Data Management Plan for NOAA, National Marine Fisheries Service Office of Protected Resources

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Contents

I. Purpose and Context

This document is the National Marine Fisheries Service (NMFS) data management plan (DMP) for the Office of Protected Resources (OPR)[1]. The goal of the DMP is to establish a series of annual improvements to data management that in turn will improve the effectiveness of NMFS in pursuit of its mission. It is used in conjunction with a National Oceanic and Atmospheric Administration (NOAA) data management plan as it pertains specifically to management standards and strategies for accessibility, interoperability and usability as stated in the NOAA Data Management Planning Procedural Directive[2]:

"NOAA Administrative Order (NAO) 212-15, Management of Environment Data and Information, states that environmental data is to be managed based upon a lifecycle that includes developing and following a data management plan. The purpose of this procedural directive is to expand upon this requirement for Data Management Plans (DMPs), direct managers of all data production projects and systems to write data management plans, and provide detailed guidance on who should write them and how to write them. It contains a template with questions to be considered and addressed in planning all data production projects."

- ***NOAA Data Management Planning Procedural Directive***

NMFS DMP is for improving the "*effectiveness*" of an organization by improving the way it manages data. *Effectiveness* is the achievement of organizational goals as it relates to data management. NMFS DMP should address the following effectiveness goals for their office data sets: capability, speed, efficiency, cost reduction and confidence of data. ***Capability*** refers to the ability to perform a particular analysis that is dependent on data management practices and cannot be assumed. ***Speed*** is the ability to provide data that requestors want or results as fast as possible. ***Efficiency*** means doing a task with fewer resources, or doing more with the same resources. ***Cost reduction*** is closely tied to efficiency but deserves special emphasis in times of shrinking budgets. NOAA, industry, and taxpayers must all have ***Confidence*** in our analytical results.[3]

The NOAA DMP is organized around the idea of the *data life cycle*[4], whereas the NMFS DMP is organized around *effectiveness goals* and corresponding *best practices*.[5] *Data Life Cycle Management (DLM)* is managing the flow of data that is driven by policy regarding the data/dataset life cycle (from initial collection, data set creation and initial storage to the period where the data becomes obsolete and achieved (if not deleted)).

Best practices of data management are determined by the organization's policies and procedures for handling data for legacy systems as well as newly integrated systems into

[1] https://www.st.nmfs.noaa.gov/confluence/display/edm/Enterprise+Data+Management+Topics
[2] https://www.nosc.noaa.gov/EDMC/documents/EDMC_PD-DMP_transmittal_v1.pdf
[3] https://www.st.nmfs.noaa.gov/confluence/pages/viewpage.action?spaceKey=edm&title=Effectiveness+Goals
[4] https://www.nosc.noaa.gov/EDMC/documents/EDMC-PD-DMP.pdf
[5] https://www.nosc.noaa.gov/EDMC/documents/NOAA_EDM_Framework_v1.0.pdf

the organizational infrastructure. This DMP identifies its most critical effectiveness goals and the corresponding best practices to achieve those goals for OPR.

NOAA DMPs are associated with data sets, whereas NMFS data management plans are associated with divisions or other organizations. The NOAA DMP does not have a particular update schedule, whereas the NMFS DMP is updated annually. The NOAA DMP is a checklist of essential data management information associated with the data in question.

II. Data Sets

Table 1 provides NMFS Office of Protected Resources (OPR) Data Sets. The purpose is to provide the name of the data set, the type of data being collected, the person that oversees the data and location where the data resides.

Name	OPR Division	Data Type	Steward / Contact	Location	InPort Catalog Number
Authorization and Permits for Protected Species (APPS)	PR1	relational database (SQL Server 2005), documents	Carrie Hubard, Laura Gutierrez, Jennifer Skidmore, Amy Sloan, Tammy Adams	NMFS WCRO	N/A
National Inventory of Marine Mammal System (NIMMS)	PR1	relational database Oracle Application Express (ApEx) /virtual machine)	Jennifer Skidmore, Laura Gutierrez, Carrie Hubard	NMFS OPR	N/A
MMPA & ESA Scientific Research Permits; Captive Research, and Post-act Import/Export of Parts	PR1	Documents (pdfs, word, excel)	Carrie Hubard, Laura Gutierrez, Jennifer Skidmore, Amy Sloan, Tammy Adams	NMFS OPR	12772, 12201, 12268
Pre-Act Parts	PR1	Documents (pdfs, word, excel)	Amy Sloan, Jennifer Skidmore	NMFS OPR	N/A
Incidental Take Authorizations (IHAs)	PR1	Documents (pdfs, word, excel)	Candace Nachman, Jolie Harrison	NMFS OPR	12771

Ocean Sounds and Acoustics Effects of Sound on Marine Environments (ESME)	PR2	Database and documents (pdfs, word, excel)	Amy Scholik-Schlomer	NMFS OPR, Boston University/Office of Navy Research	12787
Fisheries Interactions, Observer & Bycatch Issues	PR2	Documents (pdf, spreadsheets, word, etc)	Kristy Long, Lisa White	NMFS OPR	10685
Population Assessments, Conservation & Recovery (Fish Ecosystem)	PR2	PDF documents & website	Shannon Bettridge, Lori MacLennan	NMFS OPR	12782
Marine Mammal Authorization Program (MMAP)	PR2	Documents (pdf) & website	Lisa White	NMFS OPR	N/A
OPR document management system	PR2	End Note Software	Brian Bloodworth	NMFS OPR	N/A
Automatic Identification System (Vessel Tracking System)	PR2	SQL Postgres	Jeff Adams	Dept. of Transportation (NOAA Interagency Agreement)	N/A
Health Assessment Data	PR2	MS Access DB	Jeff Adams	NMFS OPR	N/A
FINBase Photo ID	PR2	MS Access DB	Jeff Adams	NMFS OPR	N/A
Marine Mammal Health and Stranding Response Program	PR2	Documents (pdf, spreadsheets, word, etc)	Teri Rowles, Sarah Wilkin, Trevor Spradlin Jaclyn Taylor	NMFS OPR	10611
Marine Mammal & Coral Reef Virtual Microscope	PR2	relational database (SQL Server), images	Angela Collins-Payne, Teri Rowles, Cheryl Woodley	NOAA ITC	12773
Marine Mammal Health and Stranding Response System (Level A & Rehab Disposition)	PR2	relational database (Oracle 11g), documents and images	Teri Rowles, Angela Collins-Payne, Sarah Wilkin	NMFS CIO	10588
Marine Mammal Unusual Mortality Event Database	PR2	relational database (Oracle 11g), documents, images and maps	Angela Collins-Payne, Trevor Spradlin, Teri Rowles, Sarah Wilkin, Jeff Adams	NMFS CIO	18440

Marine Mammal Unusual Mortality Event Database – Sample Tracking/Google Maps/Pathology	PR2 & SERO	MS Access & SQL Postgres	Jeff Adams	NMFS OPR	N/A
National Marine Mammal Tissue Bank Database	PR2	relational database (Oracle 11g), documents and images	Angela Collins-Payne, Rebecca Pugh, Teri Rowles	NMFS CIO	19089
Accession (D. Rotstien) DB	PR2	MS Access	Katie Brill	NMFS PR/Smithsonian	N/A
Large Whale Incident Reporting System	PR2	Relational database (Oracle 11g), images, maps, (PHP front-end)	Jamison Smith	NMFS GARFO	N/A
Marine Mammal Entanglement Response Image Server	PR2	Extensis Suitcase Fusion 5 Software	Jamison Smith	NMFS GARFO	N/A
Prescott Grants (Grants.gov)	PR2	Relational database, restricted website, Google docs and documents	Michelle Ordono, Jaclyn Taylor Teri Rowles	NMFS OPR (Googles Docs/Sites)	12783
Navy Coordination Website	PR2	Restricted website, Google docs and documents	Teri Rowles Jaclyn Taylor Lori Wilson	NOAA NOC (Network Operations Center)	N/A
Right Whale Recovery & Ship Strike	PR2	Documents (pdf, spreadsheets, word, etc)	Greg Silber	NMFS OPR	10682
Sea Turtle Conservation and Recovery ; Sea Turtle Stranding and Salvage Network Reporting System	PR2	relational database (Oracle 11g) and documents	Barbara Schroeder Wendy Teas	NMFS SEFSC	10680
Species Recovery Program (ROAR/ECOS)	PR3	Documents (pdfs, word, excel) and Oracle database	Therese Conant Larissa Plants	NMFS FWS	10616
Salmon, Critical Habitat	PR3	Documents	Marta	NMFS OPR	12788

& Aquaculture		(pdfs, word, excel)	Nammack		
Species of Concern (Section 6) (Grants.gov/Species Recovery Grants to States DB System)	PR3	Documents (pdfs, word, excel)	Lisa Manning	NMFS WCRO	12789
ESA Species Listings	PR3	Documents (pdfs, word, excel)	Lisa Manning	NMFS OPR	12790
Public Consultation Tracking Systems	PR5	Earn value pair database (Oracle 11g)	Paula Jones-Yates Stan Rodgers Samir Metha	NMFS CIO	12791
Section 7 Consultations/Biological Opinions	PR5	Documents (pdfs, word, excel)	Kellie Taylor Kris Petersen	NMFS OPR	12267
Water Quality Issues (Clean Water Act)	PR5	Documents (pdfs, word, excel)	Ron Dean Pat Shaw-Allen	NMFS OPR	22087
Pesticides Issues	PR5	Documents (pdfs, word, excel)	Scott Hecht Thom Hooper	NMFS OPR	22088
Freedom of Information Act (FOIA) and Records	PR4	Documents (pdfs, word, excel)	Lakesha Abney Peaches Hodges	NMFS OPR	12798
Task tracking and contracts spreadsheet	PR4	Excel Spreadsheet – G:/PRALL Directory	Wanda Cain, Brian Hayden, Pat Lawson, Laura Gutierrez	NMFS OPR	N/A
Contracts (C-Request /NOAA Links) & Financial Database (MARS/CBS)	PR4	Relational database	Brian Hayden, Pat Lawson	NMFS OPR, NOAA CIO, NOAA ITC	N/A
Control Correspondence Database (WebDocFlow);	PR4	Relational database, website, documents	Bill Payne	NMFS OPR	N/A
Property Inventory (Sunflower)	PR4	Relational database and spreadsheets	Bill Payne	DOC Sunflower Management Center (SMC)	N/A

Strategy Execution and Evaluation (SEE) (*refinement of Planning, Programming, Budgeting, and Execution System (PPBES)*)	PR4	Relational database documents and spreadsheets	Larissa Plants	NMFS OPR	12794
Outreach Education/ Internet	PR4	Websites & Documents	Jonathan Shannon* Lori MacLennon	NMFS OPR	12797

Table 1

The table below consists of the datasets which resides in NMFS regional offices or science center.

Name	OPR Division	Data Steward Contact	Location	Data Custodian Contact
Authorization and Permits for Protected Species (APPS)	PR1	Carrie Hubard, Laura Gutierrez	NMFS WCRO	Helen Kupeli Jerry Sutton
Large Whale Incident Reporting System	PR2	Jamison Smith	NMFS GARFO	Ken Ortiz
Marine Mammal Entanglement Response Image Server	PR2	Jamison Smith	NMFS GARFO	Ken Ortiz
Sea Turtle Stranding and Salvage Network Reporting System	PR2	Barbara Schroeder	NMFS SERO	Wendy Teas Lee Weinberger
Species Recovery Grants to States DB System	PR3	Lisa Manning	NMFS WCRO	Richard Kang

III. Data Providers

Table 2 contains the Office of Protected Resources (OPR) data providers for the data sets listed in Table 1. Data providers are organizations collecting data for another organization or systems that generate data sets for an organization or data sets are created and derived from another organization's system. Data providers include those external organizations which are the sources of OPR's data. OPR is its own data provider for data that it collects from an original, non-derived, source.

Data	Target Data Sets	OPR Division	Data Providers
Permit Data includes: • Scientific Research • Import for Public Display • Import/Export of Marine Mammal Parts • Incidental Take Authorization • Commercial Fishing Operation • Endangered Species	**Authorization and Permits for Protected Species (APPS)**	PR1	• Permit Holders • Stranding Network Participants • Non-Governmental Organization (NGO) • State & Federal Government Agencies • Universities/Colleges • Aquariums • Researchers and Scientists
Public Display Holders Data of Marine Mammals: • Person/Holder/Facility (PHF) Data Sheet • Marine Mammal Data Sheet • Marine Mammal Transfer/Transport Notification (MMTTN) Data Form	**National Inventory of Marine Mammal System (NIMMS)**	PR1	• Stranding Network Participants • Permit Holders • Non-Governmental Organization (NGO) • State & Federal Government Agencies • Universities/Colleges • Aquariums • Researchers and Scientists
Permit Data includes: • Scientific Research • Import for Public Display • Import/Export of Marine Mammal Parts • Incidental Take Authorization • Commercial Fishing Operation • Endangered Species	**MMPA & ESA Scientific Research Permits; Captive Research, and Post-act Import/Export of Parts**	PR1	• Stranding Network Participants • Permit Holders • Non-Governmental Organization (NGO) • State & Federal Government Agencies • Universities/Colleges • Aquariums • Researchers and Scientists
Permit Data includes: • Scientific Research • Import for Public Display • Import/Export of Marine Mammal Parts • Incidental Take Authorization	**Pre-Act Parts**	PR1	• Stranding Network Participants • Permit Holders • Non-Governmental Organization (NGO) • State & Federal Government Agencies

• Commercial Fishing Operation • Endangered Species			• Universities/Colleges • Aquariums • Researchers and Scientists
Permit Data includes: • Scientific Research • Import for Public Display • Import/Export of Marine Mammal Parts • Incidental Take Authorization • Commercial Fishing Operation • Endangered Species	**Incidental Take Authorizations (IHAs)**	PR1	• Stranding Network Participants • Permit Holders • Non-Governmental Organization (NGO) • State & Federal Government Agencies • Universities/Colleges • Aquariums • Researchers and Scientists
• Office of Navy Research Data • NOAA Acoustic Coordinators ListServ data • Acoustic Models • GIS data • Marine mammals movement and behavior simulator (biomimetics)	**Ocean Sounds and Acoustics Effects of Sound on Marine Environments (ESME)**	PR2	• NMFS HQ & Regional Offices • NOAA Sanctuaries • National Ocean Service • Office of Naval Research • Army Corp of Engineers • State & Federal Agencies
• Observer data • U.S. Fisheries data • Incidental Take Report data • Serious/Non-Serious Injury data	**Fisheries Interactions, Observer & Bycatch Issues**	PR2	• NOAA Observer Program • Take Reduction Teams • U.S. Fisheries • Fishermen • Public
• Observer data • U.S. Fisheries data • Take Reduction data	**Population Assessments, Conservation & Recovery (Fish Ecosystem)**	PR2	• NOAA Observer Program • Take Reduction Teams • U.S. Fisheries • Fishermen • Public
• Mortality/Injury Reporting Form	**Marine Mammal Authorization Program (MMAP)**	PR2	• Public

• OPR bibliographies citations, and other published biological and technical references	**OPR document management system**	PR2	• NMFS HQ & Regional Offices
• US Coast Guard (USCG) National AIS (NAIS) Network data • Automatic Info System (AIS) Log Files (USCG)	**Automatic Identification System (Vessel Tracking System)**	PR2	• Dept. of Transportation, Volpe Data Center
• Dolphin Captures Data • Sarasota Dolphin Research data	**Health Assessment Data**	PR2	• NMFS Regions & Science Centers • Sarasota Dolphin Research Center • Other US Researchers and Centers
• Cetaceans Sightings Images • Field data sheet	**FINBase Photo ID**	PR2	• Public
• Level A, B and C Data (*Refer to Appendix A)* • Rehab Disposition Data (Cetaceans & Pinnipeds) • Specimen Data • Clinical and Diagnostic Pathology data • Subsistence data • Seismic/Sonar data • Oil Spill data • Unusual Mortality Event data	**Marine Mammal Health and Stranding Response Program**	PR2	• NMFS Regions & Science Centers • Stranding Network Participants • Universities/Colleges • Government Agencies • Aquariums • Scientists & Researchers
• Level B & C Data (*Refer to Appendix A*) for Cetaceans, Pinnipeds and Corals	**Marine Mammal & Coral Reef Virtual Microscope**	PR2	• NMFS Regions & Science Centers • Stranding Network Participants • Universities/Colleges • Government Agencies • Aquariums • Scientists & Researchers

			• National Ocean Service/Coral Reef Program
• Level A Data Form (*Refer to Appendix A)* • Rehab Disposition Form (Cetaceans & Pinnipeds)	**Marine Mammal Health and Stranding Response System (Level A & Rehab Disposition)**	PR2	• NMFS Regions & Science Centers • Stranding Network Participants • Universities/Colleges • Government Agencies • Aquariums • Scientists & Researchers
• Level A, B and C data • Necropsy Reports • Clinical and Diagnostics Pathology Reports • UME Mapping data	**Marine Mammal Unusual Mortality Event Database**	PR2	• Working Group for Marine Mammals Unusual Mortality Events (UME) • NMFS Regional Stranding Coordinators • On-Site UME Stranding Network Coordinators • Stranding Network Participants • Scientists & Researchers
• UME Specimen data • UME Mapping data	**Marine Mammal Unusual Mortality Event Database – Sample Tracking/Google Maps/Pathology**	PR2	• NMFS Regional Stranding Coordinators and Headquarters
• National Marine Mammal Tissue Bank Form • Level B & C Data (Kidney, Blubber & Liver of Cetaceans & Pinnipeds)	**National Marine Mammal Tissue Bank Database**	PR2	• NMFS Headquarters, Regions & Science Centers • U.S. Geological Survey (USGS) Biological Resources Division • Stranding Network Participants • Universities/Colleges • Government Agencies • Aquariums • Scientists & Researchers
• Diagnostic Pathology Reports	**Accession (D. Rotstien) DB**	PR2	• NMFS Regions & Science Centers

			• Stranding Network Participants • Universities/Colleges • Government Agencies • Aquariums • Scientists & Researchers
• Cetaceans Sightings Images • Field data sheet	**Large Whale Incident Reporting System**	PR2	• NMFS GARFO • Stranding Network Participants • Researchers • Scientists • Public
• Cetaceans Sightings Images	**Marine Mammal Entanglement Response Image Server**	PR2	• Public
• Grants Application Package: o SF-424 (A-D), o CD-511/CD-512 and o SF-LLL	**Prescott Grants (Grants.gov)**	PR2	• Stranding Network Participants • Government Agencies • Universities/Colleges • Aquariums • Researchers • Scientists
• Protocols • Maps • Emails of Seismic Activity • Seismic Surveys, Testing and Training Data • Records of Training Exercises • Stranding events within training ranges	**Navy Coordination Website**	PR2	• US Navy • NMFS Regional Stranding Coordinators and Headquarters
• Ship Strike Reporting • Right Whale Sightings • Right Whale Recovery Plans	**Right Whale Recovery & Ship Strike**	PR2	• Public • US Coast Guard • NMFS Regional Stranding Coordinators and Headquarters • Researchers

			• Scientists
• Sea Turtle Stranding and Salvage Network - Stranding Report	**Sea Turtle Conservation and Recovery ; Sea Turtle Stranding and Salvage Network Reporting System**	PR2	• Sea Turtle Stranding and Salvage Network • Universities/Colleges • Government Agencies • Scientists & Researchers
• Endangered Species Recovery plans	**Species Recovery Program (ROAR/ECOS)**	PR3	• NMFS Headquarters, Regions and Science Centers • US Fish and Wildlife Service (FWS) Regional and Washington Staff • US FWS Field Office Biologists
• Regulations • Maps • Environmental Protection Agency (EPA) Data • State Data • Literature • Internet • GIS Data	**Salmon, Critical Habitat & Aquaculture (Critical Habitat Overlay GIS Tool)**	PR3	• Public • Non-Governmental Organization (NGO) • Government Agencies • Universities/Colleges • Aquariums • Researchers • Scientists
• Grants Application Package: o SF-424 (A-D), o CD-511/CD-512 and o SF-LLL • Information from Species Recovery Plans	**Species of Concern (Section 6) (Grants.gov/Species Recovery Grants to States DB System)**	PR3	• Public • Non-Governmental Organization (NGO) • Government Agencies • Universities/Colleges • Aquariums • Researchers • Scientists
• US Fish and Wildlife • Recovery and Conservation plans	**ESA Species Listings**	PR3	• NMFS Headquarters, Regions and Science Centers • U.S. Fish and Wildlife Service • Researchers and Scientists

• Environmental Protection Agency (EPA) Data • State Data • Literature • Internet • GIS Data	**Public Consultation Tracking Systems**	PR5	• Public • Non-Government Organizations (NGO) • Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists
• Environmental Protection Agency (EPA) Data • State Data • Literature • Internet • GIS Data	**Section 7 Consultations/Biological Opinions**	PR5	• Public, • Non-Government Organizations (NGO) • Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists
• Environmental Protection Agency (EPA) Data • State Data • Literature • Internet • GIS Data	**Water Quality Issues (Clean Water Act)**	PR5	• Public, • Non-Government Organizations (NGO) • Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists
• Environmental Protection Agency (EPA) Data • State Data • Literature • Internet • GIS Data	**Pesticides Issues**	PR5	• Public, • Non-Government Organizations (NGO) • Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists
• Emails • Memos • Biological Opinions • Maps • Letters • Documents	**Freedom of Information Act (FOIA) and Records**	PR4	• Public • NOAA FOIA Office • NMFS Headquarters, Regions and Science Centers
• Emails • NOAA Links	**Task tracking and contracts spreadsheet**	PR4	• OPR Headquarters

Worksheets • MOU, IPA			
• C-Requests • NOAA Links Worksheets • Section 508 • Independent Gov't Cost Statements • Sole Source Justifications • Purchase Cards Receipt data	**Contracts (C-Request /NOAA Links) & Financial Database (MARS/CBS)**	PR4	• OPR Headquarters • NOAA Finance
• Memos • Letters • Other supporting documents	**Control Correspondence Database (WebDocFlow);**	PR4	• OPR Headquarters
• Property Bar Code • NOAA Bar code • Property Description • Property Cost • Property Assignment • Property Location	**Property Inventory (Sunflower)**	PR4	• OPR Headquarters
• Strategic Plans • Budgets • Performance-based measures • Strategic Objectives • Annual Priorities	**Strategy Execution and Evaluation (SEE)**	PR4	• OPR Headquarters
• Educational documents • Scientific Images	**Outreach Education/Internet**	PR4	• OPR Headquarters

Table 2

IV. Data Consumers

Table 3 contains the Office of Protected Resources data consumers and a list of how the consumer is using the data. A data consumer is an individual, NMFS Division or an external organization that is requesting information, reports, publications or studies from a particular data set. The data may be used for computational or statistical analysis. OPR is its own data consumer for the data that is used to create end products such as analyses and reports.

Source Data Sets	OPR Division	Data Consumer	Consumers Use of Data
Authorization and Permits for Protected Species (APPS)	PR1	• NMFS Headquarters, Regions and Science Centers • Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • NMFS OPR Monthly Workload Reports • Guidelines • Regulations and Policies
National Inventory of Marine Mammal System (NIMMS)	PR1	• NMFS Headquarters, Regions and Science Centers • Public • Non-Government Organizations (NGO) • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists • Media	• FOIA Requests • Media, Research & Holder Requests • Summary Reports • Transfer History Reports • Guidelines • Regulations and Policies
MMPA & ESA Scientific Research Permits; Captive Research, and Post-act Import/Export of Parts	PR1	• NMFS Headquarters, Regions and Science Centers • Public • Non-Government Organizations (NGO) • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • NMFS OPR Monthly Workload Reports • Guidelines • Regulations and Policies • FR Notices
Pre-Act Parts	PR1	• NOAA NMFS Headquarters,	• FOIA Requests

		Regions and Science Centers • Public • Non-Government Organizations (NGO) • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• Reports to Congress • NEPA Documents • Biological Opinions • NMFS OPR Monthly Workload Reports • Guidelines • Regulations and Policies
Incidental Take Authorizations (IHAs)	PR1	• NOAA NMFS Headquarters, Regions and Science Centers • Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • NMFS OPR Monthly Workload Reports • Guidelines • Regulations and Policies • FR Notices
Ocean Sounds and Acoustics Effects of Sound on Marine Environments (ESME)	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • NOAA Sanctuaries • National Ocean Service • Navy/Office of Naval Research • Army Corp of Engineers • State & Federal Agencies • Oil & Gas Companies • Waste Industries • Scientists with research permits (re: fish to noise)	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Guidelines • Regulations and Policies
Fisheries Interactions, Observer & By catch Issues	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Public • Non-Government Organizations	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions

		• Government Agencies • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• Guidelines • Regulations and Policies
Population Assessments, Conservation & Recovery (Fish Ecosystem)	PR2	• Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • OPR Website Content • Tech Memos • Permits • Reserach
Marine Mammal Authorization Program (MMAP)	PR2	• Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Guidelines • Regulations and Policies
OPR Document Management System	PR2	• NMFS Headquarters	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers
Automatic Identification System (Vessel Tracking System)	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Federal & State Government Agencies • Public	• FOIA Requests • Reports to Congress • Guidelines • Regulations • Policies
Health Assessment	PR2	• NOAA NMFS Headquarters,	• FOIA Requests

Data		Regions and Science Centers	• Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers
FINBase Photo ID	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers
Marine Mammal Health and Stranding Response Program	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Stranding Network Participants • Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers • Guidelines • Regulations • Policies • FR Notices
Marine Mammal & Coral Reef Virtual Microscope	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Stranding Network Participants • Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers • Guidelines • Regulations

		• Universities/Colleges • Aquariums • Researchers and Scientists	• Policies • Educational Research • Educational Assignments
Marine Mammal Health and Stranding Response System (Level A & Rehab Disposition)	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Stranding Network Participants • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• Level A Reports • Rehab Dispo Reports • Data Queries Excel Spreadsheets • FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers • Guidelines • Regulations • Policies • FR Notices
Marine Mammal Unusual Mortality Event Database	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Stranding Network Participants • Working Group on Marine Mammal Unusual Mortality Events	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers • Guidelines • Regulations • Policies • FR Notices
Marine Mammal Unusual Mortality Event Database – Sample Tracking/Google Maps/Pathology	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Stranding Network Participants • Working Group on Marine Mammal Unusual Mortality Events	• FOIA Requests • Reports to Congress • Published Articles • OPR Website Content

National Marine Mammal Tissue Bank Database	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • USGS Biological Research Division • Stranding Network Participants • Public • Non-Government Organizations • Government Agencies, • Marine Mammal Commission • Universities/Colleges • Aquariums • Researchers and Scientists	• FOIA Requests • Reports to Congress • NEPA Documents • Biological Opinions • Published Articles • Research Papers • Guidelines • Regulations • Policies • FR Notices
Accession (D. Rotstien) DB	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Stranding Network Participants	• FOIA Requests • Reports to Congress • Presentations • Research Studies
Large Whale Incident Reporting System	PR2	• NOAA NMFS Headquarters, GARFO Region and Science Centers • Stranding Network Participants • Marine Mammal Commission	• FOIA Requests • Reports to Congress • Biological Opinions • Published Articles • Research Papers • Guidelines • Regulations • Policies
Marine Mammal Entanglement Response Image Server	PR2	• Public	• FOIA Requests • Reports to Congress • Biological Opinions • Published Articles • Research Papers
Prescott Grants (Grants.gov)	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Stranding Network Participants	• Reports to Congress
Navy Coordination Website	PR2	• NOAA NMFS Headquarters, Regions and Science Centers	• FOIA Requests

			• Reports to Congress • Biological Opinions • Guidelines • Regulations • Policies
Right Whale Recovery & Ship Strike	PR2	• NOAA NMFS Headquarters, Regions and Science Centers • Marine Mammal Commission • Standing Network Participants • Fishery Industries • Researchers and Scientists	• FOIA Requests • Reports to Congress • Biological Opinions • Published Articles • Research Papers • Guidelines • Regulations • Policies
Sea Turtle Conservation and Recovery ; Sea Turtle Stranding and Salvage Network Reporting System	PR2	• Sea Turtle Stranding and Salvage Network • Government Agencies • Non-Government Organizations • Universities/Colleges • Public	• FOIA Requests • Reports to Congress • Biological Opinions • NEPA Reports • Published Articles • Research Papers • Guidelines • Regulations • Policies • FR Notices • Tech Memos
Species Recovery Program (ROAR/ECOS)	PR3	• NMFS Headquarters, Regions and Science Centers • US Fish and Wildlife Service (FWS) Regional and Washington Staff • US FWS Field Office Biologists • General Public and Partners	• Recovery Plans Listings & Tracking Reports • Recovery Plans & Addendums • Pre-decisions & Decision Memos • Notes of Final Decisions • Government Performance and Results Act (GPRA) Performance Measure Reports • Biological Opinion

			• Regulations • Policies • Guideline
Salmon, Critical Habitat & Aquaculture	PR3	• Public • Non-Governmental Organization (NGO) • Government Agencies • Universities/Colleges • Aquariums • Researchers • Scientists	• FOIA Requests • Reports to Congress • Biological Opinions • NEPA Reports • Regulations • Policies • Guidelines
Species of Concern (Section 6) (Grants.gov/Species Recovery Grants to States DB System)	PR3	• Public • Non-Governmental Organization (NGO) • Government Agencies • Universities/Colleges • Aquariums • Researchers • Scientists	• Reports to Congress
ESA Species Listings	PR3	• NMFS Headquarters, Regions and Science Centers • U.S. Fish and Wildlife Service • Researchers and Scientists	• FOIA Requests • Reports to Congress • Biological Opinions • NEPA Reports • Regulations • Policies • Guidelines
Public Consultation Tracking Systems	PR5	• Public • Non-Government Organizations (NGO) • Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists	• Enhanced General Reports (EGR) • Enhanced Fisheries Habitat (EFH) Performance Reports • Ad Hoc – IBM Cognos Reports
Section 7 Consultations/Biological Opinions	PR5	• Public, • Non-Government Organizations (NGO)	• Biological Opinions • Letters of Concurrence • FOIA Requests

		• Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists	• Reports to Congress • NEPA Reports • Regulations • Policies • Guidelines
Water Quality Issues (Clean Water Act)	PR5	• Public, • Non-Government Organizations (NGO) • Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists	• Biological Opinions • Letters of Concurrence • FOIA Requests • Reports to Congress • NEPA Reports • Regulations • Policies • Guidelines
Pesticides Issues	PR5	• Public, • Non-Government Organizations (NGO) • Government Agencies • Universities/Colleges, • Aquariums • Researchers and Scientists	• Biological Opinions • Letters of Concurrence • FOIA Requests • Reports to Congress • NEPA Reports • Regulations • Policies • Guidelines
Freedom of Information Act (FOIA) and Records	PR4	• Public • NOAA FOIA Office • NMFS Headquarters, Regions and Science Centers	• Research • Lawsuits • News Media • Published articles or books • Information
Task tracking and contracts spreadsheet	PR4	• OPR Headquarters	• Track Budgets • Track Supplies • Workstation Set-ups • Track Cubicle Assignments
Contracts (C-Request /NOAA Links) & Financial Database (MARS/CBS)	PR4	• OPR Headquarters • NOAA Finance	• Procurements • Requisitions • Track Budgets
Control Correspondence Database	PR4	• NMFS Office of Management and Budget	• Letters

(WebDocFlow);		• OPR Headquarters	• Memos • FOIA Requests
Property Inventory (Sunflower)	PR4	• OPR Headquarters • NOAA Sunflower Management System • NOAA Personal Property Management Branch (PPMB)	• Track Property Assignments
Strategic Execution & Evaluation (SEE)	PR4	• NMFS Office of Management and Budget • OPR Headquarters	• Short-term & Long Term Budget Plans • OPR Strategic Plans
Outreach Education/PR Internet	PR4	• OPR Headquarters, Regions, and Science Centers • Public	• Educational Tools • Teachers: Lesson Plans • Children: Activities & Games • Student Internships • Events Notices

Table 3

V. Best Practices Currently in Use

Office of Protected Resources request that field researchers, scientists, and investigators who are authorized as data collectors and providers should follow NOAA guidelines and best practices to improve the usability of their data sets.

NMFS Enterprise Data Management (EDM) has provided the following list of best practices that are currently being applied to data sets: *data access, documentation, integrated systems, ergonomic data collection, reduced reporting burden, quality assurance and quality control, state of the art at sea communications, consistent definitions, streamlining, master data stores, change tracking, separation of obsolete and working data sets, standardization use of data types, clean table design and naming conventions, same site storage and computation services for bulk data and automation of repetitive data processing.*

Table 4 provides a list of OPR data sets and best practices currently being used for each data set.

OPR Data Set	Best Practice	Approach Used
Authorization and Permits for Protected Species (APPS)	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking • Standardized use of data types • Clean table design and naming conventions	**Data Access (External and Internal):** **Maximize Authorization:** APPS users can only access the records that they have rights to. In the case of researchers, they can access any records they have entered as well as any records that they are listed as main contacts on (i.e. Principal Investigator, Responsible Party, or Primary Contact). **Discoverable Data:** APPS users with read-only access to records that they are associated with as a co-investigator or in another project-specific role are able to use search engine for records. Anyone with a user account would also, obviously, have the ability to see (but not edit) records available to the general public. **Protection from Loss:** APPS data protected by established standards for secure system access and data archiving within the NWFSC. **Documentation:** Electronic documentation of APPS data definitions and business processes as well as on-line instructions to complete application. **Quality Assurance and Quality Controls**: System Data Entry Controls and Data Steward/PR1 Staff Validation **Consistent definitions:** System data definitions are consistent with users

		understanding business rules. **Change Tracking**: System tracks data changes and Data Steward/PR1 Staff validates modifications and performs audit controls. **Standardized use of data type**s: System uses SQL Server 2005 data types for following: A. Numeric (INTEGER) data types: int, smallint and tinyint; B. Alpha data type: CHAR() C. Alpha Numeric VARCHAR() D. Date and time is smalldatetime, System format: YYYY-MM-DD HH:MM:SS **Clean table design and naming conventions** SQL Server 2005; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
National Inventory of Marine Mammal System (NIMMS)	• Data Access • Discoverable Data • Documentation • Standardized use of data types • Quality assurance and quality control • Consistent definitions • Change Tracking • Clean table design and naming conventions	**Data Access (Internal Only)** NMMS system is only accessible by the Data Steward and resides on a desktop computer. **Discoverable Data:** Data Steward performs queries for data requests from users. **Documentation:** Electronic documentation of NIMMS data definitions and business processes as well as on-line instructions to complete public display form. **Standardized use of data type**s: System uses Oracle APEX data types for following: A. Numeric: NUMBER() B. Alpha Numeric: VARCHAR() C. Date and time is TIMESTAMP Format: DD-MON-YY HH:MM:SS D. Date: DD-MON-YY **Quality Assurance and Quality Controls**: System Data Entry Controls and Data Steward/PR1 Staff Validation **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: System tracks data changes and Data Steward/PR1 Staff validates modifications and performs audit controls. **Clean table design and naming conventions**

		Oracle APEX; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
MMPA & ESA Scientific Research Permits; Captive Research, and Post-act Import/Export of Parts	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic Permit documents; **Location**: Network (G://)drive under "Active Permits" under 5-digit permit number **2.** Other electronic documents, i.e, letters, memos, spreadsheets, pdfs, etc**. Locations**: Network (G://)drive **3.** Paper documents re: FOIA/Lawsuits. **Location**: OPR File Room **Consistent definitions:** Data is consistent with business rules and regulations **Change Tracking:** Data Steward/PR1 Staff is responsible to track changes and validate correctness to electronic documents on G:network drive.
Pre-Act Parts	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic Permit documents; **Location**: Network (G://)drive under "Active Permits" under 5-digit permit number **2.** Other electronic documents, i.e, letters, memos, spreadsheets, pdfs, etc**. Locations**: Network (G://)drive **3.** Paper documents re: FOIA/Lawsuits. **Location**: OPR File Room **Consistent definitions:** Data is consistent with business rules and regulations **Change Tracking:** Data Steward/PR1 Staff is responsible to track changes and validate correctness to electronic documents on G:network drive.
Incidental Take Authorizations (IHAs)	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic Permit documents; **Location**: Network (G://)drive under "Active Permits" under 5-digit permit number **2.** Other electronic documents, i.e, letters, memos, spreadsheets, pdfs, etc**. Locations**: Network (G://)drive **3.** Paper documents re: FOIA/Lawsuits. **Location**: OPR File Room **Consistent definitions:** Data is consistent with business rules and regulations

		Change Tracking: Data Steward/PR1 Staff is responsible to track changes and validate correctness to electronic documents on G:network drive.
Ocean Sounds and Acoustics Effects of Sound on Marine Environments (ESME)	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G:network drive.
Fisheries Interactions, Observer & Bycatch Issues	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G:network drive.
Population Assessments, Conservation & Recovery (Fish Ecosystem)	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and OPR Internet Site **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G:network drive and OPR Internet site.
Marine Mammal Authorization Program (MMAP)	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G:network drive and Google Drive site.

OPR document management system	• Data Access • Quality assurance and quality control • Consistent definitions • Change Tracking	**Data Access (Internal Only)** EndNote COTS is only accessible by OPR staff and resides on desktop computer in the OPR graphic room. **Quality assurance and quality control:** System application controls and NMFS OPR EndNote Admin. **Documentation:** System **r**eferences of documentation **Consistent definitions:** Data is consistent with system standards **Change Tracking:** EndNote system tracks data changes and Data Steward/PR1 Staff validates modifications and performs audit controls**.**
Automatic Identification System (Vessel Tracking System)	• Data Access • Discoverable Data • Protection from Loss • Documentation • Standardized use of data types • Quality assurance and quality control • Consistent definitions • Change Tracking • Clean table design and naming conventions	**Data Access (Internal Only)** AIS system is only accessible by the Data Steward. The data resides on the Volpe Data Center, Department of Transportation and it is NOT accessible to the public. On a monthly basis, raw data from the National AIS feed is decoded into a CSV text file by VOLPE using their TV32 software. A custom PL/SQL import function is then used by OPR Data Steward to import the data from the CSV text file into the PostgreSQL/PostGIS database **Discoverable Data:** Data Steward performs queries for data requests from users from the PostgreSQL/PostGIS database. **Protection from Loss:** AIS data protected by established backup standards by VOLPE Data Center and OPR Data Steward responsible for backing up the PostgreSQL/PostGIS database on a monthly basis. **Documentation:** Electronic documentation for AIS resides at the VOLPE Data Center. Documentation regarding OPR process for data access reside on Data Steward G: drive. **Standardized use of data type**s: PostgreSQL/PostGIS database system data types are as followings: A. Numeric: NUMERIC() Integer: INTEGER data types: int, bigint and smallint

		Double Pecisions B. Alpha Numeric: CHARACTER(), TEXT C. Date and time is TIMESTAMP WITHOUT TIME ZONE D. Format: DD-MON-YY HH:MM:SS **Quality Assurance and Quality Controls**: Raw data from the National AIS feed is decoded into a CSV text file by VOLPE using their TV32 software that can be used by a custom PL/SQL import function created by OPR Data Steward to import the data from the CSV text file into the PostgreSQL/PostGIS database. The Data Steward validates that the data base columns, rows and data types are correct. On an analysis basis, the Data Steward checks the accuracy of the data. **Consistent definitions:** AIS data definitions are consistent with business rules set at VOLPE Data Center, Department of Transportation **Change Tracking**: AIS data changes are tracked at the VOLPE Data Center, Dept. of Transportation. Data changes from the bulk data import that the Data Steward validates and modifies are tracked in the PostgreSQL/PostGIS database. **Clean table design and naming conventions** The PostgreSQL/PostGIS database: Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
Health Assessment Data	• Data Access • Discoverable Data • Protection from Loss • Documentation • Standardized use of data types • Quality assurance and quality control • Consistent definitions • Change Tracking	**Data Access (Internal Only)** The Health Assessment Data is MS Access database that resides at OPR Data Steward desktop and NOS Data Manager Lori Schwacke and Leslie Hart at Hollings Marine Lab (HML) **Discoverable Data:** OPR Data Steward and NOS Data Manager performs queries for data requests from users from the PostgreSQL/PostGIS database. **Protection from Loss:** OPR Data Steward responsible for backing up the MS Access database

	• Clean table design and naming conventions	**Documentation:** No formal electronic documentation. **Standardized use of data type**s: System uses MS Access data types for following: A. Numeric: NUMBER, LONGBINARY & BINARY B. Alpha Numeric: TEXT, LONGTEXT, VARCHAR & MEMO C. Date and time is DATETIME Format: DD-MON-YY HH:MM:SS **Quality assurance and quality control**: The OPR Data Steward validates that the data base columns, rows and data types are correct. NOS Data Manager, Leslie Hart, validates the data accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: OPR Data Steward and NOS Data Managers tracks data changes **Clean table design and naming conventions** MS Access; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
FINBase Photo ID	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking • Standardized use of data types • Clean table design and naming conventions	**Data Access (Internal & External Only)** FinBase system is accessible by NOAA and Public at OPR website (http://www.nmfs.noaa.gov/pr/species/finbase.htm). **Discoverable Data:** FINBase is a database tool that users download to store and query data. **Protection from Loss:** OPR Data Steward responsible for backing FinBase data for our office. However, users who download the tool are responsible for backing up their own data. **Documentation:** Electronic documentation of FIN Base on OPR Public Internet Siste. **Standardized use of data type**s: System MS Access data types for following: A. Numeric: NUMBER() B. Alpha Numeric: VARCHAR() C. Date and time is TIMESTAMP Format: DD-MON-YY HH:MM:SS D. Date: DD-MON-YY

		Quality assurance and quality control: The OPR Data Steward validates that the data base columns, rows and data types are correct. Users are responsible for validating their own data for accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: OPR Data Steward and tracks data changes for FINBase data collected in the office. Users are responsible for tracking their own changes. **Clean table design and naming conventions** MS Access; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
Marine Mammal Health and Stranding Response Program (MMHSRP)	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive; Google Drive site, OPR Internet and ALL database systems.
Marine Mammal & Coral Reef Virtual Microscope (Aperio Virtual Microscope)	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking • Standardized use of data types	**Data Access (Restricted Internal & External)** Aperio Virtual Microscope system has restricted access to NMFS Regional Stranding Coordinators, Headquarters and Stranding Network Participants and NOS Coral Reef Staff and Educational Institutes. The system is hosted on the server in NOAA ITC. **Discoverable Data:** Virtual Microscope application provides a query tool as part of the software. **Protection from Loss:** NOAA ITC is responsible for system weekly back-ups. **Documentation:** Electronic documentation of the Aperio Virtual Microscope is on-line from the application. **Standardized use of data type**s: System uses SQL Server 2005 data types for following:

	• Clean table design and naming conventions	A. Numeric (INTEGER) data types: int, bigint, smallint and tinyint; B. Alpha data type: CHAR() C. Alpha Numeric VARCHAR() D. Date and time is smalldatetime, System format: YYYY-MM-DD HH:MM:SS **Quality assurance and quality control**: Aperio Virtual Microscope software has built-in controls. NMFS OPR and NOS users perform data validation and accuracy **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: The system application tracks data changes **Clean table design and naming conventions** SQL Server 2005; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions via Data Steward and Tech support
Marine Mammal Health and Stranding Response System (MMHSPR) Database Application (Level A & Rehab Disposition)	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking • Standardized use of data types • Clean table design and naming conventions	**Data Access (Restricted Internal & External)** MMHSRP system has restricted access to NMFS Regional Stranding Coordinators, Headquarters and Stranding Network Participants. The system is hosted on the server in NMFS OCIO. **Discoverable Data:** MMHSRP Application provides a query tool and IBM Cognos reporting tool to query the data. **Protection from Loss:** NMFS OCIO is responsible for system weekly back-ups. **Documentation:** Electronic documentation of data definitions and business rules are on-line and accessible from application and OPR Internet Site. Metadata resides in InPort. **Standardized use of data type**s: System uses Oracle APEX data types for following: A. Numeric: NUMBER B. Alpha Numeric: VARCHAR2() C. Date and time is DATE/TIME Format: DD-MON-YYYY/HH:MM:SS **Quality assurance and quality control**: System Data Entry Controls and NMFS Regional Stranding Coordinators performs

		validation **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: System application tracks data changes to data **Clean table design and naming conventions** Oracle 11g; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
Marine Mammal Unusual Mortality Event (UME) Database	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking • Standardized use of data types • Clean table design and naming conventions	**Data Access (Restricted Internal & External)** UME system has restricted access to NMFS Regional Stranding Coordinators, Headquarters and Stranding Network Participants. The system is hosted on the server in NMFS OCIO. **Discoverable Data:** UME Application provides a search engine to query data **Protection from Loss:** NMFS OCIO is responsible for system weekly back-ups. **Documentation:** Electronic documentation of data definitions and business rules are on-line and accessible from application. Metadata resides in InPort. **Standardized use of data type**s: System uses Oracle 11g data types for following: A. Numeric: NUMBER B. Alpha Numeric: VARCHAR2() C. Date and time is DATE/TIME Format: DD-MON-YYYY/HH:MM:SS **Quality assurance and quality control**: System data entry controls and NMFS Regional Stranding Coordinators performs validation **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: System application tracks data changes to data **Clean table design and naming conventions** Oracle 11g; Entity-Relationship Diagram; Referential Integrity and consistent naming

		conventions
Marine Mammal Unusual Mortality Event (UME2) Database – Sample Tracking/Google Maps/Pathology	• Data Access • Discoverable Data • Protection from Loss • Documentation • Standardized use of data types • Quality assurance and quality control • Consistent definitions • Change Tracking • Clean table design and naming conventions	**Data Access (Restricted Internal & External)** Marine Mammal Unusual Mortality Event/Sample Tracking is MS Access database that resides at OPR Data Steward desktop and SERO Data Managers Jenny Litz and Liz Stratton **Discoverable Data:** OPR Data Steward and SERO Data Manager performs queries for data requests from users from the MS Access database. **Protection from Loss:** OPR Data Steward responsible for backing up the MS Access database **Documentation:** No formal electronic documentation. **Standardized use of data type**s: System uses MS Access data types for following: D. Numeric: NUMBER, LONGBINARY & BINARY E. Alpha Numeric: TEXT, LONGTEXT, VARCHAR & MEMO F. Date and time is DATETIME Format: DD-MON-YY HH:MM:SS **Quality assurance and quality control**: The OPR Data Steward validates that the data base columns, rows and data types are correct. SERO Data Managers validates the data accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: OPR Data Steward and SERO Data Managers tracks data changes **Clean table design and naming conventions** MS Access; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
National Marine Mammal Tissue Bank Database (NMMTB)	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation	**Data Access (Restricted Internal & External)** NMMTB system has restricted access for data entry by Data Steward at NIST. PUBLIC can view and query records. The system is hosted on the server in NMFS OCIO. **Discoverable Data:** NMMTB application provides a search engine to query the data.

	• Quality assurance and quality control • Consistent definitions • Change Tracking • Standardized use of data types • Clean table design and naming conventions	**Protection from Loss:** NMFS OCIO is responsible for system weekly back-ups. **Documentation:** Electronic documentation of data definitions and business rules are on-line and accessible from application and OPR Internet Site. Metadata resides in InPort. **Standardized use of data type**s: System uses Oracle 11g data types for following: A. Numeric: NUMBER B. Alpha Numeric: VARCHAR2() C. Date and time is DATE/TIME Format: DD-MON-YYYY/HH:MM:SS **Quality assurance and quality control**: System data entry controls and NIST Data Steward performs validation and data accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: System application tracks data changes to data **Clean table design and naming convention**s Oracle 11g; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
Accession (D. Rotstein) DB	• Data Access • Discoverable Data • Protection from Loss • Documentation • Standardized use of data types • Quality assurance and quality control • Consistent definitions • Change Tracking • Clean table design and naming conventions	**Data Access (Internal Only)** Accessions database is MS Access database that resides at OPR Data Steward desktop **Discoverable Data:** Data Steward responsible for querying system for data request . **Protection from Loss:** Data Steward responsible for backing up the MS Access database **Documentation: E**lectronic documentation on G: network drive **Standardized use of data type**s: System uses MS Access data types for following: A. Numeric: NUMBER, LONGBINARY & BINARY B. Alpha Numeric: TEXT, LONGTEXT, VARCHAR & MEMO C. Date and time is DATETIME Format: DD-MON-YY HH:MM:SS **Quality assurance and quality control**: The

		Data Steward validates the data accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: Data Steward tracks data changes **Clean table design and naming conventions** MS Access; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions
Large Whale Incident Reporting System	• Data Access • Discoverable Data • Protection from Loss • Documentation • Standardized use of data types • Quality assurance and quality control • Consistent definitions • Change Tracking • Clean table design and naming conventions	**Data Access (Internal Only)** Large Whale Incident Reporting System database is Oracle 11g database that is hosted at Greater Atlantic Regional Fisheries Office (GARFO) **Discoverable Data:** Data Steward responsible for querying system for data request s. **Protection from Loss:** GARFO responsible for backing up the database **Documentation:** Electronic documentation at GARFO. **Standardized use of data type**s: System uses Oracle 11g data types for following: System uses Oracle 11g data types for following: A. Numeric: NUMBER B. Alpha Numeric: VARCHAR2() C. Date and time is DATE/TIME Format: DD-MON-YYYY/HH:MM:SS **Quality assurance and quality control**: The Data Steward validates the data accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: Data Steward tracks data changes **Clean table design and naming conventions** Oracle 11g; Entity-Relationship Diagram; Referential Integrity and consistent naming conventions

Marine Mammal Entanglement Response Image Server	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking • Standardized use of data types • Clean table design and naming conventions	**Data Access (Restricted Internal & External Only)** Image server system is accessible by NOAA and Public at GARFO website (https://nerprdweb.nero.noaa.gov/). **Discoverable Data:** Image Server is a database tool that users can query image data. **Protection from Loss:** GARFO IT Division is responsible for backing up the database. **Documentation:** Electronic documentation at GARFO. **Standardized use of data type**s: System data types are defined by COTS Extensis software. **Quality assurance and quality control**: Data Steward validates that the data base columns, rows and data types are correct as well as data for accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: System and Data Steward tracks data changes for data collection. **Clean table design and naming convention**s Extensis software.
Prescott Grants (Grants.gov)	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking	**Data Access (Internal & External Only)** Grants.gov system is a Public website (http://www.grants.gov/web/grants/home.html) managed by Federal Government Partners. P **Discoverable Data:** Grants.gov is a database search engine tool for users. **Protection from Loss:** The system Federal Government Partners are responsible for system backups **Documentation:** Electronic documentation of Prescott grants are on Grants.gov and Google Docs. **Quality assurance and quality control**: Data Steward validates data for accuracy. **Consistent definitions:** System data definitions are consistent with business rules as determine by Grants.gov.

		Change Tracking: Data Steward tracks data changes for grants data collected.
Navy Coordination Website	• Data Access • Discoverable Data • Protection from Loss • Documentation • Quality assurance and quality control • Change Tracking	**Data Access (Internal Only)** Navy Coordination Website is only accessible by NMFS Regional Stranding Coordinators and Headquarters **Discoverable Data:** NMFS Regional Stranding Coordinators and Headquarters users can query system. **Protection from Loss:** NOAA WOC (Web Operations Center) responsible for backing up the website **Documentation:** Electronic documentation resides on the website **Quality assurance and quality control**: The Data Steward, NMFS Regional Stranding Coordinators and Headquarters users validate the data accuracy. **Change Tracking**: Data Steward, NMFS Regional Stranding Coordinators and Headquarters users track data changes
Right Whale Recovery & Ship Strike	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive; Google Drive site, OPR Internet and ALL database systems.
Sea Turtle Conservation and Recovery Program ; and Sea Turtle Stranding and Salvage Network (STSSN) Reporting System	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking	**Data Access (Restricted Internal & External)** STSSN system is only accessible by Sea Turtle Stranding and Salvage Network Participants and resides in the SERO.(http://www.sefsc.noaa.gov/species/turtles/strandings.htm) **Discoverable Data:** Data Steward and SERO Data Manager perform queries for data requests from users. **Protection from Loss:** SERO responsible for backing up the system

		Documentation: Electronic documentation resides at SERO and OPR Internet Site **Quality assurance and quality control**: System data entry controls; NMFS OPR Data Steward and STSSN coordinators performs validation. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: The system, NMFS OPR Data Steward and STSSN coordinators tracks data changes
Species Recovery Program (ROAR/ECOS)	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking	**Data Access (Internal & External Only)** ROAR/ECOS system is a Public website (http://ecos.fws.gov/roar/pub/ConfigureRecActionReport.do?path=ROAR%20Custom%20Queries.Public%20Actions%20AdHoc) managed by Fish and Wildlife (FWS). **Discoverable Data:** ROAR/ECOS has a database search engine tool for users. **Protection from Loss:** FWS is responsible for system backups **Documentation:** Electronic documentation are stored in the ROAR/ECOS system and G:// network **Quality assurance and quality control**: Data Steward validates data for accuracy. **Consistent definitions:** System data definitions are consistent with business rules as determine by FWS for ROAR/ECOS. **Change Tracking**: Data Steward tracks data changes.
Salmon, Critical Habitat & Aquaculture	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR3 Staff is responsible to track changes and validate

		correctness to electronic documents on G: network drive; Google Drive site, OPR Internet and ALL database systems.
Species of Concern (Section 6) (Grants.gov/Species Recovery Grants to States DB System)	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Consistent definitions • Change Tracking	**Data Access (Internal & External Only)** Grants.gov system is a Public website (http://www.grants.gov/web/grants/home.html) managed by Federal Government Partners. P **Discoverable Data:** Grants.gov is a database search engine tool for users. **Protection from Loss:** The system Federal Government Partners are responsible for system backups **Documentation:** Electronic documentation of Species Recovery Grants are on Grants.gov and Species Recovery Grants to States Database System **Quality assurance and quality control**: Data Steward validates data for accuracy. **Consistent definitions:** System data definitions are consistent with business rules as determine by Grants.gov. **Change Tracking**: Data Steward tracks data changes for grants data collected.
ESA Species Listings	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Stewards are responsible to track changes and validate correctness to electronic documents on G: network drive.
Public Consultation Tracking Systems	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control	**Data Access (Internal & External)** PCTS system has restricted access to NMFS PR5 staff and NMFS Regional and Field Offices. The system has a search engine to query records for the PUBLIC. The system is hosted on the server in NMFS OCIO. **Discoverable Data:** PCTS Application provides a query tool and IBM Cognos reporting tool to query the data. **Protection from Loss:** NMFS OCIO is responsible

	• Consistent definitions • Change Tracking • Standardized use of data types • Clean table design and naming conventions	for system weekly back-ups. **Documentation:** Electronic documentation of data definitions and business rules are on-line and accessible from application and OPR Internet Site. **Standardized use of data type**s: System uses Oracle 11g data types for following: D. Numeric: NUMBER E. Alpha Numeric: VARCHAR2() F. Date and time is DATE/TIME Format: DD-MON-YYYY/HH:MM:SS **Quality assurance and quality control**: System data entry controls and OPR PR5 staff performs validation and data accuracy. **Consistent definitions:** System data definitions are consistent with business rules. **Change Tracking**: System application tracks data changes to data **Clean table design and naming conventions** Oracle 11g; Key Value Pair database repository
Section 7 Consultations/Biological Opinions	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR5 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive; Google Drive site, OPR Internet and PCTS database system.
Water Quality Issues (Clean Water Act)	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR5 Staff is responsible to track changes and validate correctness to electronic documents on G:

		network drive; Google Drive site, OPR Internet and PCTS database system.
Pesticides Issues	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR5 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive; Google Drive site, OPR Internet and PCTS database system.
Freedom of Information Act (FOIA) and Records	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive; Google Drive site, OPR Internet and ALL database systems.
Task tracking and contracts spreadsheet	• Documentation • Consistent definitions • Change Tracking	**Documentation: 1.** Electronic documents; **Location**: Network (G://PRALL) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR2 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive; Google Drive site, OPR Internet and ALL database systems.
Contracts (C-Request /NOAA Links) & Financial Database (MARS/CBS)	• Data Access • Documentation • Consistent definitions • Change Tracking	**Data Access (Internal Only)** Specific OPR staff has access to C-Request, MARS and CBS to enter and/or query data. These are NOAA Financial and Procurement Systems. **Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive

		Consistent definitions: Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR4 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive.
Control Correspondence Database (WebDocFlow);	• Data Access • Documentation • Consistent definitions • Change Tracking	**Data Access (Internal Only)** Only the Data Steward has access to WebDocFlow to entry data and query. **Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR4 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive.
Property Inventory (Sunflower)	• Data Access • Documentation • Consistent definitions • Change Tracking	**Data Access (Internal Only)** Only the Data Steward has access to Sunflower to entry data and query. **Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent with standards, procedures and regulations **Change Tracking:** Data Steward/PR4 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive.
Strategic Execution & Evaluation (SEE)	• Data Access • Documentation • Consistent definitions • Change Tracking	**Data Access (Internal Only)** Only the Data Steward has access to NOAA to Strategic Execution and Evaluation (SEE) system for entry data and query. **Documentation: 1.** Electronic documents; **Location**: Network (G://) drive and Google Drive **Consistent definitions:** Data is consistent

		with standards, procedures and regulations **Change Tracking:** Data Steward/PR4 Staff is responsible to track changes and validate correctness to electronic documents on G: network drive.
Outreach Education/PR Internet/Intranet	• Data Access: o Maximize Authorization, o Discoverable Data and o Protection from Loss • Documentation • Quality assurance and quality control • Change Tracking	**Data Access (Internal & External Only)**) NOAA Percussion Content Management System for OPR Internet and Intranet site is accessible by specific OPR staff; Information on the OPR internet site is accessible to PUBLIC **Discoverable Data:** Website has search engine tool for users. **Protection from Loss:** Percussion Content Management System uses version control to back up web content to prevent loss **Documentation:** Electronic documentation on website **Quality assurance and quality control**: Data Steward and specific OPR staff validates data for accuracy. **Change Tracking**: Percussion Content Management System uses version control to tracks web content changes.

Table 4

Below are NOAA policies and guidelines that NMFS OPR use to ensure and maximize the quality, objectivity, utility, and integrity of information disseminated by data sets and/or systems

- **NOAA Information Quality Guidelines** (http://www.nmfs.noaa.gov/op/pds/documents/04/04-108.pdf) as stated under Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554), directs the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidance to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by federal agencies".[6]

- **Data access policies** issued by NOAA NMFS Chief Security Officer (CSO) and government laws and regulations such as the Marine Mammal Protection Act. Data controls include preventive, detective and corrective as implemented under NOAA NMFS CIO policies for rule-base (firewalls) lattice-base (data classification) mechanisms

[6] http://www.cio.noaa.gov/services_programs/pdfs/OMB%20IQ%20Guidelines_022202.pdf

(http://www.nmfs.noaa.gov/op/pds/categories/information_management.html)

- Accessibility under Section 508 is a part of the Rehabilitation Act of 1973 which requires that electronic and information technology developed, procured, maintained, or used by the Federal government be accessible to people with disabilities (http://home.nmfs.noaa.gov/organization/hq/ocio/it_management/policy/section_508.html).

- National Achieves is working with OPR to store electronic copies of data that is over 5 years. This includes scanned documents, publications, reports, etc. (http://www.archives.gov/records-mgmt/)

Standardization of Data Types.

- Standardization of data types maximizes capability, interoperability, quality, usability, interchangeability and commoditization such as date, numeric and alpha numeric formats (http://home.nmfs.noaa.gov/organization/hq/ocio/it_management/software_services_management.html)

Table Design and Naming Conventions.

- Implementation of standard naming conventions for data sets, files, databases, programs , documents, templates (http://home.nmfs.noaa.gov/organization/hq/ocio/it_management/sample_documents.html) and websites (http://home.nmfs.noaa.gov/it_services/cms/index.html and http://www.nmfs.noaa.gov/op/pds/documents/32/103/32-103-01.pdf) as provided by NOAA NMFS CIO policies

- Implementation of normalization practices to database design that map objects within table structure as well as referential integrity for improving database performance and accessibility are best practices given by NMFS CIO standards and policies (http://home.nmfs.noaa.gov/organization/hq/ocio/it_management/policy/index.html). Data validation standards between related entities and logical semantics through data attributes and relational tables that implement primary (candidate) and secondary (foreign) keys are reviewed by NMFS CIO DBA to ensure that it is in the NMFS CIO guidelines of database design procedures.

Change Management Controls (Tracking Changes).

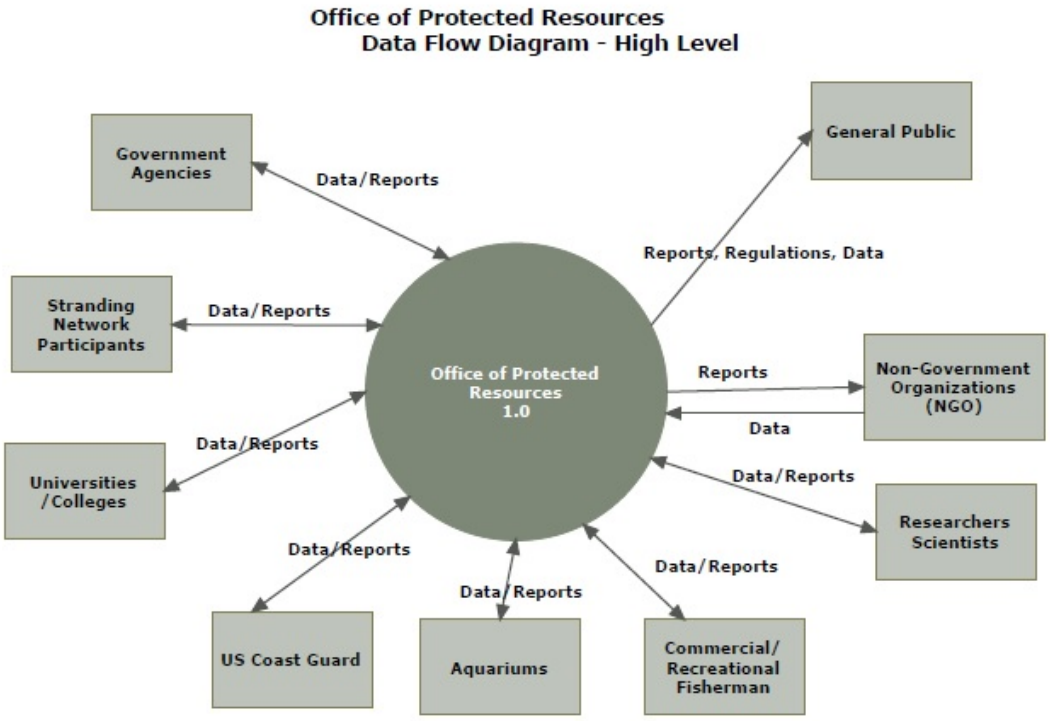
- Program and document changes are tracked using an open-source revision control system called **Subversion** within the NMFS CIO. NOAA NMFS OCIO provide forms, templates and guidance for their configuration management process **(**http://home.nmfs.noaa.gov/organization/hq/ocio/it_management/sample_documents.html**)**

Centralization of Efficiency

- Migration of current in-house systems, spreadsheets and databases from desktop computers to hosting on network servers for intranet and/or internet access within NOAA Data centers or outsource to a federal government cloud service provider as listed under Federal Risk and Authorization Management (FedRamp) or in-house NOAA web services (http://www.gsa.gov/portal/category/102371?utm_source=OCM&utm_medium=print-radio&utm_term=HP_13_SpecialTopics_fedramp&utm_campaign=shortcuts).

VI. Existing Dataflow and Processing

Appendix C provides data flow diagrams for each data set in the Office of Protected Resources.



VII. Effectiveness Goals

Below is a description of each effectiveness goals and how they are achieved through the use of best practices. The percentages listed are not quantified due to the decision of OPR management to assign a value upon evaluation of the data management plan.

Table 5 lists NMFS Office of Protected Resources' data sets and the effectiveness goals that are associated with each one. Collaboration with data consumers is the catalyst that drives these goals as a vital aspect of data management planning.

Capability Effectiveness Goals:

- Office of Protected Resources capability goals are identified based on the tasks required to improve and support the business. Capabilities, or the ability to perform a particular task, provide the common framework used for relating datasets that require the same improvements. Our goal is to find the most cost effective and efficient options to satisfy the requirements of these goals. Below are several goals that we hope to accomplish:
    - Obtain a document management tool to handle number of electronic documents that reside on OPR network drives for FOIAs, Biological Opinions, permits, etc.
    - Obtain a reporting tool that fits in our infrastructure and is easier for users to use to perform Ad Hov searches through the data and generate summaries and reports.
    - Obtain an email tool to search, sort, organize and manage large number of emails for FOIAs or other data requests.
    - Determine if there is a need to increase resources required to transition to new technologies or IT services as a potential effectiveness goal.
    - Determine if outsourcing to the federal government cloud services or a NOAA data center would provide better IT services and customer satisfaction as a potential effectiveness goal.

Speed Effectiveness Goals:

- Improve on the turn-a-round time to collect and disseminate data from OPR database systems. Information management is a key product for us to make high quality decisions in a timely manner. For example, develop a mobile application such as the on-line MMHSRP Level A data sheet, that users can enter data from iPhones, Androids, etc. Under the Marine Mammal Protection Act, Title IV gives specific instructions on the amount of time that data is reported or entered into the system (http://www.nmfs.noaa.gov/pr/laws/mmpa/text.htm#section402
- Improve on records management of all data in OPR to **respond** to FOIA requests in a timely manner as stated in the Obama Administration Open Government Initiative (http://www.fas.org/sgp/crs/secrecy/R41361.pdf)

Efficiency Effectiveness Goals:

- Implement a data access policy to provide an efficient process to decrease the amount of workload hours for data analysis, data error detection and correction; and data storage/retention of documents which will better service data consumers.

- Implement a workflow tool, such as JIRA, to monitor the status and issues assigned to tasks or projects in order to provide an efficient process in completing them and minimizing backlog and unfulfilled assignments.

- Discover alternative information technology services to support automating OPR business needs with efficient customer service, operations and maintenance of systems.

Cost Reduction Effectiveness Goals:

- Perform more cost-comparisons as a preliminary step to determine the best approach to resolving OPR IT needs and system projects in an effort to reduce overall operating costs and achieve the highest level of value for IT services and customer satisfaction.

- Re-negotiate vendor contracts and procurements where possible to reduce costs and optimize the use of hardware, software, licenses and virtual assets used in the delivery of OPR products and services through alternative IT services.

- Reduce the cost of data collection and requests from public, authorized governmental agencies or non-governmental organizations for scientific analysis and research with internet access to validated data that has a high confidence level.

Confidence Effectiveness Goals:

- Implement OPR data management plan and NOAA NMFS policies that will provide stability and improves productivity.

- Categorize data where necessary into confidence levels based on the source from which the data is collected, for example, MMHSRP database has four categories of data:
  1. Unconfirmed – Low*:* Data is reported via a phone message or a verbal or written report received from an unknown individual (PUBLIC).
  2. Confirmed – Minimum: Data collected is a phone message, verbal or written report received from an individual without marine mammal background or stranding investigation training.
  3. Confirmed – Medium: Data collected has been confirmed by a visual exam (external) conducted by a respondent familiar with marine mammals common to the area.
  4. Confirmed – High**:** Data collected has been confirmed by a trained individual who has conducted a detailed examination

VIII. Short Term Best Practices to Attain Effectiveness Goals and Target State

The NMFS Enterprise Data Management Program categorizes best practices are listed above in Section V. The following table 5 contains data sets that OPR is planning to work on and incorporate those best practices and effectiveness goals as part of FY2014 with a completion period of **1-2** years.

Data Sets	OPR Div	Best Practice	Approach	Effectiveness Goal
Authorizations and Permits for Protected Species (APPS) System	PR1	• Data Access	Migrate to the NOAA ITC to host current system and provide web services as well as	• Capability • Efficiency • Cost Reduction

			maintenance and support of servers.	
National Inventory of Marine Mammals System (NIMMS)	PR1	• Data Access • Reduced reporting burden • Standardization use of data types • Clean table design and naming conventions	Migrate desktop system to S&T to host and to provide web services as well as maintenance and support of servers.	• Capability • Efficiency • Cost Reduction
MMPA & ESA Scientific Research Permits; Captive Research, and Post-act Import/Export of Parts	PR1	• Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Pre-Act Parts	PR1	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Incidental Take Authorizations (IHAs)	PR1	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Ocean Sounds and Acoustics Effects of Sound on Marine Environments (ESME)	PR2	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Fisheries Interactions, Observer & Bycatch Issues	PR2	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Health Assessment Database	PR2	• Data Access	Migrate to cloud services	• Capability • Speed • Efficiency • Cost Reduction

Marine Mammal Unusual Mortality Event (UME) Database	PR2	• Data Access • Streamlining	Incorporate as part of a larger functionality known as the "Group Event" for mass strandings, UME's, Oil Spill Response, Seismic, etc.	• Capability • Speed • Efficiency • Cost Reduction
Navy Coordination Website	PR2	• Data Access • Streamlining	Migrate to a Google site	• Capability • Speed • Efficiency • Cost Reduction
Right Whale Recovery & Ship Strike	PR2	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Species Recovery Program (ROAR/ECOS)	PR3	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Salmon, Critical Habitat & Aquaculture	PR3	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Species of Concern (Section 6) (Grants.gov/Species Recovery Grants to States DB System)	PR3	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
ESA Species Listings	PR3	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Water Quality Issues (Clean Water Act)	PR5	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction
Pesticides Issues	PR5	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction

Task Tracking and Contracts Database System	PR4	• Data Access • Streamlining • Automation of repetitive data processing	Migrate to S&T to provide task tracking capabilities and workflow diagrams using JIRA software and web services	• Capability • Speed • Efficiency • Cost Reduction • Confidence
Contracts (C-Request /NOAA Links)		• Data Access • Streamlining • Automation of repetitive data processing	Migrate to document management system - Sharepoint	• Capability • Speed • Efficiency • Cost Reduction

Table 5

IX. Long Term Best Practices to Attain Effectiveness Goals and Target State

Although we have listed several best practices above in Section V. that are currently in use, there are still some divisions who have IT systems or processes that have not implemented these practices but are planning to be completed within the next 3-5 years. The following table 6 contains data sets that OPR is planning to work on and incorporate those best practices and effectiveness goals as long term targets.

Data Set	OPR Div	Best Practice	Approach	Effectiveness Goal
National Inventory of Marine Mammals System (NIMMS)	PR1	• Data Access • Streamlining • Automation of repetitive data processing • Clean table design and naming conventions	Expand user access of system for specific individuals with permits for captive animals to enter and modify data as well as public to querying information	• Capability • Speed • Efficiency • Cost Reduction
Population Assessments, Conservation & Recovery (Fish Ecosystem)	PR2	• Data Access • Streamlining • Automation of repetitive data processing • Clean table design and naming conventions	Access Protected Resources Species Information System (PRSIS) in S&T for Stock Assessment Information (Contact Mirdula Srinivasan)	• Capability • Speed • Efficiency • Cost Reduction • Confidence
Marine Mammal Authorization Program (MMAP)	PR2	• Data Access • Streamlining • Automation of repetitive data processing • Clean table design and naming	Develop on-line MMAP form and database for public access in S&T	• Capability • Speed • Efficiency • Cost Reduction • Confidence

		conventions • Standardization use of data types		
OPR document management system	PR2	• Data Access • Streamlining • Automation of repetitive data processing	Migrate End-Note system to a server that can be access via internet or intranet	• Capability • Speed • Efficiency
Marine Mammal & Coral Reef Virtual Microscope	PR2	• Data Access • Streamlining	NOAA ITC is unable to correct error to obtain system access of software will consider migrating to cloud services if system problem continue	• Capability • Efficiency
Marine Mammal Unusual Mortality Event Database – Sample Tracking/Google Maps/Pathology	PR2	• Data Access • Streamlining • Automation of repetitive data processing • Clean table design and naming conventions • Standardization use of data types	Migrate to cloud services and integrate with MMHSRP system	• Capability • Speed • Efficiency • Cost Reduction
National Marine Mammal Tissue Bank Database	PR2	• Data Access • Streamlining • Automation of repetitive data processing • Clean table design and naming conventions • Standardization use of data types	Develop new functionality to allow users to request specimens on-line from the system	• Capability • Speed • Efficiency • Cost Reduction
Accession (D. Rotstein) DB	PR2	• Data Access • Streamlining • Automation of repetitive data processing • Clean table design and naming conventions • Standardization use of data types • Separation of obsolete and working data sets	Migrate to cloud services and re-design system from a MS Access desktop application to be accessible from a server	• Capability • Speed • Efficiency • Cost Reduction

Freedom of Information Act (FOIA) and Records	PR4	• Data Access • Streamlining • Automation of repetitive data processing • Clean table design and naming conventions • Standardization use of data types • Separation of obsolete and working data sets	Implement an email tool to access in organizing emails for data request such as Clearwell, mail store or Laserfiche	• Capability • Speed • Efficiency • Cost Reduction
Public Consultation Tracking System (PCTS)	PR5	• Data Access • Clean table design and naming conventions	Re-engineering of system and possibly outsourcing to NOAA data center or cloud services.	• Capability • Speed • Efficiency • Cost Reduction • Confidence

Table 6

X. Implementation Schedule

The following is the steps for implementing OPR data management plan with the best practices and anticipated completion dates as set by the FIMAC Data Architecture.

Date	Description
December 30, 2014	Completion and signed Data Management Plan

XI. Metrics Description

Metrics used in evaluating the attainment of effectiveness goals are below. Although, direct numeric measures are preferred, it is not mandatory. If this is not possible, proxy measures may be used. If neither direct nor proxy measures are feasible, apply arguments that demonstrate that the best practices must improve effectiveness.

Effectiveness Goal	Metric Description
Capability	• Percentage of efficiency improvement based on number data requests processed • Increased ability to monitor performance and throughput of all system functionality and components to improve data availability and reduce data requests • Calculate percentage of reduction in lost business due to inadequate system capability • Percentage increase in the reliability, availability and capability of data access via internet • Percentage improvement in overall end-to-end data availability and capability
Speed	• Reduce the average time to acquire and install software/hardware that can take from an hour to several days depending on technology, platform, NMFS OCIO Chief Security Officer authorization, costs and helpdesk resources availability. • Reduce the average time to attain IT services that are in line with OPR business needs that can take from 8 hours to a few weeks depending on NOAA contract process, NMFS OCIO Chief Security Officer authorization, technological services and costs. • Percentage in the reduction of time for processing data request manually vs. on-line via internet • Percentage in the reduction of the time to make corrections to data for quality assurance/quality control • Average time to produce a management reports can take from 8 hours to several days in gathering data, performing analysis, formatting content and validating information.
Efficiency	• Percentage in the amount of operational efficiencies through the optimization of automated data assets that will support timely delivery of services and easier accessible to data sets.

Cost Reduction	• Percentage reduction in the average cost of handling data requests in person's workload hours.
Confidence	• Percentage reduction in the number of data corrections • Improved customer satisfaction based on survey and feedback

XII. Metrics Prior to Planned Best Practices Implementation

Once the best practices are implemented for short and long term, each data set metric values will be calculated based on the effectiveness goal listed above.

XIII. Plan Review and Approval

This plan was reviewed and recommendations provided by:

Information Management Coordinator: _____ Date:_____

FIMAC Member:_____ Date:_____

FIMAC Member:_____ Date:_____

A copy of review recommendations and plan draft should be provided to the NMFS Information Architect, Mark Brady.

If reviewers recommend changes in the plan, these recommendations should be addressed prior to passing the document to the Division Director for approval and signing.

This plan was approved by:

_____ Date:_____

Donna Wieting,
Office of Protected Resources Director

Plan can only be approved after completion of review process.

XIV. Metrics Following Planned Best Practices Implementation

This information will be provided after analysis and evaluation of prior metrics associated with improving OPR data management has been implemented and documented

XV. Analysis

A comparison of the prior and post metric expectation and results will be listed in this section regarding OPR data sets. It will consist of noted lessons learned and documented explanations where appropriate for use issues, alternatives to metrics used and subsequent changes to data management plan.

Appendix A

Definition of Office of Protected Resources (OPR) Acronyms:

Acronym	***Definition***
AIS/VTS	*Automatic Identification System (Vessel Tracking System)*
APPS	*Authorizations and Permits for Protected Species Systems*
CITES	*Convention on International Trade in Endangered Species*
DOT	*Department of Transportation*
ESA	*Endangered Species Act*
IHA	*Incidental Take Authorizations*
Level A Data	*Basic information associated with the Level A data sheet (http://www.nmfs.noaa.gov/pr/pdfs/health/levela.pdf)*
Level B Data	*Supplementary on-site animal data, including basic life history and specific event data, such as weather, carcass orientation, etc. and tissue specimen.*
Level C Data	*Supplementary data from conducted necropsies and diagnostics on stranded dead marine mammals.*
MMAP	*Marine Mammal Authorization Program*
MMHSRP	*Marine Mammal Health and Stranding Response Program*
MMUME	*Marine Mammal Unusual Mortality Event*
NIMMS	*National Inventory of Marine Mammals System (formerly Permit Program and Inventory Management System (PPIMS))*
NIST	*National Institute of Science and Technology*
NMMTB	*National Marine Mammal Tissue Bank*
NGO	*Non-Government Organizations*
NOS	*National Ocean Service*
PCTS	*Public Consultation Tracking System*
PPBES	*Planning, Programming, Budget and Execution System*
PR1	*Permits, Conservation, and Education Division*
PR2	*Marine Mammal and Sea Turtle Conservation Division*
PR3	*Endangered Species Division*
PR4	*Planning and Program Coordination Division*
PR5	*Section 7 Consultations Division*
SNP	*Stranding Network Participants are organizations authorized via federal government issued permits to respond to marine mammals.*
STSSN	*Sea Turtle Stranding and Salvage Network*

Appendix B

NOAA DMP Informational Websites:

NOAA Environmental Data Management Framework:
https://www.nosc.noaa.gov/EDMC/documents/NOAA_EDM_Framework_v1.0.pdf

Definitions and Applications of the Data Life Cycle:
https://www.nosc.noaa.gov/EDMC/documents/EDMC-PD-DMP.pdf

Information on NMFS's Effectiveness Goals:
https://www.st.nmfs.noaa.gov/confluence/display/edm/Effectiveness+Goals

Information on NMFS Best Practices: https://www.st.nmfs.noaa.gov/confluence/display/edm/NMFS+EDM+Best+Practices.

Appendix C

OPR Data Flow Diagrams

This section provides a graphical representation of the "**flow**" of **data** through each dataset or information system in the Office of Protected Resources. A data flow diagram is a high-level graphical representation of how the data is being collected and processed. Each data set will give a model depicting processed and storage within each box of the dataflow diagram. Descriptions are detailed enough that a person skilled in the art could reproduce the calculations or statistical graphs Storage description are for tables and columns if data is in a relational database. File formats, if data is in the form of documents, spreadsheet, etc. should be also be labeled and depicted in the diagram.