

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

A Maintenance Proposal

Expanding Accountability in Reporting: A Tool for Comprehensive For-Hire Data Collection and Monitoring in Maryland – Year 2

Submitted By:

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Primary Priority: Catch, effort, and landings data
Recreational Technical Committee Priority: Comprehensive For-Hire Data Collection and Monitoring

Applicant Name: Maryland Department of Natural Resources

Title: Expanding Accountability in Reporting: A Tool for Comprehensive For-Hire Data Collection and Monitoring in Maryland

Project Type: Maintenance

Principal Investigator: Carrie Kennedy, Data and Quota Monitoring Program Manager

Requested Award Amount: \$103,175

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

Original Date Submitted: June 10, 2019

Objective:

We propose to expand the number of vessels using FACTS™ electronic reporting and continue at-sea and dockside monitoring of Maryland's for-hire fishery in year 2 of this project. The tool allows for-hire captains to report daily harvest using cell phones, smartphones or computers. Daily harvest reports will also be verified through dockside monitoring facilitated by pre-trip notifications (or hails) submitted daily by the for-hire fleet. Additional at-sea sampling will be conducted to collect additional catch (discard) and effort data. Work will be conducted for March through December of 2021.

Need:

Maryland's Chesapeake Bay for-hire captains are required to hold either a Maryland Fishing Guide License or an Unlimited Tidal Fishing License. Vessels must have an additional charter decal in order to conduct charters of unlicensed anglers in Maryland, or to conduct trips targeting striped bass. Decals must be obtained for a vessel that can carry either 6 or less passengers (6 pack) or 7 or more passengers (Annotated Code of Maryland §4-745). Licensees are required to report catch data to the department (COMAR 08.02.13.06).

Maryland has had a for-hire logbook requirement since 1995 (Figure 1). At the same time, MRIP conducts the For-Hire Telephone Survey to estimate effort. For-hire harvest estimates are derived using for-hire intercepts of fishermen along with the effort data from logbooks. Maryland has an agreement with NOAA/MRIP to provide trip data to MRIP from vessels they select. Every wave, MRIP submits a list of vessels for each week during the wave and is provided with the trip information (date, number of trips, location, and number of anglers) by the end of the month after the wave (May 29, July 29, Sept 29, etc.). As in other states, Maryland's charter industry believes the estimates to be of questionable validity – especially since they provide data via logbooks. However, recent declines in reporting rates from 2013-2018 (95% to 62%, respectively) demonstrate that additional tools are required to provide harvest values so fisheries managers can understand for-hire fishing impacts. Unfortunately, MRIP cannot enforce industry accountability, requires additional effort and resources to manage, and often lacks buy-in from stakeholders. We also found a substantial discrepancy between Maryland's logbook-reported angler trips and Maryland's MRIP-estimated for-hire trips in state waters (Table 1), which does not seem to be accounted for by lack of compliance alone. Our hope is that this work will begin to highlight why this difference exists.

Table 1. Maryland logbook-reported angler trips compared to MRIP estimated for-hire anglers trips in state waters.

Year	All MD Logbook Reported Angler Trips	MRIP MD State Waters For-Hire Angler Trips	PSE
2013	111,582	132,807	15.4
2014	99,729	168,201	12.7
2015	75,892	141,152	11
2016	78,890	106,933	12.2
2017	81,516	194,097	9.7
2018	139,223	129,355	10.1

In 2006, the National Research Council completed an independent review of national recreational fisheries survey methods. Their primary finding regarding for-hire fisheries was that reporting should be mandatory (NRC 2006). However, they also noted that data collected through logbooks require verification and enforcement in order to be reliable. In 2013, Donaldson et al submitted a report to MRIP on their for-hire logbook pilot in the Gulf of Mexico. In their report, they included a series of recommendations for implementing a census-level logbook program. Recommendations include: reporting with built-in quality control features, industry-led design, ability of logbook to record and store records for later retrieval, timely reporting that can be enforced, and field validation. ACCSP then held a workshop on the Inventory and Comparison of For-Hire Data Collections in the Atlantic and Gulf of Mexico: Opportunities for Convergence in 2016. There was consensus at the workshop for, “reducing redundancy through convergence of existing programs or transitioning to a comprehensive single program is possible with the primary challenges coming from the socio-political aspects.” Maryland has worked with the commercial industry to create a tool that should meet the recommendations of NRC and Donaldson et al.

To date, no single comprehensive for hire reporting and monitoring program, or standards, formally exist. Continuing and expanding this proposed pilot for an additional year would inform the discussion on the approach to comprehensive for-hire data collection and monitoring. ACCSP intends to use APAIS as validation of for-hire logbooks and catch estimation based on MRIP’s SC For-Hire Logbook validation (Dukes et al., 2015). A different approach is proposed here which could provide states another option for for-hire data collection. This approach could be modified in future years to include APAIS intercepts as harvest validation in lieu of dockside monitors which would improve efficiency and reduce costs.

The Maryland Blue Crab fishery was declared a disaster in 2008. Using the federal funds received to mitigate the disaster, an industry-led “Blue Crab Design Team” (Team) began to meet to discuss different approaches to management. A significant recommendation was to improve reporting accountability. With their input, the Maryland Department of Natural Resources, and our partners Maryland Environmental Service, Electric Edge Systems Group, Versar, and Oyster Recovery Partnership designed an electronic reporting system which includes a hailing component: FACTS™ (<https://www.fisheryfacts.com/index.cfm>). It is a web-based reporting tool, with both a portal and a mobile interface. Start hauls let the department know that a trip has started and to expect a report. It also allows the department to verify via “spot checks” that harvest reported is accurate. In 2012, we began to pilot the system, FACTS™, with the blue crab industry. In 2015, we extended the pilot to Chesapeake Bay finfish harvesters. Maryland has successfully deployed FACTS™ for its Chesapeake Bay commercial blue crab and finfish fleets (<http://dnr.maryland.gov/fisheries/Pages/E-reporting/index.aspx>) and it is proven to be an effective method for providing timely, verified harvest (Slacum et al. 2013, 2015). Nearly 13,000 trips were reported in 2018 using FACTS™. The system also serves as an important business tool, allowing commercial fishermen to track their harvest and effort as well as monitor and transfer individual quotas. The department uses the system for administrative purposes (permitting and quota monitoring), enforcement, and to target biological sampling efforts.

Since its inception, Maryland’s for-hire industry has been requesting the ability to report harvest using Maryland’s E-Reporting tool (FACTS™), but additional development costs and funding constraints kept Maryland from adding for-hire fleet reporting options. The first year funding for this project will allow for implementation of the system for the for-hire fleet in April 2020. The tool is designed to collect additional effort and catch data such as the number of lines fished, duration of fishing, gear type (e.g. circle hook) and discard data. Ensuring these data are collected and verified for a second year will be

invaluable for management, particularly for striped bass where dead discards are posing a significant conservation problem.

We intend to continue collecting additional catch and effort data through at-sea sampling trips arranged with the captains. At-sea sampling is designed to accomplish two objectives. The first objective will be to characterize for-hire fleet discards by documenting daily discards observed on vessels fishing throughout Chesapeake Bay. The second objective is to work with industry to design an approach to document discards in FACTS™ that is easy to use and maximizes precision. This proposal continues this effort through the 2021 season. At-sea monitoring will continue to further characterize for-hire fleet discards and fine tune the discard reporting process. We anticipate having at-sea monitors on 10% of the total number of trips verified (400 trips verified x 10% = 40 trips). At-sea monitors will document the total amount, species, and representative lengths from all discards occurring during a fishing trip. Monitors will also document time of day of each discard. In addition to helping develop the reporting process, collected discard information will be compared to all discard reports reported during the pilot.

Lastly, we believe this effort will allow us to improve our vessel list and vessel directory that is currently used to complete the MRIP for-hire survey. In any given pre-validation draw (typically about 60 vessels per week), we are only able to validate about 25 vessels because we do not have location information for the remaining 35 vessels. By requiring a landing location for all vessels reporting through FACTS™, a necessity to complete a harvest verification, we will have a more complete and current vessel list and directory (NRC 2006). A more robust vessel list and directory can lead to a more robust estimate – until we have 100% reporting via a for-hire logbook with hailing requirement.

Results and Benefits

Coastwide, this tool will be the model for comprehensive, verified state for-hire fishery data collection. It will also address the recommendations of the 2006 NRC and the ACCSP For-Hire Workshop (May 2016) to improve the timeliness of wave data; and maintain common data elements for for-hire trip reporting. The catch and effort data that will be available to our partners may provide information useful to in-season management.

In the long-term, the ability to verify harvest, along with collecting other catch and effort (discard) data, allows the modernized data system to replace the MRIP for-hire survey and provide managers with a more precise landings record. Maryland reporting rates would improve with the expanded use of the system. Robust discard data collected in real-time should allow for crafting of more appropriate management measures, potentially even in-season. These discard data are increasingly important for fisheries managers.

Striped bass are the primary target and harvest of the charter fleet in Maryland's Chesapeake Bay. More accurate and precise for-hire landings of such an important coastal species will be a benefit to fisheries managers and to the industry. We believe at-sea sampling of Maryland's Chesapeake Bay charter fleet will also capture samples from species not intercepted by APAIS data collection. For example, Maryland logbook data indicate an increase in both cobia and red drum catch in recent years (Table 3), where MRIP data do not show any catch of these species in the for-hire fleet. We anticipate that we will be able to collect additional biological samples (length and weight) of both of these species, which are in the top 25% of species needing additional samples as identified by the Biological Review Panel.

Table 3. Logbook-reported cobia and red drum catch (harvest and discards) in Maryland Chesapeake Bay charter boats.

	2015	2016	2017	2018
Cobia	577	107	168	473
Red Drum	405	1515	1036	1255

We expect this effort will allow us to improve our vessel list and vessel directory that is currently used to complete the MRIP for-hire survey. A more robust vessel list and directory can lead to a more robust estimate under the current MRIP for-hire survey. All users of for-hire estimates in Maryland will realize an improvement in the vessel list and vessel directory.

Data Delivery Plan

Data will be transferred directly from FACTS™ to the ACCSP Data Warehouse via application programming interface (API) daily. Additional discard data exceeding the current logbook requirements will also be collected and provided to management partners during the pilot also through an API.

Approach

Continued Dockside Monitoring Implementation and Trip Sampling

The FACTS™ platform incorporates modules for harvest verification by dockside monitors which ensures improved data quality, in addition to the provision of timely data. Dockside monitoring is integral to our approach and was tested during a pilot of the FACTS™ system for Maryland's commercial blue crab fleet. An essential finding was that verification was the best way to improve user accountability (Slacum et al. 2013, 2015). A recent pilot in the Gulf of Mexico had an equivalent finding (Donaldson et al. 2013). Similar dockside monitoring will be designed to appropriately sample up to 10% of the for-hire trips reported via FACTS™. As this is an expansion, and we anticipate up to 100 additional participants to be recruited for the second year, a higher number of trips will be monitored. For-hire captains participating in the FACTS™ program will be required to send a start hail and an end hail, with the estimated landing time and location. If conditions change on the water, best reporting practices dictate that they revise the start hail information. Failure to send an end hail, triggers automatic reminders by text. They will be required to comply with spot checks. Landing locations where spot checks will occur consist of public landings and public and private marinas. Locations will be grouped geographically into specific regions for planning and scheduling of daily spot checks. Monitoring regions may be defined around county boundaries or sub-county delineations, depending on reported locations. In addition, observers will be deployed on a portion of charter trips during the pilot to document discards. Data collected during observed trips will be compared to discard data from non-observed trips and discard documented in spot checks to verify the accuracy.

Dockside monitors will be provided a tablet and the existing FACTS™ harvest verification tool will be modified to collect for-hire logbook verification. At-sea sampling of charter boats will also be conducted by the dockside monitors. We believe at-sea sampling of Maryland's Chesapeake Bay charter fleet will capture samples from species not intercepted by APAIS data collection. We anticipate that we will be able to collect additional biological samples (length and weight) of both of these species, which are in the top 25% of species needing additional samples as identified by the Biological Review Panel.

The second year of the project expects to address catch and effort (80%), biological sampling (10%), and sociological and economic (10%).

An additional administrative specialist will be hired to assist with recruiting, training, and administrative processing necessary to enroll in the program.

Geographic Location

Maryland's state-licensed for-hire fleet conducts their fishery in Maryland's portion of the Chesapeake Bay. Maryland's coastal for-hire fleet operates under a more complex myriad of federal business rules. Should we receive funding, we will continue to focus on Maryland's Chesapeake Bay for-hire fleet. Based on the success of this pilot, funding requests in future years may address the needs of Maryland's Atlantic coastal fishery to comply with federal reporting requirements.

Milestone Schedule

Funds just became available from NOAA for the 2019 project, and no work has begun. Work is anticipated to begin this fall, with implementation of the system for captains expected to begin in April 2020. If this proposal is funded, work would be conducted beginning March 2021.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Recruit and Train Volunteer Participants			X	X	X	X	X	X	X	X					
Dockside Monitoring and Trip Sampling				X	X	X	X	X	X	X	X	X			
Report Writing							X						X	X	X

Project Accomplishments Measurement

	Accomplishment Goal
Number of trips validated through dockside monitoring	600
Number of trips sampled for discard data	60

Number of licensees using FACTS™ to report for-hire logbook data: There are approximately 350 decals issued every year that are expected to report fishing effort and harvest. This pilot will be open to all 350 captains (100%) that wish to use the system. Currently, 21 of the licensees that already use FACTS™ also have a charter decal. By the end of the project period, it is anticipated that there will be 200 vessels in compliance with the pilot program. Routine training sessions will be held to incorporate new users throughout the pilot, in excess of the expected 100 new captains/operators, if necessary. The number of participants that are trained and use the system will be documented, and any users that choose to return to paper reporting will also be documented along with their reason(s). All trip-level logbook data will be supplied to ACCSP's Data Warehouse using an API.

Number of vessels reporting trips in FACTS™: Of the 75 Chesapeake Bay for-hire captains expected to join the first year, several of them have multiple vessels they use to carry for-hire trips. Therefore, 100

new vessels are the expected target number of vessels in the program. In Maryland, individuals are licensed to run commercial fishing businesses, but each vessel used to conduct for-hire trips in state waters must have a charter decal.

Number of trips reported and verified in FACTS™: By the end of the project period, it is anticipated that there will be approximately 6,000 for-hire trips reported via FACTS™. This represents approximately 60% of the current trips reported in state for-hire fisheries. The current annual reporting rate (number of reports received/number of reports expected) is approximately 62%; this tool is intended to reduce under-reporting of trips. The FACTS™ platform is designed to allow for harvest and effort verification, therefore capturing any trips that may be under (non) reported. Up to 10% of the reported trips will be verified per the dockside monitoring design.

Cost Summary and Outlook on Future Funding

MD DNR is committed to modernizing its fishery dependent reporting system and has been supporting the development of a comprehensive E-Reporting and management system since 2012. Annual system operations and user support (by MD DNR employees and outside contractors) is provided through state funding. System development has been completed through the use of contractors financed by state funds, but major system advancements have been accomplished with additional support from external grant funds. Maryland has already completed work on two of its fisheries, finfish and blue crab, and is now focused on further expanding the use of reporting capabilities for its for-hire fleet.

Federal Request (\$103,175)

(a) **Personnel (\$17,945):** An administrative specialist will be hired by the department to assist with recruiting, training, and administrative processing necessary to enroll in the for-hire portion of the pilot FACTS program. This will be a short-term contractual position, with the state hourly rate being \$15.47. It is estimated that the position will work six months (1,040 hours) plus additional weekly trainings during the evening (120 hours).

(b) **Fringe Benefits: (\$0)**

(c) **Travel: (\$0)**

(d) **Equipment: (\$0)**

(e) **Supplies: (\$0)**

(f) **Contractual (\$81,219):**

Project and contract management (\$36,409) - The MD DNR has already competitively procured a contract with the Oyster Recovery Partnership (ORP) Coastal Resource Assessment and Monitoring (CRAM) division to execute the E-Reporting with FACTS™ project and all sub-awards will therefore be managed by ORP. ORP's CRAM has expertise in the development of large scale resource assessments, fishery independent and dependent data acquisition and management, statistics, and stakeholder engagement. Representative projects include long-term management of Maryland's development of Maryland's E-Reporting system using FACTS™, including design, implementation and management of roving dockside monitors from 2012 to 2014, and 2019. Therefore, we can leverage the flexibility in ORP's hiring process that the state's process does not have. ORP will be responsible for: communicating with MD DNR;

communication between Project Team members; scheduling and implementing Team efforts, such as the hiring, training, and spot checking monitors. The budget for this portion of the project consists of staff time for the Program manager and one E-Reporting specialist to coordinate these events; compile project results and report; and process invoices. This task will also involve continued feedback and outreach to fishers actively using the system and will involve significant amounts of staff time to troubleshoot issues, and implement modifications to the system based on fisher's feedback or Team evaluation. ORP staff costs include salary and fringe.

Program Manager - WS (\$84.01 x 180 hrs)	\$15,122
E-reporting Specialist -KC (\$51.17 x 416 hrs)	\$21,287
TOTAL PROJECT MANAGEMENT	\$36,409

For-Hire Dockside and At-sea Monitoring staff (\$33,300) – The anticipated approach to verify for-hire logbooks by dockside monitors will be to hire four monitors that will be strategically located in areas where for-hire fleet activity is concentrated. Table 4. Provides the hourly costs associated with doing the dockside monitoring. The on-board sampling cost is based on 60 trips occurring with at-sea samplers (see Project Accomplishments Measurement) with a cost of \$100 per trip for a total of \$6,000.

Table 4. Cost Calculation of Dockside Monitors Time

	April	May	June	July	August	Sept	Oct	Nov	Dec	Total Cost
Per week	60	60	45	40	40	40	35	35	35	
Hours/day/monitor	5	5	5	5	5	5	5	5	5	
Hours per month	300	300	225	200	200	200	175	175	175	
Total month @ Rate \$14	4200	4200	3150	2800	2800	2800	2450	2450	2450	\$27,300

Monitors Time	\$27,300
At-Sea Sampling	\$6,000
Total	\$33,300

Field and Meeting Travel Expenses (\$11,510) - This portion of the contractual budget is for expenses incurred by dockside monitors to travel to and from dockside monitoring and for travel to meetings. We anticipate travel for dockside monitor spot checks will range between 30 to 50 miles roundtrip and have budgeted using an average daily dockside monitor trip of 40 miles roundtrip. The anticipated number of trips is 450 trips between April and December and gas reimbursement is the current Federal standard of \$.545/mile. Dockside monitors will also be required to attend 2 meetings for training and debriefs. The total number of anticipated miles is 19,320 miles. Additional travel budget is requested for members of the E-Reporting project team to conduct QA/QC of dockside monitoring activities and for training. In addition, travel to fisher training and feedback meetings is also budgeted. We anticipate a total of 1,800 miles of travel for these activities.

Mileage for dockside monitors (\$0.545/mile x 19320 miles)	\$10,529
Mileage for meetings, site visits, QA/QC of dockside monitors (\$0.545/mile x 1800 miles)	\$981

(g) Construction (\$0)

(h) Other (\$0)

(i) Total Direct Charges **(\$99,165)**

(j) Indirect Charges **(\$4,011)** - The state negotiated agreement rate with NOAA has expired, therefore the previous rate of 22.35% is used to estimate the indirect costs of the state contractual position see Appendix A.

Non Federal, In-Kind Contribution

(a) Personnel **(\$34,295)**: Following the already proven process of combined state and grant funding, the MD DNR will provide in-kind support by dedicating three staff (associated overhead and fringe benefits) to assist in the management and staffing of the Pilot Project. This is the approach used during the previous pilot projects resulting in Maryland's current E-Reporting system. In fact, all three staff participated in portions of each of the previous pilots and are integral members of MD's E-Reporting Team. While each staff has other duties to fulfill at the department, supporting this Pilot is a logical extension of those duties and will not jeopardize the success of the Pilot Project.

Program Manager I (\$46.66 x 250 hrs)	\$11,665
Administrator II (\$37.13 x 500 hrs)	\$18,565
Database Specialist II (\$40.65 x 100 hrs)	\$4,065
Total In-Kind Personnel	\$34,295

(b) Fringe Benefits: (\$0)

(c) Travel: (\$800): For each of eight FACTS™ training session held monthly, March – August, the state will provide vehicles for transportation in lieu of mileage and the state will reimburse expenses for meals up to \$25 per day.

(d) Equipment **(\$2,500)**: Roving dockside monitors staff will use four tablets with a service plan to collect data in the field. The cost of those tablets (4x\$500) and the service plan (\$500) is currently covered by state funds.

(e) Supplies: (\$0)

(f) Contractual (\$43,600):

Call Center (\$4,000) - The call center is used by some fishers to report harvest. The cost of the call center is fully supported through funding by the MD DNR. We anticipate the call center will be used by some for-hire fishermen to report harvest during the project. The call center also provides a back-up for web-based reporting when user specific or internet specific technical issues occur. Having many options for fishers to report has been vital during previous pilots and has helped to alleviate concerns of some fishers that not having internet coverage would result in a reporting violation. We also receive valuable feedback from the call center through their interactions with fishers. The monthly call center fee is \$3,000.00. We estimate 20% of the call center monthly effort will be required to support the Pilot Project.

FACTS™ (\$36,000) - FACTS™ is a software as a service (SaaS) platform and the MD DNR is fully funding the annual costs to maintain access to fishers to report. All trips and harvest reported by project participants will require access to FACTS™ regardless of the platform (i.e., application, mobile web, etc.) used to report. The service fee to maintain the charter boat reporting module in FACTS™ will be \$3,000 per month for the 12 month project.

Help Line (\$3,600) - MD's E-Reporting program has a dedicated 24/7 helpline to support fishers with any problems or questions they have while E-reporting. The helpline will also be used to gather feedback from for-hire fishermen participating in the pilot project and for communication with roving monitors and observers during the pilot. The helpline has been extremely successful for data gathering and fisher satisfaction. The monthly helpline fee is \$1,500.00. We estimate that 20% of the monthly use of the helpline will be to support the 12 month Project.

(g) Construction (\$0)

(h) Other (\$0)

Funding Transition Plan

To reduce costs in future years, APAIS personnel could be trained to conduct harvest monitoring activities on days when APAIS trips are not being sampled. It is expected that ACCSP will develop an application that allows APAIS personnel to collect such verifications not just in Maryland, but in other states as well. Once that app has been developed, start hail information, including expected landing location and time, will be sent to SAFIS via an application programming interface (API). In lieu of additional future funding, FACTS will continue to accept reports of for-hire fishermen without onboard monitoring or harvest verification. Should the department believe the process is appropriate for data collection, we could work with MRIP staff to work in concert or to replace the MRIP For-Hire Survey. In the meantime, if we do not pursue or receive funds for roving monitors in future years, the state will continue to cover the cost of FACTS™ support and maintenance for data submission. Data will continue to be available to ACCSP via an API with SAFIS.

Table 5. Expanding Accountability in Maryland, Year 2 Budget Table

Description	Calculation	Federal Requested	Non-Federal In-Kind
(a) Personnel		\$17,945	\$34,295
Administrative Specialist	\$15.47 x 1160hrs	\$17,945	\$0
Program Manager II	\$46.66 x 250hrs	\$0	\$11,665
Administrator II	\$37.13 x 500hrs	\$0	\$18,565
Database Specialist II	\$40.65 x 100hrs	\$0	\$4,065
(b) Fringe		\$0	\$0
(c) Travel		\$0	\$800
(d) Equipment		\$0	\$2,500
	Tablets (4x\$500)	\$0	\$2,000
	Service Plan	\$0	\$500
(e) Supplies		\$0	\$0
(f) Contractual		\$81,219	\$43,600
Project and contract management	Program Manager (\$84.01 x 180hrs) E-reporting Specialist (\$51.17 x 416 hrs)	\$36,409	\$0
For-Hire Dockside and At-sea Monitoring staff	\$14 x 1950 hrs \$100 x 60 trips	\$33,300	\$0
Field and Meeting Travel Expenses	Monitors Mileage \$0.545 x 19320 miles Meeting Travel Exp \$0.545 x 1800 miles	\$11,510	\$0
Call Center	\$3,000 x 12 (months) x 20%	\$0	\$4,000
E-reporting System (FACTS™) Support and Maintenance	\$3,000 x 12 months	\$0	\$36,000
Help Line	\$1,500 x 12 months x 20%	\$0	\$3,600
(g) Construction		\$0	\$0
(h) Other		\$0	\$0
(i) Total Direct Charges		\$99,164	
(j) Indirect Charges	Personnel costs x .2235	\$4,011	
Total Costs		\$103,175	\$81,195
Total Breakdown		56%	44%
Total Project Value		\$184,370	

Prior Year's Related Projects:

Funds just became available from NOAA for the 2019 project, and no work has begun. Work is anticipated to begin this fall, with implementation of the system for captains expected to begin in April 2020.

Year	Title	Funded Amount	Description of Completed Data Delivery
2011	Improving Timeliness and Reporting Accuracy in Maryland: Expansion of Online Reporting for Maryland Commercial Fisheries	\$106,947	Data collected via SAFIS
2013	Improving Timeliness and Reporting Accuracy in Maryland: Expansion of Online Reporting for Maryland Commercial Fisheries	\$100,560	Data collected via SAFIS
2019	Expanding Accountability in Reporting: A Tool for Comprehensive For-Hire Data Collection and Monitoring in Maryland	\$154,396	Data will be available in SAFIS real time via API once data collection begins

2019 Budget Narrative: Expanding Accountability in Reporting (most recent year's funded proposal)

Total Non-Federal In-Kind Contribution- \$129,329.00 (See budget table for specific dollar amounts)

MD DNR is committed to modernizing its fishery dependent reporting system and has been supporting the development of a comprehensive E-reporting and management system since 2012. Annual system operations and user support (by MD DNR employees and outside contractors) is provided through state funding. System development has been supported by state funds, but major system advancements have been accomplished with additional support from external grant funds. Maryland has already completed work on two of its fisheries, finfish and blue crab, and is now focused on developing reporting capabilities for its for-hire fleet.

(a) Personnel - MD DNR Staff (See budget table for specific dollar amounts) - Following the already proven process of combined state and grant funding, the MD DNR will provide in-kind support by dedicating three staff (associated overhead and fringe benefits) to assist in the management and staffing of the Pilot Project. This is the approach used during the two previous pilot projects resulting in Maryland's current E-reporting system. In fact, all three staff participated in portions of each of the two previous pilots and are integral members of MD's E-reporting Team. While each staff has other duties to fulfill at the Department, supporting this Pilot is a logical extension of those duties and will not jeopardize the success of the Pilot Project. See budget for specific staff time dedicated to this project.

(d) Equipment - \$2,000

Tablets will be provided to the technicians for data entry during monitoring. Those tablets will be provided by the existing program.

(f) Non-Federal In-Kind E-reporting System Budget (See budget table for specific dollar amounts)

Call center- (\$4,000) The call center is used by some fishers to report harvest. The cost of the call center is fully supported through funding by the MD DNR. We anticipate the call center will be used by some for-hire fishermen to report harvest during the project. The call center also provides a back-up for web-based reporting when user specific or internet specific technical issues occur. Having many options for fishers to report has been vital during previous pilots and has helped to alleviate concerns by some fishers that not being able to report is a violation. We also receive valuable feedback from the call center through their interactions with fishers. The monthly call center fee is \$3,000.00. We estimate 20% of the call center of the call center monthly effort will be required to support the 12 month Pilot Project.

FACTS™ - (\$31,200) FACTS™ is a software as a service (SaaS) platform and the MD DNR is fully funding the annual costs to maintain access to fishers to report. All trips and harvest reported by project participants will require access to FACTS™ regardless of the platform (i.e., application, mobile web, etc.) used to report. The monthly FACTS™ fee is \$13,000.00. We estimate that 20% of FACTS™ use will be dedicated to the 12 month Pilot Project.

Help Line- (\$3,600) MD's E-reporting program has a dedicated 24/7 help line to support fishers with any problems or questions they have while E-reporting. The help line will also be used to gather feedback from for-hire fishermen participating in the pilot project and for communication with roving monitors and observers during the pilot. The help line has been extremely successful for data gathering and fisher satisfaction. The monthly help-line fee is \$1,500.00. We estimate that 20% of the monthly use of the help-line will be to support the 12 month Project.

Total Federal funding request - \$154,376

The original federal request was \$182,912. That number has been corrected downward to \$154,376 due to the incorrect calculation of the indirect cost being applied to more than salary and fringe. The indirect cost rate applied was 22.35%. This rate expires 7/1/19 but will be applied here until a new agreement has been reached.

(f) Contractual services

Project and contract management- ORP personnel salary total is \$16,164, salary fringe is \$5,657 (35% of salary), \$21,821 total.

The MD DNR has already competitively procured a contract with the Oyster Recovery Partnership (ORP) Coastal Resource Assessment and Monitoring (CRAM) division to execute the E-reporting with FACTS™ project and all sub-awards will therefore be managed by ORP. ORP's CRAM has expertise in the development of large scale resource assessments, fishery independent and dependent data acquisition and management, statistics, and stakeholder engagement. Representative projects include long-term management of Maryland's development of Maryland's E-Reporting system using FACTS™, including design, implementation and management of roving dockside monitors from 2012 to 2014. Therefore, we can leverage the flexibility in ORP's seasonal hiring process that the state's process does not have.

ORP will be responsible for: communicating with MD DNR; communication between Project Team members; scheduling and implementing Team efforts, such as the formal implementation and management of for-hire fleet outreach to fishers and industry meetings that include training fishers how to use the system and follow-up meetings to gather final feedback. The budget for this portion of the project consists of staff time for the Program manager and one E-reporting specialist to coordinate these events; guide the design, development and implementation of the

roving monitor and by-catch discard program; manage the development of the for-hire reporting module; integrate feedback from fishers to modify the system; communicate progress with MD DNR; compile project results and report; and process invoices. This task will also involve continued feedback and outreach to fishers actively using the system and will involve significant amounts of staff time to troubleshoot issues, and implement modifications to the system based on fisher's feedback or Team evaluation.

Requirements Validation and Systems Development- \$57,729

This task involves staff time for Electric Edge Systems Group staff to attend meetings with MD DNR to gather business rules to design the for-hire-fleet reporting module (these meetings will be coordinated and facilitated by ORP). This task also includes programming time to customize the existing FACTS™ system to account for for-hire harvest reports, and develop the roving monitor interface so monitors can verify actively fishing for-hire vessels. Internal systems tests and external testing with industry to customize the system will be part of this task, as well as the integration of for-hire hails and harvest reports into ACCSP's data warehouse through the existing API.

For-Hire Dockside Monitoring and By-catch Discard Program- \$61,273

This task includes the design and implementation of dockside monitoring and by-catch discard program. Funds will be used to support Versar, Inc. staff in the development and implementation of the overall approach used to verify for-hire reporting at the dockside to include survey design and dockside monitor FACTS™ interface (scheduling and reporting). Funds will also be used to coordinate, schedule and perform quality control and assurance site visits of dockside monitors during the project. Funds will support the analysis of dockside monitoring data to evaluate effectiveness and determine optimal monitoring. A large portion of these funds (approximately \$25,000.00, see Table 4.) will be dedicated to hiring and supporting dockside monitors. These funds are budgeted using a total of 4 dockside monitors to target approximately 350 for-hire trips between April and December. It is anticipated that some trips will intercept more than one for-hire vessels and those trips will provide enough additional successful spot checks to bring the total number of successful spot checks to 400 or 10% of anticipated reported trips during the project. Previous dockside monitoring work in Maryland has shown that monitors require approximately 5 hours to travel to and from and to conduct spot checks on any given day, and perform administrative duties. Therefore, 5 hours was used to budget each spot check. Funding to support the design and analysis of the by-catch discard program is also included (\$100/trip to captain plus staff hours) to support on the water data collection and analysis.

Table 4. Cost Calculation of Dockside Monitors Time

	April	May	June	July	August	Sept	Oct	Nov	Dec	Total Cost
Per week	50	50	40	35	35	35	35	35	35	
Hours/day/monitor	5	5	5	5	5	5	5	5	5	
Hours per month	250	250	200	175	175	175	175	175	175	
Total month @ Rate \$14	3500	3500	2800	2450	2450	2450	2450	2450	2450	\$24,500

For-Hire Dockside Monitoring, QA/QC, and Meeting Travel Expenses- \$8,676

This portion of the budget is for expenses incurred by dockside monitors to travel to and from dockside monitoring and for travel to meetings. The anticipated approach to verify for-hire logbooks by dockside monitors will be to hire four monitors that will be strategically located in

areas where for-hire fleet activity is concentrated. We anticipate travel for dockside monitor spot checks will range between 30 to 50 miles roundtrip and have budgeted using an average daily dockside monitor trip of 40 miles roundtrip. The anticipated number of trips is 350 trips between April and December and gas reimbursement is the current Federal standard of \$.545/mile. Dockside monitors will also be required to attend 2 meetings for training and debriefs. The total number of anticipated miles is 14,320 miles.

Additional travel budget is requested for members of the E-reporting project team to conduct QA/QC of dockside monitoring activities and for training. In addition, travel to fisher training and feedback meetings is also budgeted. We anticipate a total of 1,600 miles of travel for these activities.

(j) Indirect Costs – \$4,877

See Appendix A for state negotiated rate agreement (22.35%). Indirect costs only apply to salary and fringe only. The initial budget applied the indirect rate to the entire request, but has since been corrected.

Summary

Proposal Type: Maintenance

Primary Program Priority:

Catch and Effort (80%)

There are approximately 350 decals issued every year that are expected to report fishing effort and harvest. This pilot will be open to all 350 captains (100%) that wish to use the system. Currently, 21 of the licensees that already use FACTS™ also have a charter decal. We expect approximately 6,000 vessel trips to be reported through FACTS™, this represents 60% of the logbook-reported trips. Data collected through this program will meet all 8 of the data standards for for-hire census data (ACCSP 2012).

Data Delivery Plan: Data will be transferred directly from FACTS™ to the ACCSP Data Warehouse via application programming interface (API) daily. Additional discard data exceeding the current logbook requirements will also be collected and provided to management partners during the pilot.

Project Quality Factors:

Multi-partner/Regional impact including broad applications

Coast wide, this tool will be the model for comprehensive, verified state for-hire fishery data collection. It will also address the recommendations of the 2006 NRC recommendations and the ACCSP For-Hire Workshop (May 2016) to improve the timeliness of wave data; and maintain common data elements for for-hire trip reporting. Lastly, it addresses priorities of the Recreational Technical Committee: Comprehensive For-Hire Data Collection and Monitoring, Improved recreational fishery discard and release data, and Biological sampling for recreational fisheries separate from MRIP APAIS. The MRIP for-hire survey is expected to benefit from the improvements in the vessel list and vessel directory. ACCSP is a partner in the data delivery and communication processes.

Funding Transition Plan: To reduce costs in future years, APAIS personnel could be trained to conduct harvest monitoring activities on days when APAIS trips are not being sampled. It is expected that ACCSP will develop an application that will allow APAIS personnel to collect such verifications not just in Maryland, but in other states as well. Once that app has been developed, start hail information, including expected landing location and time, will be sent to SAFIS via an application programming interface (API). In the meantime, if we do not pursue or receive funds for roving monitors in future years, the state will continue to cover the cost of FACTS™ support and maintenance for data submission. Data will continue to be available to ACCSP via an API with SAFIS.

In-Kind Contribution: 44% (see page 13)

Improvement in data quality/quantity/timeliness

Data collected through this program will meet all 8 of the data standards for for-hire census data (ACCSP 2012); currently data are expected to be reported weekly, with an annual reporting rate of 75%. Under this pilot, all data collected through the system will be transferred directly from FACTS™ to the ACCSP Data Warehouse via application programming interface (API) daily. Under the current reporting logbook requirements, data is supplied to the Data Warehouse via a semi-annual data feed.

Potential Secondary Module:

Biological Sampling (10%)

Maryland logbook data indicate an increase in both cobia and red drum catch in recent years where MRIP data do not show any catch of these species in the for-hire fleet. We anticipate that we will be able to collect additional biological samples (length and weight) of both of these species, which are in the top 25% of species needing additional samples as identified by the Biological Review Panel.

Sociological and Economic (10%)

One of the primary benefits of a hailing system is the ability to enforce reporting and to ensure that licensees not submitting reports are truly not fishing. The Committee on Economics and Social Sciences identified the need to address latent effort and number of operators guiding for-hire trips.

References

Atlantic Coast Fisheries Data Collection Standards: A third edition of the program design for the Atlantic Coastal Cooperative Statistics Program. 2012. 288 pp.

ACCSP For-Hire Workshop Summary. Inventory and Comparison of For-Hire Data Collections in the Atlantic and Gulf of Mexico: Opportunities for Convergence. May 2016.

Dukes, Amy, B. Floyd, E. Hiltz, G. White. 2015. Use of APAIS Intercepts to Validate Logbooks and Calculate Combined Estimates of Catch, SC For-Hire Logbook validation. Marine Recreational Information Program. 76pp.

Donaldson, Dave, G. Bray, B. Sauls, S. Freed, B. Cermak, P. Campbell, A. Best, K. Doyle, A. Strelcheck, and K. Brennan. 2013. For-Hire Logbook Pilot Study in the Gulf of Mexico. March 2013. Report to the Marine Recreational Information Program, National Oceanic and Atmospheric Administration, Office of Science and Technology, 1315 East-West Highway, 12th Floor, Silver Spring, MD 20910.

NRC (National Research Council). 2006. Review of Recreational Fisheries Survey Methods. National Academies Press, Washington, D.C. 187 pp.

Slacum, H.W. JR, H. Dew-Baxter, R. Corbin, and B. Richkus. 2013. Pilot Project to Test and Evaluate Rapid and Accountable Commercial Blue Crab Reporting in Maryland. Prepared for the Blue Crab Industry Design Team and the Maryland Department of Natural Resources. May 2013. Versar, Inc., 9200 Rumsey Rd., Columbia, MD. 21045.

Slacum, H.W. JR, H. Dew-Baxter, R. Corbin, and B. Richkus. 2015. Year 2: Pilot Project to Test and Evaluate Rapid and Accountable Commercial Blue Crab Reporting in Maryland. Prepared for the Blue Crab Industry Design Team and the Maryland Department of Natural Resources. February 2015. Versar, Inc., 9200 Rumsey Rd., Columbia, MD. 21045.



COMMERCIAL CHARTER BOAT CAPTAIN'S DAILY LOG

THIS LOG SHOULD BE CARRIED ON BOARD VESSEL
DURING ALL FISHING TRIPS

DATE

M	M	D	D	Y	Y
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NUMBER OF PEOPLE EXCLUDING CREW	NUMBER OF TRIPS	AREA WHERE FISH WERE CAUGHT (SEE CODES)
<input type="text"/>	<input type="text"/>	<input type="text"/>
SPECIES	TOTAL NUMBER OF FISH	TOTAL NUMBER OF POUNDS
008 BLUEFISH	<input type="text"/>	<input type="text"/>
013 CROAKER	<input type="text"/>	<input type="text"/>
014 DRUM/BLACK	<input type="text"/>	<input type="text"/>
017 FLOUNDER/SUMMER	<input type="text"/>	<input type="text"/>
033 SEABASS/BLACK	<input type="text"/>	<input type="text"/>
021 SPOT	<input type="text"/>	<input type="text"/>
111 SPOTTED SEATROUT	<input type="text"/>	<input type="text"/>
001 STRIPED BASS/KEPT	<input type="text"/>	<input type="text"/>
078 STRIPED BASS/RELEASED	<input type="text"/>	<input type="text"/>
025 GRAY SEATROUT	<input type="text"/>	<input type="text"/>
002 WHITE PERCH	<input type="text"/>	<input type="text"/>
WRITE IN CODE	<input type="text"/>	<input type="text"/>
WRITE IN CODE	<input type="text"/>	<input type="text"/>

NO FISHING THIS WEEK

☐

FINISHED FISHING FOR THE YEAR

☐

COMMERCIAL CHARTER BOAT CAPTAIN'S DAILY LOG



Figure 1. Charter Boat Captain's Daily Log

(<http://dnr.maryland.gov/fisheries/Documents/Comchartcaptdailylog.pdf>)

Carrie A Kennedy
Maryland Department of Natural Resources
580 Taylor Ave, B-2
Annapolis, MD 21401

EXPERIENCE

Maryland Department of Natural Resources

Fishing and Boating Services

January 2015-Present

Program Manager I

Annapolis, Maryland

Data and Quota Monitoring Program Manager

- Manage staff responsible for implementing new E-reporting with FACTS™ initiative.
- Manage staff responsible for commercial harvest reporting.
- Manage staff responsible for monitoring harvest of quota-limited species, including striped bass.
- Manage staff responsible for issuing eligible commercial permits.

Responsibilities also include advising managers on closing and opening quota-monitored species; coordinating Industry Workgroups; proposal development and submission in support of electronic reporting; and recommending changes to commercial permitting regulations.

Maryland Department of Natural Resources

Fisheries Service

November 2008-

January 2015

Program Manager I

Annapolis, Maryland

Coastal Fisheries Program Manager

- Manage staff responsible for Coastal Bays Finfish Investigation.
- Manage staff responsible for Atlantic Bluefin Tuna/ Billfish Catch Card Program.
- Manage staff responsible for coastal fisheries permits and quota monitoring.

Responsibilities also included advising coastal fisheries management decisions; coordinating Coastal Fisheries Advisory Committee and Spiny Dogfish Industry Workgroup; meeting ASMFC, MAFMC, and NMFS guidelines for Maryland.

Maryland Department of Natural Resources

Fisheries Service

June 2005-November

2008

Natural Resources Biologist III

Annapolis, Maryland

Commercial Striped Bass Project Leader, duties include:

- Maintain Microsoft Access database of harvest, permits, and striped bass harvest tags. Distribute harvest permits and tags.
- Monitor progress toward Maryland's quota daily through check station system.
- Maintain ArcView GIS and Microsoft Access databases of all registered pound net sites in the state of Maryland. Register and transfer pound net sites in accordance with regulation.
- Maintain Microsoft Access database of registered haul seines in the State of Maryland. Inspect and seal haul seines in accordance with regulation.
- Supervision of Natural Resource Biologist I and Administrative Specialist.

**Maryland Department of Natural Resources
Fisheries Service**

**April 2005-June 2005
Annapolis, Maryland**

Natural Resources Biologist II

Fisheries Management Plan Coordinator, Job Duties:

Responsible for writing/updating fisheries management plans. Attended ASMFC meetings and Chesapeake Bay Program meetings as a Fisheries Service Representative. Wrote legislative updates on fisheries management plans.

Maryland Fisheries Service representative to:

-National Marine Fisheries Service Highly Migratory Species Advisory Panel (2010-2015)

-Atlantic Coastal Cooperative Statistics Program's Operation Committee (2006-2012)

-Atlantic Coastal Cooperative Statistics Program's Recreational Technical Committee (2008-2011)

LEADERSHIP COURSEWORK

Introduction to Adaptive Leadership, MATTeam, Assoc. of Fish and Wildlife Agencies, July and August 2017

Supervisor Development Certificate Program, Anne Arundel Community College, July 2015 – January 2016

Conflict, Management Assistance Team, Assoc. of Fish and Wildlife Agencies, October 2014

Disorder to Order, Management Assistance Team, Assoc. of Fish and Wildlife Agencies, July 2014

Leader as Supervisor, Management Assistance Team, Assoc. of Fish and Wildlife Agencies, May 2013

Consent Building, Institute of Participatory Management and Planning, February 2010

EDUCATION

St. Mary's College of Maryland

St. Mary's City, Maryland

Bachelor of Arts May 1999

**State and Local Governments
Indirect Cost Negotiation Agreement**

EIN: 52-6002033

Organization:

Maryland Department of Natural Resources
580 Taylor Avenue, B-4
Annapolis, MD 21401-2352

Date:

Report No(s) .:

Filing Ref:

Last Negotiation Agreement
dated November 13, 2017

The indirect cost rates contained herein are for use on grants, contracts, and other agreements with the Federal Government to which 2 CFR Part 200 applies for fiscal years beginning on or after December 26, 2014 subject to the limitations in Section II.A. of this agreement. Applicable OMB Circulars and the regulations at 2 CFR 225 will continue to apply to federal funds awarded prior to December 26, 2014. The rates were negotiated by the U.S. Department of the Interior, Interior Business Center, and the subject organization in accordance with the authority contained in applicable regulations.

Section I: Rates

Type	Effective Period		Rate*	Locations	Applicable
	From	To			To
Fixed Carryforward	07/01/18	06/30/19	20.27%	All	1/
Fixed Carryforward	07/01/18	06/30/19	18.56%	All	2/
Fixed Carryforward	07/01/18	06/30/19	19.18%	All	3/
Fixed Carryforward	07/01/18	06/30/19	20.83%	All	4/
Fixed Carryforward	07/01/18	06/30/19	14.03%	All	5/
Fixed Carryforward	07/01/18	06/30/19	13.17%	All	6/
Fixed Carryforward	07/01/18	06/30/19	30.27%	All	7/
Fixed Carryforward	07/01/18	06/30/19	29.30%	All	8/
Fixed Carryforward	07/01/18	06/30/19	36.67%	All	9/
Fixed Carryforward	07/01/18	06/30/19	22.35%	All	10/
Fixed Carryforward	07/01/18	06/30/19	12.73%	All	11/

1/ Forest Service

2/ Wildlife & Heritage Service (Non-PR)

3/ Wildlife & Heritage Service (PR)

4/ Park Service

5/ Natural Resources Police (Non-PR)

6/ Natural Resources Police (PR)

7/ Resource Assessment Service

8/ Chesapeake & Coastal Services (Non-DJ)

9/ Chesapeake & Coastal Services (DJ)

10/ Fishing & Boating Services (Non-DJ)

11/ Fishing & Boating Services (DJ)

***Base:** Total direct salaries and wages, including fringe benefits. The rate applies to all programs administered by the non-federal entity. To determine the amount of indirect costs to be billed under this agreement, direct salaries and wages and related fringe benefits should be summed and multiplied by the rate. All other program costs should be eliminated from the calculation.

Treatment of fringe benefits: Fringe benefits applicable to direct salaries and wages are treated as direct costs; fringe benefits applicable to indirect salaries and wages are treated as indirect costs.