

**Final Report on Project Activity:
Implementing an Electronic Harvest Reporting System for
Virginia's Blue Crab Fishery**

Submitted to:

Virginia Sea Grant (VASG)
Virginia Institute of Marine Science
P.O. Box 1346
Gloucester Point, Virginia 23062

Funding via VASG from:

Environmental Defense Fund (EDF)
Total Project Funding: \$61,000

VIMS Index 775591 – \$ 54,825 (VASG)
VIMS Index 775592 – \$ 6,175 (MAS)

(Note: VIMS Award Notification for 775592 was received on November 11, 2015)

Project Award Period:

September 14, 2015 to March 31, 2016

Submitted by:

Robert Fisher
VIMS Marine Advisory Services
P.O. Box 1346
Gloucester Point, Virginia 23062



March 22, 2016

Final Report on Project Activity:

Implementing an Electronic Harvest Reporting (EHR) System for Virginia's Blue Crab Fishery

Purpose:

This project involved a collaboration to begin to improve and modernize the management of Virginia's blue crab fishery by implementing an electronic harvest reporting system. Such a system would provide the Virginia Marine Resource Commission (VMRC) fishery managers and scientists with more timely, accurate and verifiable catch information. This activity report stems from an Environmental Defense Fund, Incorporated (EDF) grant agreement with the Virginia Institute of Marine Science (VIMS) and Virginia Sea Grant (VASG) for outreach support. EDF is a not-for-profit organization.

Overall goals for this project included:

- 1) Work with EDF staff and/or EDF representatives, VMRC staff, commercial watermen and, if appropriate, technology providers, to identify ways to expand electronic reporting in Virginia.
- 2) Working with these partners, evaluate limitations in Virginia's current system explore opportunities for technology enhancements, and evaluate the need for additional outreach and training.
- 3) Based upon the findings from above, the following actions that apply may include: a) testing of alternative reporting systems, b) improvements to the existing system, c) technical assistance to VMRC, d) outreach and training to commercial watermen, and e) communication and training tools to VMRC and watermen's associations.

Project timeline: September 14, 2015 to March 31, 2016

Final report due date: March 31, 2016

Project activity:

- **Project partner meeting was held October 20, 2015 at VASG office at VIMS to outline scope of work.**

In attendance:

- Matt Mullin (EDF)
- Susan Park (VASG)

- Bob Fisher (VIMS MAS)
- Paula Jasinski (Chesapeake Environmental Communications, CEC)
- Andrew Turner (Aturner Enterprises, environmental consultant)
- Jack Travelstead (private consultant, via conference call)

The meeting focused on a review of past outreach efforts and results with VMRC web-based electronic harvest reporting system (Fisher, 2015) while defining partner roles within the project in order to better understand and specify a realistic outreach scope to assist VMRC in view of the time constraints.

- **Meeting with VMRC staff was held at VMRC office, Newport News, Virginia on October 28, 2015 to discuss current collaborative electronic harvest reporting project with EDF.**

In attendance:

- Stephanie Iverson (VMRC)
- Joe Cimino (VMRC)
- Erik Barth (VMRC)
- Bob Fisher (VIMS MAS)
- Susan Park (VASG)
- Paula Jasinski (CEC)
- Jack Travelstead (via conference call)

Discussion continued to review the project scope relating to investigating ways to increase utilization of Virginia's EHR system among blue crabbers; as well as identify potential improvements to the system that may facilitate a reduction in cost and/or personnel time/effort to VMRC while also facilitating use by crab buyers/dealers and harvesters. Efforts and outcomes from a previous Virginia Fishery Resource Grant (FRG) funded EHR program project were reviewed. The review highlighted how the work impacted change in the VMRC EHR system (Smith 2015). VMRC staff coordination was solicited as a vital role of project to steer the outreach efforts to realistic needs assessment. VMRC staff present conveyed its position that the current Virginia system is better and more widely used than the one in Maryland and has the advantage that it is completely maintained and managed in-house, which facilitate upgrades as needed. VMRC staff indicated that 4-5 dealers accounted for about 70% of blue crab sales.

A blueprint for moving forward was drafted that everyone supported, which included:

- 1) Updating the training video that is now out of date because of newer system changes.

- 2) Pursuing additional outreach to crabbers (particularly the bigger harvesters) to both encourage their use of the electronic system and determine what changes they would like to see that would make the system more user friendly.
- 3) Communicate with the larger Virginia buyers to assess their support for a consistent buyer reporting system to improve audits while increasing accuracy of dealer reporting. This would provide for better comparisons to crab harvesting estimates.
- 4) Helping develop the design for a buyer reporting system that would be supported by industry (to be done in conjunction with all project partners and industry).

VMRC subsequently provided list of 15 top buyers as to volume of crabs.

- **Project partners meeting (conference call) on December 2, 2015**

Project partners discussed priorities that could be addressed in projects scope of work based on discussions with VMRC. A work plan was drafted summarizing major action items and identified tasks by project partners (Appendix A). Evaluate limitations in the current system, explore opportunities for technology enhancements, and evaluate the need for additional outreach and training. Specifically, VIMS/VASG personnel agreed to work with EDF and/or EDF representatives and other stakeholders to identify ways to:

- 1) Explore opportunities for improving verification of harvest data by improving dealer reporting.
- 2) Gather information and feedback from targeted watermen to learn how the current electronic system can be improved.
- 3) Expand adoption of blue crab electronic harvest reporting by watermen, targeting opinion leaders to maximize impact.
- 4) Enhance the user experience with EHR, thus encouraging adoption.

- **Project partners meeting (conference call) December 10, 2015**

This meeting was held to identify tasks by individual project partners. Phase 1 of the project was identified as Virginia Blue Crab Dealer Outreach. Using current VMRC dealer audit form, Fisher and Turner were given task with outreach to 15 commercial crab buyers who represented the top crab buyers in Virginia; survey information on buyer's record keeping and reporting to VMRC of crab purchases from harvesters.

For consistency between project partners, Turner and Fisher brief talking points were agreed upon and adhered to while interviewing buyers,. It was noted that keeping things as simple as possible when discussing EHR with all dealers should remain a priority as currently dealers were not required to report anything (mandatory) until and or if, they are selected at random to be "Audited" by the commission. Interviewer's agreed to focus on the big questions like "Will or would you voluntarily participate and provide this information (using the VMRC audit form)?" Introducing EHR as a more efficient, streamlined, and user friendly reporting method, benefiting both managers and stakeholders is the overarching goal. Incentives to attract dealers to participate and provide management with this information aren't entirely clear. Participants being free from audit while participating and providing the information requested is a potential incentive as well as a clear and more organized recording system they then can use as a formal method of documentation could also be another. Outreach interviews with buyers will be completed by in-person site visits. A spreadsheet template was drafted for outreach meetings to record feedback from buyers/dealers, harvesters using the online system, and harvesters not already online. Introductory statements and follow-up talking points were drafted for our interviews.

- For crab buyers/dealers:

Introductory statement; "We are gauging dealer experiences in submitting your buyer data to VMRC and collect ideas on ways to make that process easier and more efficient for dealers and VMRC."

Question 1: "What system do you use to track your seafood buys from harvesters?"

Question 2: "If it's an electronic system, would you be willing to export a spreadsheet from it to VMRC for your annual submission requirement?"

Question 3: "Would you use an online entry system if VMRC had one?"

Question 4: "Would they be willing to share the names of some of the larger harvesters they buy from in an interest to ask them about reporting harvest online?"

- For crab harvester experienced with online reporting system:

Introductory statement; "We're working with VMRC to assess user experiences for the online system and ID ways to make it easier to use and more effective. (If harvesters were using the system but have stopped, it's important to know what the decision-making factors were and if there is a way to bring them back online.)"

Question 1: "How long have you been using (or how long did you use) VMRC's online system?"

Question 2: "Are you still submitting your harvest data online?"

Question 3: "Do you complete your EHR reporting or does someone else?"

Question 4: "Overall experience compared to paper submission? " (Rate 1-5, with 1 being much easier, 5 being much more difficult, note experience and age range)

Question 5: "Would making the tool easier to use from a cell phone or tablet be useful to you?" (If so, thoughts on improvements)

Question 6: "What do you like most about using the online system?"

Question 7: "What do you dislike most about online system?"

Question 8: "What recommendations do you have on ways to make the tool or the process easier to use or more effective?"

Question 9: "Would you recommend the online reporting system to other watermen?"

- For crab harvesters new to online reporting system:

Introductory statement; Outreach to this group is more about introducing the concept and the actual system. Some points to relay are: Online harvest reporting saves watermen time in filling in paper reports, reduces errors because many fields are pre-filled in based on history, decreases gap between harvest and management actions (e.g., season extensions) because information is as up to date as possible, and provides watermen online access to their historical harvest records. (could also explain the developing Bay wide TAC concept and that allocation will be based on available info, the more reliable, and the better.)

Question 1: "Did you know that online reporting was available?"

Question 2: "Would you consider using the online system for your mandatory reporting?"

Question 3: "Do you see an advantage to using it over the paper forms?"

Note age range of waterman.

Objectives to scope of work geared toward the harvester, primarily gathering information and feedback from targeted watermen to learn how the current electronic system can be improved and expanded were drafted as Phase 2 and proposed to occur after Phase 1 (buyer interviews).

Summary of crab buyer's record keeping and reporting (Fisher's interviews from 9 buyers/dealers)

Crab buyers purchase of crabs from licensed watermen is commonly performed by issuing carbon copied paper sales tickets with specific sales transaction information. Ticket information includes harvester, harvester's VMRC ID #, crab category (item) purchased (jimmies, #1, 2, 3), unit quantity (pounds, bushels, barrels), unit price. Sales information was consistent between buyers as to crab category type, but unit quantity varied within industry, mostly between pounds and bushels. In most occasions, paper tickets are accumulated through the business week at which point they are entered into QuickBooks accounting software programs. The use of QuickBooks spreadsheets is common within the Virginia crab industry, which is used to issue invoices to harvesters as well as archiving sales transactions. From this point, buyers would either download records from QuickBooks into excel spreadsheets to both archive and submit to VMRC, or they would scan QuickBooks sheets and email to VMRC as attachments when petitioned by VMRC. Only a single buyer interviewed was still performing record keeping by hard-copy paper receipts. The commonality between crab buyers in their use of QuickBooks software should help facilitate format structure changes to meet VMRC data needs. The majority of buyers indicated that they would use an online reporting system if data type and entry into the system was similar to their current spreadsheet format and easily accessed. Though industry reporting of crab units varies between buyers as pounds, bushels and/or barrels, VMRC currently uses a multiplier for each unit measure reported.

- Partner Meeting on February 29, 2016 with VMRC staff at VMRC office in Newport News, Virginia

A review of findings from buyers/dealers interviews was presented followed by discussions about specific recommendations to go forward with. Major points discussed were:

- 1) The soft crab and hard crab dealer reporting system doesn't allow enough room to identify the individual harvesters processors buy from. The system also lacks the ability to identify who is a dealer and who is not.
- 2) Concern over redundancy of counting the same product several times throughout the process. How to avoid counting the same product multiple times? How to record who is a dealer and who is not.
- 3) Reporting sheets lack enough room for the five categories of soft crabs and two categories of females. Lumping these all together into one number can create bias and doesn't offer the amount of info that could be provided to the Commission.
- 4) Questions on specific reporting parameters (e.g., pounds or bushels) across the types of products and developing consensus across state lines.

- 5) The types of system that dealers are using now and how to best export to meet VMRC's format.

(Note: points #1, 2 and 3 are points stemming from Andrew Turner's 8 interviews with crab buyers in northern Virginia areas where soft crabs are routinely purchased by hard crab buyers/dealers. These points were not observed in 9 interviews by Fisher.)

We presented survey information and buyers spreadsheets to VMRC for guidance on constructing spreadsheet with format similar to industries to facilitate industry-wide use (common format).

The use of a common format would facilitate more widespread reporting by crab buyers on a finer time scale (weekly, monthly). More timely and accurate reporting from buyers should indicate discrepancies in harvest reporting by watermen, providing further assessment of Virginia's electronic harvesting system. A list of top crab harvesters (large volume) identified by crab buyers interviewed (30 harvesters submitted by Fisher) was presented to VMRC to check if they are currently using online harvest reporting. This was intended to help identify high volume crab harvesters that are not using EHR and help direct future outreach efforts on EHR system use.

VMRC responded by email on March 15, 2016:

From Stephanie Iverson; per our action items from meeting February 29, 2016 (see fields that VMRC would want to see in an electronic submitted dealer report:

Note: Dealer would need to be able to distinguish their purchases if multi-jurisdictional (Example Potomac River, Maryland vs Virginia) sales and different areas (inshore vs offshore).

Fields:

Dealer Name

Dealer VMRC ID

Date_Input

Harvest Date (Year, Month, Day)

Harvester VMRC ID

Harvester Name (Last, First, Middle, Suffix)

Species by Market Category

Amount

Unit

Water Area (Oyster Only)

Follow-up response from VMRC by email from Erik Barth on March 9, 2016:

It would be critical for dealers to be able to distinguish between original Virginia harvest from a Virginia licensed harvester, and any seafood product they may buy as a resale from someone other than the original harvester. Ideally we'd only want the harvest data from the original harvester, but if not, at least a way to differentiate in the buyers records. Erik

Current status:

We are currently working on drafting a common formatted spreadsheet for Virginia crab buyer use in reporting crab purchases from harvesters to VMRC on a regular reporting period (weekly, monthly). Also, waiting on feedback from VMRC on identifying individual crab harvesters from list provided on their use of EHR system.

Literature cited:

Fisher, Robert. 2015. Improved Commercial Blue Crab Electronic Report In Cooperation with the Virginia Watermen's Association. VIMS Marine Resource Report No. 2015-1 (VSG-15-08).

Smith, Ken. 2015. Final Report, Harvest Reporting Training and Outreach. Virginia Fishery Resource Grant Program No. 2013-09.

Budget – VIMS Index 775592

**Title: Implementing an electronic harvest reporting system for Virginia's blue crab fishery
(MAS portion for Bob Fisher's involvement)**

A. Personnel		Time	Monthly	Agency	VIMS	Total
<i>Faculty and Staff</i>						
Bob Fisher		0.50	5,952	2,976	-	2,976
<i>Hourly</i>						
<i>Graduate Research Assistant</i>						
	Personnel, salaried			2,976	-	2,976
	Personnel, hourly			-	-	-
	Personnel, grad assist			-	-	-
Fringe, 49.04% salaries;			1,459	-		1,459
7.65% hourly			-	-	-	-
Total Personnel			4,435	-		4,435
B. Communications/Printing			-	-	-	-
C. Supplies			-	-	-	-
D. Consultant/Skilled Services			-	-	-	-
E. Travel			505	-		505
F. Subaward Agreements			-	-	-	-
G. Tuition			-	-	-	-
H. Vessels			-	-	-	-
I. VIMS Communications/Publication Center			-	-	-	-
J. Nutrient Analysis			-	-	-	-
K. Seawater Research Lab			-	-	-	-
L. Equipment			-	-	-	-
SUBTOTAL: Direct Costs			4,940	-		4,940
M. Facilities & Administrative Costs	<u>25.0%</u>		1,235	-		1,235
TOTAL			6,175	-		6,175

Appendix A

Work Plan drafted as result of December 2, 2015 conference call.

Improving Blue Crab Electronic Harvest Reporting in Virginia: Project Scope

October 2015 - March 2016

Background

Blue crabs are an iconic species in Chesapeake Bay for their ecological and economic contributions to the region. Virginia and Maryland have developed online, Electronic Harvest Reporting (EHR) systems to reduce both the paperwork for harvesters and the lag time between reporting and having the information accessible to managers for decision-making. EHR is an important tool to provide timely, accurate, and verifiable harvest data and can be particularly helpful in a high priority fishery like blue crabs.

EHR benefits harvesters and managers, and can create a more agile and responsive management system. Virginia Blue Crab Industry Panel comprised of blue crabbers around the state identified EHR as one of their final 7 priority recommendations. This Panel convened to address long-term management needs for the blue crab industry and through their deliberations requested "that VMRC encourage the use of EHR through incentives to participating crabbers. EHR provides a means of closing the gap between harvest and actionable data availability". Potential incentives suggested included reduced license fees, priority access to other fisheries, and preferred participation in season extensions. The Panel recognized the need for greater accountability in reporting within the blue crab industry. Two primary reasons were noted for their focus on EHR: 1) annual limits are currently set with the inclusion of a large amount of uncertainty based on misreporting; and 2) if/when the Bay states develop a Total Allowable Catch (TAC) system for blue crabs, accurate reporting information will be critical in establishing an equitable bi-state allocation system.

Maryland has created a new online system for reporting and is moving toward mandatory EHR for harvesters. Virginia created a voluntary online reporting system in 2009. Few harvesters were using the system until the Marine Advisory Program at Virginia Institute of Marine Science funded a project between 2013-2014 to engage crabbers and VMRC staff. That project conducted five outreach sessions to demonstrate the system to crabbers, encourage its use, and collect feedback on potential system modifications. In lieu of limiting participation to the outreach sessions, the project team developed a short tutorial video, a step-by-step visual instruction guide, and an online FAQ. This multi-pronged approach resulted in a 250% increase in harvesters using the online reporting system. We would like to expand on this past work to increase the number of users and continue to enhance the available system in Virginia.

Objectives

- Advance the management of Virginia's blue crab fishery by modernizing and improving VMRCs current electronic harvest reporting system so that it provides VMRC managers and scientists with more timely, accurate, and verifiable catch information.

- Evaluate limitations in the current system, explore opportunities for technology enhancements, and evaluate the need for additional outreach and training. Specifically, VIMS/Sea Grant personnel will work with EDF and/or EDF representatives and other stakeholders to identify ways to:
 - Explore opportunities for improving verification of harvest data by improving dealer reporting;
 - Gather information and feedback from targeted watermen to learn how the current electronic system can be improved;
 - Expand adoption of blue crab electronic harvest reporting by watermen, targeting opinion leaders to maximize impact;
 - Enhance the user experience with EHR, thus encouraging adoption.

Priority Activities

Initial priority activities, leads, and timelines are listed below. The team is committed to stakeholder engagement and feedback, and adaptive project management to achieve the objectives above.

Task	Who	Timeline
I. Initiate outreach to list of 15 dealers to assess their willingness to report in a common format, potentially electronically. <ul style="list-style-type: none"> • Develop list of questions and talking points • Record and categorize responses 	Andrew Turner Bob Fisher Paula Jasinski	December-February
Initiate outreach to harvesters to introduce the system to new users <ul style="list-style-type: none"> • Work with VMRC to identify list of harvesters by region • Develop list of message points to use with all harvesters 	Andrew Turner Bob Fisher Paula Jasinski	December-February

<ul style="list-style-type: none"> Update handouts on why & how to begin using the online system from last outreach effort for use in this iteration 		
<p>Assess user experience of existing users</p> <ul style="list-style-type: none"> Work with VMRC to identify list of harvesters by region who are using the system Develop list of survey questions for users Record and categorize responses 		
Summarize feedback from dealers and harvesters for VMRC	Andrew Turner Bob Fisher Paula Jasinski	December-February
Create email reminder in advance of due date and after delinquency (VMRC is already in the process of implementing this activity);	Stephanie Iverson	By December 2015
Assess user interests in an enhanced mobile access for smartphones and tablets;	Andrew Turner Bob Fisher Paula Jasinski	December-February
Identify examples from other EHR systems that address user requests/needs	Matt Mullin Jack Travelstead	February-March
Create an updated series of FAQs for harvesters to decrease staff time in handling technical issues;	Paula Jasinski	By March 2016

Summarize feedback from users and the recommended technical updates/modifications (e.g., favorite's tree, error trapping, etc.)	Bob Fisher	By March 2016
Develop and deliver final report to VMRC of process and outcomes		By March 2016

Outreach

Outreach activities will be targeted at both harvesters and dealers. These activities will be coordinated by Paula Jasinski, and implemented by her, Andrew Turner, and Bob Fisher.

To Harvesters

- Identify “major” harvesters not reporting electronically;
- Targeted port visits with harvesters;
- Provide outreach and training to commercial watermen, particularly major harvesters, identifying rationale and benefits of EHR;
- Provide communication and training tools to VMRC and watermen’s associations.

To Dealers

- Target larger dealers to find out what’s easy for them to report in same format to VMRC (federal permitted dealers already do through SAFIS) , including exploring the possibility of an electronic template (e.g., Excel spreadsheet);
- Encourage consistent buyer reporting to VMRC;
- Identify and relay benefits of consistent reporting to dealers, along with management implications of more verifiable, accurate, and timely data.

VMRC Activities

The following information is requested from VMRC to enable the above activities by the project team.

- Lists of large harvesters to capture ~75% of harvest ;
- Top 10 buyers in state;
- Summary of system changes since last tutorial (July 2014);
- Current requirements for dealer reports and if it exists, the form(s) they use in conducting audits;
- Participation in outreach meetings and assistance with creation of new training and instructional materials such as FAQs and tutorial videos.

Appendix B

Copy of Grant Agreement between VIMS and EDF dated September 14, 2015.



ENVIRONMENTAL DEFENSE FUND, INCORPORATED GRANT AGREEMENT

This Grant Agreement is entered into as of Monday, September 14, 2015 (the "Effective Date") by and between Environmental Defense Fund, Incorporated ("EDF"), a not-for-profit organization located at 1875 Connecticut Avenue, Washington, DC, and Virginia Institute of Marine Science ("Grantee"), a state-controlled institution of higher education, located at 1375 Greate Road Gloucester Point, Virginia 23062-1346.

1. Grant and Use of Grant Funds

EDF hereby awards Grantee a grant in the amount of \$61,000 to undertake the project described below.

In support of Grantee's and EDF's shared interests in Northeast US Oceans (**0099-101400**), Grantee agrees to use the grant funds to improve and modernize the management of Virginia's blue crab fishery by implementing an electronic harvest reporting system that provides Virginia Marine Resource Commission (VMRC) fishery managers and scientists with more timely, accurate, and verifiable catch information. To this end, Grantee will achieve the following:

- 1) Work with EDF staff and/or EDF representatives VMRC staff, commercial watermen and, if appropriate, technology providers, to identify ways to expand electronic reporting in Virginia;
- 2) Working with these partners, evaluate limitations in the current system used in Virginia, explore the opportunities for technology enhancements, and evaluate the need for additional outreach and training; and
- 3) Based upon the findings from above, all of the following actions that apply: a) testing of alternative reporting systems, b) improvements to the existing system, c) technical assistance to VMRC, d) outreach and training to commercial watermen, and e) communication and training tools to VMRC and watermen's associations.

Grantee will collaborate with Matt Mullin, who will be the EDF point of contact, for the work under this Grant Agreement.

2. Reports

Grantee will deliver to EDF the following written reports on the work conducted under this Grant Agreement on the schedule provided below:

- a) A final report is due on March 31, 2016

The report will include a narrative description of the progress made toward achieving the goals of this grant and financial information evidencing that grant funds have been expended in accordance with the terms of this Grant Agreement. All reports must be provided in the formats specified by EDF.

3. Term

The term of this Grant Agreement shall begin on the Effective Date and will end on March 31, 2016.

4. Disbursement of Grant Funds

The grant amount shall be disbursed in one installment. The first payment shall be made upon execution of this Grant Agreement.

EDF will not reimburse Grantee for expenses beyond the grant amount incurred in carrying out the purpose and expected outcomes.

5. Record Maintenance and Inspection

Grantee shall make its books and records related to this Grant Agreement available for inspection at reasonable times by EDF or its assignee. Grantee shall maintain records of expenditures, as well as copies of any financial reports submitted to EDF, for at least four (4) years after completion of the use of the grant funds.

6. Non-profit Status; Prohibition on Lobbying and Political Activities

A. Grantee is a state-controlled institution of higher education.

B. Grantee agrees that it will not, and will cause its employees and agents not to, use any of the grant funds to:

- (i) Carry on propaganda, or otherwise attempt to influence legislation, as defined in Section 4911(d) of the Code, through (a) an attempt to affect the opinion of the general public or any segment thereof or (b) communication with any member or employee of a legislative body, or with any other governmental official or employee who may participate in the formulation of the legislation (except technical advice or assistance provided to a governmental body or to a committee or other subdivision thereof in response to a written request by such body, committee or subdivision), other than through making available the results of non-partisan analysis, study or research;
- (ii) Engage in activities that require Grantee (or any person employed by or acting on behalf of Grantee) to register as a lobbyist or be identified as a lobbyist under the Lobby Disclosure Act, 2 U.S.C. §§1601-1612, or in a registration or report filed with a public agency by any other person or entity; or
- (iii) Engage in any exempt function activities, as defined under Section 527 of the Code, including by influencing the outcome of any specific public election, carrying on (directly or indirectly) any voter registration drive, supporting the election or defeat of a candidate for public office, financing electioneering communications, registering prospective voters or encouraging the general public or any segment thereof to vote in a specific election.

7. Employees and Contractors

All employees or contractors hired or engaged by Grantee to perform work pursuant to this Grant Agreement shall be employees or contractors of Grantee, not of EDF. They shall not be eligible for any of the benefits paid to employees of EDF.

8. Work Product

- A. All written or other work product generated pursuant to this Grant Agreement shall be the property of Grantee. To ensure the widest possible distribution of such materials and ensure that they remain generally available to the public, Grantee grants to EDF an irrevocable, royalty-free, non-transferable, non-exclusive right and license to use, reproduce, make derivative works, display, and perform publicly any copyrights or copyrighted material first developed and delivered under this Grant Agreement. Grantee, at EDF's request, agrees to execute any additional documents required to effect such license.
- B. Grantee represents, warrants and covenants that the work product is original and that it is the sole creator of the work, except for any material incorporated into the work product created or owned by third parties, from whom Grantee has obtained or will obtain, at its expense, all licenses necessary to incorporate and use such third party material in the work product, including the right to sublicense to EDF such material incorporated into the work product. Grantee further represents, warrants and covenants that the work product does not and will not contain any matter that is in violation of any copyright, trademark, proprietary right or personal right of any third party, or otherwise violates any law. Grantee will indemnify and hold EDF, its licensees and assigns, harmless from any and all claims, liabilities, costs and expenses, including reasonable attorney's fees arising as a result of the breach or alleged breach of these representations, warranties and covenants.

9. Compliance

All grant funds shall be used only for the said purpose within this Grant Agreement. Any funds not used for the purpose of this grant and any funds remaining after the completion of the project shall be returned to EDF.

If EDF is not satisfied with the progress of the work under or Grantee's compliance with the terms of this Grant Agreement, EDF shall have the right to suspend or discontinue the funding of the work or to cancel the grant with regard to any unused or undistributed grant funds.

10. Confidentiality

- A. Each party acknowledges that it may have access to information that is treated as confidential and proprietary by the other party or its affiliates ("Confidential Information"). Each party agrees to treat all Confidential Information as strictly confidential, not to disclose Confidential Information or permit it to be disclosed, in whole or part, to any third party without the prior written consent of the other party in each instance, and not to use any Confidential Information for any purpose except as required in carrying out the work under this Grant Agreement. Each party shall notify the other party immediately if it becomes aware of any loss or disclosure of any Confidential Information.
- B. Confidential Information shall not include information that (i) is or becomes generally available to the public other than through a breach of this Agreement; or (ii) is communicated to a party by a third party that had no confidentiality obligations with respect to such information.

C. Nothing herein shall be construed to prevent disclosure of Confidential Information as may be required by applicable law or regulation, or pursuant to the valid order of a court of competent jurisdiction or an authorized government agency, provided that the disclosure does not exceed the extent of disclosure required by such law, regulation or order. Each party agrees to promptly provide written notice of any such order to the other party.

11. Survival

The following clauses of this Grant Agreement will survive any expiration or termination of this Grant Agreement: Section 5, 8, 9, 10, 11, and 13.

12. Modification

This Grant Agreement sets forth the entire understanding of the parties with respect to the subject matter hereof, and shall not be amended, modified or waived except by an instrument in writing signed by both parties.

13. Governing Law

This Grant Agreement shall be interpreted in accordance with all applicable local, state and federal laws.

14. Miscellaneous

This Grant Agreement, along with any attachments, schedules and exhibits hereto, contains the sole and entire agreement and understanding of the parties with respect to the subject matter hereof, superseding all prior communications whether written or oral. This Grant Agreement shall be binding upon, inure to the benefit of, and may be enforced by, the parties to this Grant Agreement and their respective successors and permitted assigns. If any term or provision of this Grant Agreement shall be held to be invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining terms and provisions shall not in any way be affected or impaired thereby and shall be valid and enforced to the fullest extent permitted by law. Grantee shall not assign this Grant Agreement without the prior written consent of EDF. This Grant Agreement may be executed in one or more counterparts, but all of which together shall constitute one and the same instrument. This Agreement may be executed by manual or facsimile signature, each of which shall be deemed an original.

IN WITNESS WHEREOF, the parties hereto have executed this Grant Agreement as of the Effective Date.

Environmental Defense Fund, Incorporated

Name: John Mimikakis
Title: Vice President, Oceans

Virginia Institute of Marine Science

Connie Motley
Digital Signature for Connie Motley
DN: CN=Connie Motley, OU=People
Institute of Marine Sciences-Sponsored
Programs, OU=People, O=VIMS, C=US
Date: 2015-02-24 16:57:04 +0400

Name: Connie Motley
Title: Assistant Director, Sponsored Programs

Appendix C

Copy of VIMS Award Notification from Pam Ivey received via email on November 11, 2015.

Sponsored Programs Grant / Contract Award Notification

Grant Number: V775590 **Index Number:** 775591 T. Hartley VA Sea Grant **Proposal Number:** 216085
775592 R. Fisher MAS
475591 T. Hartley Match

Administrator: Ivey ,Pamela

Project Title: Implementing an electronic harvest reporting system for Virginia's blue crab fishery

Principal Investigator: Troy W Hartley : Virginia Sea Grant

Co-principal Investigator(s): Susan Park: Virginia Sea Grant

Funding Agency: MISC

Agency Award Number: N/A

Period of Performance: 14-Sep-2015 to 31-Mar-2016

Funding Total: **Direct:** \$61,000.00 **Match:** \$0.00

CFDA Number: 0

Indirect Cost Rate: 25 %

Project Summary: Improve and modernize the management of VA's blue crab fishery by implementing an electronic harvest reporting system that provides VMRC fishery managers and scientists with more timely, accurate and verifiable information.

SCIENTIFIC REPORTING REQUIREMENTS: (DUE DATES AND NATURE OF DELIVERABLES)

Scientific Report Due Dates:

31-Mar-2016

TO ACCESS INFORMATION VIA BANNER SELF-SERVICE OR INB:

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Grant
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THIS IS THE OFFICIAL NOTIFICATION OF AWARD AND DELIVERABLES AND IS BEING DISTRIBUTED TO ALL APPROPRIATE INSTITUTIONAL PERSONNEL. IF YOU HAVE ANY QUESTIONS OR CONCERNS, CONTACT SPONSORED PROGRAMS.