Scholar, Pikitch Research Excellence Fellow, Eagle Scout

EXPERIENCE

Maine Department of Marine Resources: Fisheries Scientist November 2023 - Present
Fisheries Data Analyst

- Managing the Maine federal lobster fleet vessel tracking program end user data outputs. Supervise program staff to ensure data quality, interpreting fishery behaviour, leading data analyses, leading publications in line with fishery spatial management goals.
- Working with the DMR Marine Mammal division on data analyses, and interpreting vessel tracking data to advise entanglement risk reduction goals.
- Collaborating with state and federal agencies to apply Maine-specific VMS and landings data to stock and marine mammal take assessments.

Research Assistant September 2018 - Present
Graduate Student

- Fisher outreach to engage and equip volunteers for research projects. Modernize historic data and spearhead fisher surveys to fill systemic data gaps, develop and maintain database of confidential fisher data.
- Develop and publish novel quantitative analytical metrics for diverse data, specializing in cleaning and compiling historical and unconventional sources of data, synthesis of management metrics across data-deficient international fisheries, overlapping spatial and habitat distribution models, while identifying priorities for management.
- Lead international webinar series addressing current issues in crustacean fisheries stock assessment and management, identifying focal topics, curating speakers, organizing and moderating the event with NGO partners Environmental Defence Fund (EDF) and Lenfest.

International Pacific Halibut Commission May 2014 - September 2018
Lead Sea Sampler

- Direct international fisheries research and scientific vessel operations on commercial fishing craft to ensure all biological and oceanographic sampling objectives are completed.
- Field marine mammal-seabird monitoring and reporting. Vessel safety reporting.

National Marine Fisheries Service May 2012 - 2014 May
North Pacific Groundfish Observer

- Working in extreme environments with fisheries industry, designing sampling protocol across multiple fisheries, sampling a wide range of biological data on a variety of species.

PUBLICATIONS

Hodgdon, C., M.D. Mazur, K.D. Friedland, **N. Willse**, Y. Chen (2021). Consequences of model assumptions when projecting habitat suitability: A caution of forecasting under uncertainties. *ICES Journal of Marine Science*, 78(6), pp. 2092–2108.

Willse, N., E. Summers, Y. Chen (2022) Vertical Line Requirements and North Atlantic Right Whale Entanglement Risk Reduction for the Gulf of Maine American Lobster Fishery. *Marine and Coastal Fisheries*, 14(2), pp. 1-14. *Marine and Coastal Fisheries Best Manuscript of 2022 Winner*

Willse, N. *et al.* (2023). Linking crustacean life history to fishery management controls and reference points. *Fisheries Management and Ecology*, 00, e12691.

Hodgdon, C., **N. Willse**, N. Hunt, J. Kim, K.D. Friedland, Y. Chen (2023) Comparing Habitat Suitability Forecasts for Gulf of Maine and Southern New England American Lobster Stocks. *Journal of Shellfish Research*. 42.

Willse, N., K. Staples E. Summers, Y. Chen (2024) Integrating and evaluating non-traditional gear technologies to reduce the risk to whales from fixed-gear fisheries - In Prep

Willse, N., K. Staples E. Summers, Y. Chen (2024) Modernizing historic fishery effort distribution data to advise risk reduction for the North Atlantic right whale - In Prep

Willse, N. (2024) Filling critical data gaps in crustacean fisheries with a mixed approach, using stakeholder engaged research, regional expert testimony, and historic data to resolve data deficiencies. PhD Thesis - In Prep

REPORTS

ICES Stock Assessment Review Reports - Review Lead (2019,2020,2022,2023)

Finding the lowest-hanging fruits to improve crustacean fisheries with limited data and capacity (EDF, Lenfest 2023)

Indonesian Crustacean Fishery Resources Report (EDF, Lenfest 2023)

Greenland Marine Mammal and Fishery Climate Susceptibility Report (University of Maine 2022)

CONFERENCES PRESENTED

Vertical Line Use in Gulf of Maine Region Fixed Gear Fisheries. **Willse, N.**, E. Summers, Y. Chen: Maine Fisherman's Forum (2018,2019), American Fisheries Society (2019,2021), Gulf of Maine 2050 (2019), North Atlantic Right Whale Consortium (2019), University of Maine Graduate Symposium (2019,2020), RARGOM (2020,2021), ICES (2021), World Fisheries Congress (2021)

Consequences of model assumptions when projecting habitat suitability. Hodgdon, C., M.D. Mazur, K.D. Friedland, **N. Willse**, Y. Chen: American Fisheries Society (2021), ICES (2021), RARGOM (2021)

An Analysis of Biological Reference Points and Harvest Control Rules for Crustacean Fisheries Management. **Willse, N.** et al: American Fisheries Society (2022), ICES (2022)

Integrating and evaluating non-traditional gear technologies to reduce the risk to whales from fixed-gear fisheries. **Willse, N.**, et al: ICES (2023), SCAS (2023), NARW Consortium Annual Meeting (2023)



Atlantic Coastal Cooperative Statistics Program

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TO: ACCSP Operations and Advisors Committee Members

FROM: Julie DeFilippi Simpson, ACCSP Deputy Director

DATE: June 17, 2024

SUBJECT: ACCSP Staff Workload for Proposed Project

Project Title: Vessel Tracking Data and Program Management Improvements: Expansion of Vessel Tracking Data Access Controls and Upgrading the SAFIS Vessel Tracking Application

Project Type: New Project

Principal Investigators: Rich Balouskus (RIDMF), Anna Webb (MADMF), Robert Atwood (NHFGD), Nathan Willse (MEDMR)

ACCSP Staff Workload Comments: *

The overall objective of this project is to develop enhancements to the administrative tool to view tracks in real time and provide a platform for advanced post-hoc analysis of spatial data. These enhancements are based on the lessons learned since the original development of the Vessel Tracking Application (VTA), which has been actively been collecting data and being used by partners for a year.

The technical work for project will be split between a contractor and the ACCSP Software staff. Partner agency staff have already proved to be willing and able to share ideas, codes, and approaches as possible to achieve efficiency through collaboration. ACCSP staff will be addressing the “Administrators have a more seamless experience managing compliance within a framework” and “API collects additional optionally sent information about devices” project objectives through the following tasks:

- Match column names to other SAFIS reports and applications (Trip.ID vs Trip.Id, End time was already changed).
- Add device voltage and vessel voltage to the SAFIS location API and make visible in the VTA.
- See VTR serial number in the trip viewer and compliance reports.
- Display all start/end times as local military time

ACCSP Software Team staff time required would be low and need to remain as such in order not to impact other scheduled projects such as the eDR redesign. Additional staff time would need to be dedicated to this project to manage the contract. While the total staff time is not insignificant, it is the opinion of the ACCSP leadership that this project is feasible.

* Comments and opinions are based on evaluation of this project individually as opposed to all proposed projects as all projects have yet to be submitted.

Our vision is to produce dependable and timely marine fishery statistics for Atlantic coast fisheries that are collected, processed, and disseminated according to common standards agreed upon by all program partners.