# Fisheries Information System/National Observer Program/Catch Shares Program Request for Proposals

FY 2019 Proposal Guidance

Pre-proposal Deadline: April 6, 2018

Proposal Deadline: June 8, 2018

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# List of Acronyms

| | |
|---|---|
| CSP | Catch Share Program |
| EM | Electronic Monitoring |
| ER | Electronic Reporting |
| FIN | Fisheries Information Network |
| FIS | Fisheries Information System program |
| InPort | National Marine Fisheries Service's Metadata Warehouse |
| NMFS | National Marine Fisheries Service |
| NOAA | National Oceanic and Atmospheric Administration |
| NOAA Fisheries | a.k.a., National Marine Fisheries Service |
| NOP | National Observer Program |
| NOPAT | National Observer Program Advisory Team |
| OMI | NOAA Fisheries' Operations, Management and Information Division |
| PI | Primary Investigator |
| PIMS | Program Information Management System |
| PMT | Program Management Team |
| QM | Quality Management |
| QM & CI | Quality Management and Continuous Improvement |
| RFP | Request for Proposals |

# Suggested Resources:

How to submit an FIS Proposal

FIS Past and Ongoing Projects Database

FIS Electronic Reporting Inventory

FIS Center of Expertise Electronic Reporting Presentation Series

InPort Metadata Warehouse

NOAA Fisheries ST1 Commercial Landings Query Tool

# Introduction

**Purpose of this request for proposal (RFP):** The Fisheries Information System (FIS) program is a cooperative effort with the National Oceanic and Atmospheric Administration National Marine Fisheries Service's (NOAA Fisheries) regional offices and science centers, as well as regional Fisheries Commissions, Fisheries Information Networks, and states to reduce costs while improving quality, timeliness, and accessibility across all stages of the fishery dependent data lifecycle.

**Areas of Interest:** The FIS program manages an annual competitive RFP to support the above stakeholders to advance fishery-dependent data within the following program areas:

- Quality Management and Continuous Improvement (QM & CI)
- Electronic Reporting (ER)
- Electronic Monitoring (EM)
- Fishery Information Network (FIN) Improvement

**Who we are:** The FIS program and National Observer Program (NOP) reside in NOAA Fisheries' Office of Science and Technology, and the National Catch Share Program (CSP) resides in NOAA Fisheries' Office of Sustainable Fisheries. Part of the NOP's mission is to provide a formal mechanism for NOAA Fisheries to address observer issues of national importance and to support information collection and program implementation. Both the NOP and FIS support collaborative projects that will fund electronic monitoring and/or electronic reporting (e.g., use of electronic technologies for fishery dependent data collection). The CSP supports pre-implementation work and implementation of catch share programs across the country and complements the data collection focus of FIS and NOP for these types of programs. FIS and NOP leverage State-Federal partnerships and resource investments to provide the information needed to help understand the effects of fishing on living marine resources, and to improve the quality of resource management decisions.

**Who is eligible**: Potential participant(s) come from NOAA Fisheries Regional Offices, Science Centers, Headquarters Offices, FIN partners, and State partners to support electronic reporting, electronic monitoring, quality management and continuous improvement, and FIN improvement initiatives and projects. The FIS program, the NOP, and the CSP will allocate resources for high quality proposals based on FIS, NOP and CSP priorities. Funding to State partners will be provided through the Interstate Commissions (check with your local Interstate Commission before submitting a proposal to see if they require prior approval).

**Allocation of funding:** In anticipation of the upcoming Fiscal Year (FY19) Budget, FIS anticipates a total of approximately $5,200,000 will be available through this RFP. It is anticipated that the funds will be distributed in the following manner:

- ER and EM combined: up to $4,500,000
- QM & CI $350,000
- FIN Improvement: $300,000

All amounts are subject to change and funding decisions are contingent on the final enacted budget.

# Proposal Submission Overview

All pre-proposals and full proposals must be submitted through the NOAA Fisheries Program Information Management System (PIMS). PIMS is NOAA Fisheries' online project tracking and data entry system, in which all project pre-proposals, full proposals, quarterly reporting, and final reporting will be entered. After a proposal is selected for funding, all associated data are automatically publically viewable on the FIS website's Projects Page. If you do not have a NOAA.gov e-mail address and have not previously accessed PIMS, please contact Daniel Elias (daniel.elias@noaa.gov) for PIMS access and instructions. Before submitting a proposal, please verify with the appropriate supervisory chain and follow local guidance for submission. After proposals are submitted, FIS will seek final submission approval-by your local leadership. Late submissions will NOT be considered.

# Pre-Proposals

The Pre-proposal process is intended to provide an indication to potential applicants of the merit and relevancy of the proposed project to FIS, NOP or CSP before preparing a full proposal. The intent is to reduce the burden of preparing and reviewing full proposals that do not have a high probability of being funded

This process is meant to achieve the following:

- Ensure proposals align with the mission of FIS, NOP or CSP as well as the priorities of the chosen program area
- Ensure that proposed projects are focused on pre-implementation or implementation, and building upon past work
- promote collaboration among complementary or redundant proposals

Each pre-proposal will provide:

- The title of the project
- Associated organization/Financial Management Center (FMC) or FIN
- Description of how the work supports the FIS, NOP or CSP visions
- Clear statement of project objectives and general methodology to be used
- Estimated total budget amount

Pre-proposals must be submitted via PIMS by 5:00 p.m. HST 4/6/2018. You will receive acknowledgement of your pre-proposal submission via email. If you do not receive such an acknowledgement, please contact daniel.elias@noaa.gov to assure successful receipt.

Click here for detailed illustrated instructions on submitting pre-proposals and full proposals into PIMS.

# Proposal and Project Cycle

**The proposal review and award process will follow this general schedule:**

| General Schedule for FIS Proposal and Project Cycle | |
|---|---|
| **First week of March, 2018** | FIS/NOP/CSP announce RFP and its supported program areas. |
| **April 6, 2018 (5PM HST)** | Deadline for pre-proposal submissions. |
| **April 21, 2018** | Feedback provided to Principal Investigators (PI) on pre-proposals submitted. |
| **June 8, 2018 (5PM HST)** | Deadline for full-proposal submissions. |
| **June 15, 2018** | Deadline for approval and submission of proposals by Regional Administrator/Deputy, Science Center Director/Deputy, Headquarter Office Director/Deputy or equivalent |
| **September, 2018** | Announcement of funded proposals.<br>**Selected proposals and all associated quarterly and final reports will be publicly available on the FIS web site** |
| **Upon receipt of appropriation (Spring, 2019)** | Funds will be made available to awarded projects subject to availability of funds and OMI processes.<br>Note: Funds cannot be distributed until the funding programs receive their budget allocations, transfers to FIN programs and State partners are made. This can take several additional months due to the Federal grants process. |
| **Quarterly** | Quarterly reports for funded projects are due.<br>**Quarterly reports will be made publicly available on the FIS web site.** |
| **One year after initiation of the work** | Final reports for funded projects are due.<br>For multi-year projects, the report should focus on the work funded in the current fiscal year.<br>**Final reports will be made publicly available on the FIS web site.** |

PIs should read the Evaluation Criteria section carefully. Some of the more significant requirements of this RFP are:

- Proposals must be submitted through PIMS. Proposals that are incomplete will not be considered.
- Quarterly and Final Reports must be submitted through PIMS.
- Federal labor costs, overhead, or other administrative costs for NOAA or any collaborating federal agency cannot be included in the budget.
- Collaboration among regions and FINs is strongly encouraged and will be considered during the evaluation process and when making a final determination on the amount of an award.
- **Any proposal seeking greater funding than what is available within its respective Area of Interest or, in the case of Quality Management, the maximum specified within the Area of Interest, will not be considered.**
- Submissions must specify the approver, at the Division Chief level (or equivalent) or higher, and **must be approved by the Regional Administrator/Deputy, Science Center Director/Deputy, Headquarters Office Director/Deputy, or equivalent in the PIMS system prior to consideration**. **State partner proposals must be approved by the relevant Commission leadership.**
- Proposals should address how metadata will be provided for datasets collected or generated as part of the project. Metadata must be submitted to InPort, the NOAA Fisheries metadata catalog, as required.
- Proposals should address how non-confidential datasets collected as part of the project will be made available to the public.

FIS and NOPAT will strictly enforce the requirements and deadlines in this proposal guidance. Please read this *entire document* and contact Alan Lowther (alan.lowther@noaa.gov) or Daniel Elias (daniel.elias@noaa.gov) if you have any questions.

# Proposal Format and Content

## Entering Your Proposal

All pre-proposals and full proposals must be submitted through the NOAA Fisheries PIMS. All fields must be completely filled out in accordance with the instructions provided. Proposals must also clearly identify the relevant Area of Interest. Links to other documents or websites may be included in the proposal for background information; however all information relevant to the evaluation criteria and themes must be provided in the body of the proposal.

Click here for detailed illustrated instructions on submitting pre-proposals and full proposals into PIMS

## Project Funding and Timing

Proposed projects should provide detailed information regarding the funding request as well as the plan for completing any necessary procurement actions. All submissions must be reviewed and approved by the submitting organization leadership. All funds must be obligated within the current fiscal year. All proposals must include funding implementation plans that outline how the funds are to be transferred to the proposal sponsors and participants, including main financial points of contact. All milestones must be reached and all deliverables must be achieved within one calendar year of the award unless otherwise specified in the project proposal. Funding to State partners will be provided through the Interstate Commissions**. Note that funds cannot be distributed until the funding programs receive their budget allocations. Transfers to FIN programs and State partners through the Interstate Commissions can take several additional months due to the Federal grants process.** In the event of such delays, applicants have one year to complete the proposed work unless the applicant timeline provides for an alternative schedule. In the event that a supported project must alter its proposed methods or outcomes, the principal investigator will submit an adjusted work plan to FIS (daniel.elias@noaa.gov or alan.lowther@noaa.gov), with an adjusted scheduled list of deliverables. State partners should factor Commission overhead rates into their project budgets.

## Multi-Year Projects

This RFP does fund some multi-year projects, and will consider funding continuing development costs. However, each annual phase of the project will require its own separate RFP application and will depend on past project performance and the availability of funds. The full plan with projected costs and objectives for subsequent years should be detailed in the proposal. FIS will not fund operations and maintenance costs indefinitely, and projects must provide a plan for covering ongoing costs once development is complete. Applicants are encouraged to submit proposals that identify an entity that is committed to funding recurring costs, proposals that do so will receive a more favorable rating in that evaluation criteria. Please contact Daniel Elias or Alan Lowther (daniel.elias@noaa.gov or alan.lowther@noaa.gov) if you have any questions.

# Evaluation Criteria

Review teams representing FIS, NOP, and CSP representing each proposal program area will review and evaluate all full proposals against the Evaluation Criteria (listed below). Final scoring of each proposal will be by consensus scoring of the teams after individual reviews are completed. The summary results of the evaluation by each team will be presented to FIS, NOP and CSP for discussion and final approval. The criteria have been assigned relative weights that reflect the importance of each criterion. The evaluation criteria (and the relative weight of each criterion) are as follows:

**Matching with FIS/NOP/CSP Goals/Objectives (25)**: Does the project promote the advancement of the priorities of FIS or NOP (and identify how)? Is the project an approved on-going project or does it align with the identified areas of interest? Does the project improve the visibility of FIS/NOP/CSP? Is submission of metadata to InPort included? (i.e., the use of InPort is required and should be included in data plan) How accessible will the data be to the public (if appropriate) and within NOAA? If you are submitting an electronic reporting or monitoring proposal, how does the proposal address the priorities articulated in any of the NMFS/Council Regional Electronic Technology Implementation Plans? How does the proposal address documented regional or national priorities?

**Scope (15)**: Does the project have a broad impact across NMFS and NMFS partners? Is the project cross-regional or transportable? Does the project involve nation-wide and/or coast-wide collaboration and impact? If so, is there documentation of interest from other partners? Is there a plan for transferring knowledge and lessons learned? How widely will the results be disseminated? Are similar projects already underway in your Region?

**Timeliness (10)**: When will the project's impact be felt across the intended scope of the project? Are the timeline and milestones appropriate and realistic? Does the project have the potential to provide easy success? Is there a clear description of the project end-point? Does the project clearly indicate whether it is a one-year project or a multi-year project? If a multiyear project, does the proposal provide a plan for covering ongoing costs once development is complete?

**Cost/Benefit (10)**: Is the proposed cost of the work reasonable considering the expected benefits that will result? Does the project reduce the current cost of collecting or disseminating high-quality data? Does the project provide for a new means of data collection in a cost effective manner? Does the project involve ongoing costs for operation and maintenance or does the proposal provide information about how the project could be supported in the long-term? Does the proposal provide realistic and complete budgets for the proposed year and future years?

**Quality of Proposal (10)**: Does the proposal describe the goals and objectives in a realistic manner? Does the proposal include detailed milestones and a timeline for

achieving success? Is the proposal in the correct format and contain all required elements?

**Leverage (10)**: Does the project take advantage of existing fishery-dependent data modernization activities? Does the project use existing resources (examples include but are not limited to: ST1 Commercial Landings Web Query, FIS Electronic Reporting Inventory), as appropriate? Are matching funds, personnel resources, or equipment proposed? Does the project involve resource-sharing with other programs, regions, FINs, or states? If a QM & CI proposal, does the project draw on previous QM & CI activities or include a QM & CI rationale for the proposed work?

**Issue Resolution (10)**: Does the project address the resolution of a known issue regarding the accuracy, completeness, and timeliness of fisheries-dependent data? Does the project attempt to identify areas of potential improvement? If this is a pilot project, is it redundant?

**Level of Risk (10)**: Is the level of internal or external risk too high? Are there technological or political barriers that will prevent the project from being a success? If there is reliance on outside participation, will that present a barrier or is it appropriate and realistic? Is the project highly innovative and thus the level of risk appropriate given the potential gains? A higher score means a lower level of risk.

# Project Reporting

## Post-Selection

The PIs of selected proposals may be asked to provide more information or respond to suggested improvements. Additionally, revised project timelines may be required upon the distribution of funds.

## Quarterly Status Reports

The PI for each project is expected to be the primary point of contact for communications and reporting and are expected to provide all requested status report information for their respective projects. PIs are required to submit status reports through PIMS on a quarterly basis. This will include an update on tasks and milestones identified in the proposal. In addition, FIS or NOP may occasionally request additional information in order to inform NOAA Fisheries Leadership, the FIS PMT, the NOPAT, and the public. **Quarterly reports will be made publicly available on the FIS website**.

# Written Final Report

Each PI must provide a written final report detailing the accomplishments for the completed project. This will be due one year after the funding is awarded. External links to products, references, and related information may be included in the report. Electronic copies of all presentation materials, documentation, and the final report must be submitted through PIMS. The FIS and NOP Program Managers routinely review all aspects of funded proposals and may request additional information during the performance of a project. Occasionally requests are made for anecdotal descriptions of the impact of successful projects in order to keep NOAA management and the public better informed. PIs who fail to submit a final written report will not be eligible for the next RFP cycle.

Upon completion of projects, some PIs may be asked to present their projects and outcomes during the next annual PMT or NOPAT meetings. This is intended to be a forum for sharing information and lessons learned among FIS and NOP partners. When applicable, well-documented source code must be provided to FIS or NOP following project completion. Compliance with these requirements is necessary in order to be eligible for future FIS/NOP funding. **Final reports will be made publicly available on the FIS website**.

# Data Documentation

Proposals must comply with the NOAA Fisheries Data and Information Management Policy. The NOAA Fisheries Data Documentation Directive requires that metadata for all data collected or produced be entered and published in the NOAA Fisheries Data Catalog and Metadata Repository, InPort (https://inport.nmfs.noaa.gov/). **Failure to comply with this policy may make the PIs ineligible for the next RFP cycle**.

For details on setting up an account as an InPort "Author" and populating project metadata, please contact your office's InPort Librarian. If your office does not have an InPort Librarian, please contact the InPort Help Desk. The InPort help desk is available to all prospective InPort Authors from within and outside of NOAA.

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# Areas of Interest

- **For examples of projects from each Area of Interest, please see FIS' public database of past and ongoing projects supported by this RFP**

## Fishery Information Network (FIN) Development

FIS will make funding available to support projects not covered elsewhere in this RFP with regional and national benefit related to the FIN programs. Proposals should focus on work to strengthen the FIN programs however possible, but with particular focus on tasks related to the integration of data sets, multi-regional or multi-partner coordination, and on implementing the recommendations of the 2013 FIN Review.

(See http://www.st.nmfs.noaa.gov/Assets/science_program/Review%20of%20the%20FINs%20-%20Compiled%20Results.pdf). This includes national collaboration and coordination among FIN programs, the development of quality assurance plans, data information management and dissemination, strategic planning, outreach, and developing a review and improvement process.

## Quality Management and Continuous Improvement

NOAA Fisheries strives to find creative solutions that promote high quality, accurate, defensible data that supports timely and cost-effective management and policy decisions. Though QM & CI practices include data quality, the reach is much broader. QM & CI includes leadership engagement, strategic planning, the use of process improvement tools and listening to the customer. The overall goal of creating a QM & CI environment is the successful and efficient delivery of products and services across an enterprise. Projects focused on data integration that do not fit well under FIN development or the ER or EM focus areas could be submitted here.

Additional information on quality management can be found in the QM & CI area of the FIS web site. FIS has provided a list of QM & CI principles, strategies, and tools on its website (see link above); however this list is not exhaustive and applicants may explore other planning, decision-making, or evaluative tools that are linked to QM & CI practices or themes. The intent of this Area of Interest is to promote the use of QM & CI tools such as Value Stream Mapping, Data Flow Diagramming, Hoshin Planning, Measures & Metrics, Business Rule Documentation, and Project Tracking Applications.

**Funding Available:** We anticipate $350,000 being available to fund QM & CI projects. Applications will be evaluated as either "large" or "small" category projects. Projects in the two categories will be considered and scored separately from each other:

- Small Projects - Proposals requesting up to $30,000 will be evaluated in the small project category. Up to $150,000 is planned to be made available for the small project category.
- Large Projects - Proposals requesting over $30,000 will be evaluated in the large project category. Approximately $200,000 total is planned to be made available for the large project category. Budgets for large projects should not exceed $200,000.

**Special Instructions for this Area of Interest (QM & CI):**

- Applicants should indicate in the proposal application how and why QM & CI is a need in their organization, or how the proposed activity might expand QM & CI in their organization.
- If the application is for the use of a specific QM & CI tool, please describe why this particular tool was chosen for the application.
- If you are asking for QM & CI money to implement a QM & CI solution, please describe what previous QM & CI tool and/or QM & CI work identified that need.

**QM & CI Themes for FY 2018 proposals:**

- **Training and/or Application of QM & CI principles, strategies, or tools towards identification and solution development -** Proposals may be submitted to fund training workshops focused on the application of specific QM & CI principles, strategies, or tools. Proposals can also be submitted that request funding for training on general QM & CI concepts and principles. These types of general trainings bring awareness to QM & CI concepts, which can help the organization determine the best QM & QI tool for the issue

at hand. Proposals may also fund workshops that constitute the preliminary work needed to implement solutions that resolve known issues with organizational processes or programs if applicants demonstrate sufficient familiarity with QM & CI processes to run workshops outside of a training environment.

- **Implementation of QM & CI solutions -** These types of projects are the result of a previous QM & CI exercise (see above bullet) and may include system enhancement, maintenance, or analysis projects. If applying under this theme, the proposal must detail previous QM & CI exercises and/or work used to analyze the situation and how this project was derived from QM & CI exercise outcomes. It is not the intent of this theme to support ongoing operations; however, proposals could request funds to enhance an existing system or process that is then maintained through regular operational funding.

## Electronic Reporting Pre-implementation & Implementation

Up to $4.5 million, depending on allocation of FY19 funding, total is planned to be made available for projects in the Electronic Reporting **and** Electronic Monitoring areas of interest **combined**. The distribution between the two areas of interest will be determined based on proposals received.

Electronic reporting (ER) is typically considered the collection of harvest and biological data, i.e. fishery dependent data, through electronic means (i.e., electronic fish tickets, electronic logbooks). Projects should emphasize electronic means for reporting and build on existing work, either within regions or from other areas. Projects should be usable by the agency and some or all features of the project may be transferable across regions and fisheries. Projects may include identifying data needs and assessing gaps and should explain how ER will be integrated, as appropriate, with other data collections and how this will lead to implementation. Other proposals that address best practices for ER are eligible for this RFP. Proposals for implementing ER in recreational or for-hire fisheries should address how the projects align with national and regional priorities established for the Marine Recreational Information Program (MRIP). See http://www.st.nmfs.noaa.gov/recreational-fisheries/index for more information. Proposals must describe how the projects are consistent with Regional Electronic Technologies Implementation plans. Consideration will be given to how proposed projects support the relevant Implementation Plans (https://www.st.nmfs.noaa.gov/advanced-technology/electronic-monitoring/index).
Pre-implementation projects must include a description of the process to implementation, if the project outcome is successful. ER project proposals must provide a report describing methodology and outcomes, and should address one or more of the following:

- **ER feasibility studies and phased deployments of ER systems.** Feasibility studies and phased deployments must clearly identify steps to full implementation if successful. Proposals in this area should address the *Electronic Reporting Critical Success Factor Trigger Questions* found in Appendix A. Proposals could include:
    - Assessing the feasibility of implementing ER in a place where it is not used. This should include:
        - a quantitative and qualitative (if applicable) assessment of costs, impacts, timeliness and/or efficiency of moving from paper reporting (or none) to electronic reporting.
        - An analysis of various cost allocation approaches. Cost allocation means that various program costs would be the responsibility of either federal or non-federal program partners.
    - Testing potential ER systems, including identifying technology options, such as installing an ER system on a sample group of vessels or at processing plants. Projects should not duplicate or re-create existing products, though adapting or improving existing products is acceptable.
    - Investigating transferability/portability of ER systems such as across vessel types, fisheries, sectors, regions, etc.

- Implementation of an ER system as an alternative to an existing data collection program. For example, migrating from a paper-based system to an electronic system.
- Assessing integration of multiple data streams (e.g. observer data, logbooks, dealer reports, EM, state and federal data) for resource management, including data quality and data validation.

- **Migrating ER systems from pre-implementation/limited deployments into full operations:** This area supports implementation projects based on previous successful ER pilot projects.
  - Based on the results of preliminary testing, move to fully implement one or more ER system(s).
  - Demonstrate improvements to fishery management processes including meeting regulatory requirements or supporting existing agency goals (including cost reduction, use of standards, data accuracy, data timelines, operational efficiency, etc.).
  - Address issues identified in a pilot that will open a clear pathway to production-level implementation.
  - Develop infrastructure and system architecture design and integration that would allow ER programs to operate.

  - Develop and implement infrastructure and system design to integrate new ER data streams with other federal, state, territorial, tribal, or international fisheries management data programs for collaborative fisheries data management.

- **ER system expansion and enhancement.** This area refers to expanding and enhancing existing ER systems and may include:
  - Providing fishing industry with appropriate hardware/software/equipment while avoiding duplication or re-creation of existing products, although adapting or improving existing products is acceptable.
  - Collaborating with private software providers to improve ER capabilities that meet regional specifications. Open-source software is encouraged.
  - Developing clear product requirements and acceptance criteria that promote third-party product development.
  - Providing ER solution(s) to unique challenges, e.g., implementing ER on small boats.
  - Improve, rebuild, or replace legacy production ER system components that use outdated technologies, regulations, etc.
  - Develop and implement infrastructure and system design to integrate existing ER data streams with other federal, state, territorial, tribal, or international fisheries management data programs for collaborative fisheries data management.

- **ER outreach plans, communication efforts, and software training/education.** This area focuses on making ER systems more accessible and desirable to users through education, utility, and ease of use. Examples include:
    - Improving awareness and promoting adoption of ER systems.
    - Bringing stakeholders together early in the process of developing new ER systems and identifying management and regulatory needs.
    - Sharing lessons learned with user groups and developers.
    - Demonstrating capabilities of ER to potential user groups through training sessions, seminars, etc.
    - Developing regionally/culturally tailored multimedia tools for outreach such as instructional videos, web pages, smartphone apps, etc.
    - Providing hands-on training to ER users including culturally appropriate methods for effective learning.

## Electronic Monitoring Pre-implementation and Implementation

As noted above, up to $4.5 million, depending on allocation of FY19 funding, is planned to be made available for projects in the Electronic Reporting **and** Electronic Monitoring areas of interest **combined**. The distribution between the two areas of interest will be determined based on proposals received.

Electronic Monitoring (EM) typically means the use of cameras, hardware, and software to collect and process fishery dependent data (i.e., harvesting or processing operations). Projects should emphasize electronic means for monitoring and may build on existing work or seek to develop new or upgraded technologies. Projects may include identifying needs and assessing gaps and should explain how EM will be integrated with other data collections. **Proposals must describe how the projects are consistent with Regional Electronic Technologies Implementation plans**. Consideration will be given to how proposed projects support the relevant Implementation Plans (https://www.st.nmfs.noaa.gov/advanced-technology/electronic-monitoring/index).
Pre-implementation projects must include a description of the implementation process, if the project outcome is successful. Projects should not duplicate or re-create existing products, though adapting or improving existing products is acceptable. EM project proposals must describe methodologies and outcomes, and should address one or more of the following:

- **Image recognition technologies -** to develop and test image recognition technologies for use in compliance and catch accounting including bycatch monitoring, species identification, and length/weight calculations.

- **Conversion of imagery into database-compatible information** - to develop and test a system for converting video into data, using open source software.

- **Information storage and transfer -** to develop and test transfer and storage technologies.

- **Integrate EM and other fisheries data systems** - to develop methodologies for integrating regional EM with other federal, state, territorial, tribal, and international fisheries management data systems, including ER systems.

- **EM feasibility studies and phased deployments.** This area represents feasibility studies and phased deployments of EM systems. This could include:
  - Assessing the feasibility of implementing EM in a place where it is not used.
  - Testing potential EM systems, including identifying technology options, such as installing an EM system on a sample group of vessels, landing locations, or at processing plants.
  - Investigating transferability/portability of EM systems such as across vessel types, fisheries, sectors, regions, etc.
  - Assessing integration of observer data and EM for resource management, including data quality and data validation

- Feasibility studies and phased deployments must clearly identify steps to full implementation, if successful.

- **Migrating EM systems from pre-implementation/limited deployments into full operations:** This area supports implementation projects based on previous successful EM pilot projects.
  - Based on the results of preliminary testing, move past the planning process to fully implement one or more EM system(s).
  - Demonstrate improvements to fishery management processes including meeting regulatory requirements or supporting existing agency goals (including cost reduction, use of standards, data accuracy, data timelines, operational efficiency, etc).
  - Address issues identified in a pilot that will advance effort closer to implementation.
  - Develop infrastructure and system architecture design and integration that would allow EM programs to operate.

- **EM outreach plans, communication efforts, and software training/education.** This area focuses on making EM systems more accessible and desirable to users through education, utility, and ease of use. Examples include:
  - Improving awareness and promoting adoption of EM systems.
  - Bringing stakeholders together early in the process of developing new EM systems and identifying management and regulatory needs.
  - Sharing lessons learned with user groups and developers.
  - Demonstrating capabilities of EM to potential user groups through training sessions, seminars, etc.
  - Developing regionally/culturally tailored multimedia tools for outreach such as instructional videos, web pages, smartphone apps, etc.
  - Providing hands-on training to EM users including culturally appropriate methods for effective learning.

Proposals in these areas should consider the *Electronic Monitoring Area of Interest* found in Appendix B.

# Appendix A: Electronic Reporting Critical Success Factor Trigger Questions

The following trigger questions are intended to get fishery managers to think about and evaluate the readiness of their candidate fishery for electronic reporting. These questions are not intended to assure success of any program, but can guide the manager through steps and thought processes in the beginning of implementing ER so that major points are not missed.

**List of trigger questions**

1 Are local record keeping or reporting regulations in place to support, enable, or require ER?

2 Do the drivers exist to foster ER?

3 Does the fishery have the characteristics conducive to ER?

4 Are you designing methods for collaboration with all stakeholders over the program lifecycle?

5 Will the program provide sufficient incentives to industry to report electronically?

6 Do you foster a culture of continuity in funding, staff, and infrastructure?

7 Have you done a proof of concept-feasibility study first to learn what can and can't be done?

8 Can the program be designed to allow data access by stakeholders?

9 Will the program provide a variety of methods to electronically enter and submit data?

10 Will the program provide for immediate validation of data and business rules?

11 Will the database have back end integrity providing for minimum errors in data?

12 Is there an ongoing commitment to continuous training and support and maintenance?

13 Is there – or will you develop – a program to monitor success of the program?

14 Are you building on other's experience in implementing a similar ER program?

15 Have you reviewed the resources available on the FIS website regarding ER implementation similar to your needs:

- FIS Electronic Reporting Inventory
- FIS Center of Expertise Electronic Reporting Presentation Series
- FIS Past and Ongoing Projects Database

# Appendix B: Electronic Monitoring Area of Interest

The goal of fisheries monitoring is to provide cost-effective solutions for collecting fishery dependent data which meets the needs of a range of scientific, management, and compliance objectives. Building on others experiences provides a cost effective approach to developing an EM program. The FIS website at contains information about current national efforts in implementing EM and contacts and grant applicants are encouraged to review this information before developing a proposal. Based on the identified objectives, the design and implementation of any fishery monitoring program should consider the following:

- Timeliness of data delivery (e.g., in terms of GPS/VMS polling interval; transfer interval of video records or e-logbook records);
- Quality of data (e.g., in terms of accuracy, statistical variation and precision of estimates);
- Resolution of data (e.g., in terms of time/polling interval; geospatial scale; pixels/frame rates for images; Details of spatial, temporal and gear characteristics associated with catch to be collected for use in stock assessments, ecosystem science and socioeconomic purposes);
- Capability for integrating and reconciling data from different sources (e.g., interoperability standards; formats/coding conventions);
- Accessibility of data and statistical results to the various customers (e.g., frequency and timeliness of data availability including access/permissions by submitters, managers, other stakeholders, public, etc.);
- Data needs of customers, such that EM systems are designed to optimize timing and content for the documented needs;
- Industry-shared or borne costs of operation and maintenance (e.g., hardware and software purchase and lease/license agreements; communication charges; training and support contracts (if any)); and
- Flexibility to adapt to changing requirements (e.g., interactions with non-target and protected species, changes in annual total allowable catches, impacts on observer coverage).