



Archiving Southwest Alaska's National Park Bird Survey Data in the Avian Knowledge Network (AKN) Database

Project Overview

Natural Resource Data Series NPS/SWAN/NRDS—2011/207



ANIA Bird Survey
N 56.809197° W 157.901508°

145°
Lat / Lon NAD 83

E of Meshik Lake from Pinnacle Mtn
06/02/2008 12:15:56 PM

ON THE COVER

Bird Survey photo point in Aniakchak National Monument, Southwest Alaska
Photograph by: William L. Thompson

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Natural Resource Data Series NPS/SWAN/NRDS—2011/207

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The National Park Service, Natural Resource Stewardship and Science office in Fort Collins, Colorado publishes a range of reports that address natural resource topics of interest and applicability to a broad audience in the National Park Service and others in natural resource management, including scientists, conservation and environmental constituencies, and the public.

The Natural Resource Data Series is intended for the timely release of basic data sets and data summaries. Care has been taken to assure accuracy of raw data values, but a thorough analysis and interpretation of the data has not been completed. Consequently, the initial analyses of data in this report are provisional and subject to change.

All manuscripts in the series receive the appropriate level of peer review to ensure that the information is scientifically credible, technically accurate, appropriately written for the intended audience, and designed and published in a professional manner.

This report received informal peer review by a subject-matter expert who were not directly involved in the collection, or reporting of the data.

Views, statements, findings, conclusions, recommendations, and data in this report do not necessarily reflect views and policies of the National Park Service, U.S. Department of the Interior. Mention of trade names or commercial products does not constitute endorsement or recommendation for use by the U.S. Government.

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Contents

	Page
Figures.....	iv
Tables.....	v
List of Acronyms	vii
Introduction.....	1
Methods.....	3
Results and Discussion	4
Literature Cited.....	7
Appendix A: Crosswalk table for Aniakchak, Lake Clark, and Katmai.....	9
Appendix B: Crosswalk Table for Kenai Fjords.....	15
Appendix C: Crosswalk table for marine nearshore surveys.....	21

Figures

Page

Figure 1. Maps depicting spatial locations of Southwest Alaska Network bird survey data formatted and uploaded into the Avian Knowledge Network database for Aniakchak, Katmai, Kenai Fjords, and Lake Clark National Parks. 5

Figure 2. Screen shot from Avian Knowledge Network’s database query tool..... 6

Tables

	Page
Table A1. AKN fields and the corresponding NPS bird survey field used for data entry of the Aniakchak, Lake Clark, and Katmai breeding landbird surveys. Text in bold in the NPS Field column are the actual field names from the dataset.	9
Table B1. AKN fields and the corresponding NPS bird survey field used for data entry of the Kenai Fjords breeding bird surveys. Text in bold in the NPS Field column are the actual field names from the dataset.....	15
Table C1. AKN fields and the corresponding NPS bird survey field used for data entry of the nearshore marine bird survey data. Text in bold in the NPS Field column are the actual field names from the dataset.	21

List of Acronyms

AKN	Avian Knowledge Network
ANIA	Aniakchak National Monument and Preserve
LACL	Lake Clark National Park and Preserve
KATM	Katmai National Park and Preserve
KEFJ	Kenai Fjords National Park
SWAN	Southwest Alaska Network Inventory and Monitoring Program

Introduction

The Southwest Alaska Network (SWAN) of the National Park Service (NPS) is assessing status and monitoring long-term trends of key natural resources or "vital signs" in its five national park units, including: Alagnak Wild River (ALAG), Aniakchak National Monument and Preserve (ANIA), Katmai National Park and Preserve (KATM), Kenai Fjords National Park (KEFJ), and Lake Clark National Park and Preserve (LACL). The goal of this project was to improve the understanding of the status of bird populations in SWAN parks, and to inform management and promotion of public understanding of park resources by making contemporary avian survey data accessible via a nationally recognized avian archival database that is accessible on-line.

The database chosen for the SWAN avian data repository was the Avian Knowledge Network database (AKN; www.avianknowledge.net). AKN is an international organization of government and non-government institutions focused on understanding the patterns and dynamics of bird populations across the western hemisphere. The goal of AKN is to organize observational data and provide tools to discover, access, and analyze these data. Over time, AKN will educate the public on the dynamics of bird populations, provide interactive decision-making tools for land managers, and make data available for scientific research.

We also developed a user's guide of standard operating procedures for NPS staff that describes the process of downloading AKN data for individual parks using the AKN web-portal, and formatting the data so it can be used to annually update park bird checklists. AKN does not allow users to perform customized location queries more specific than at the state level (e.g., Alaska); therefore we were limited to describing the process of downloading AKN data for the entire state.

Methods

In 2010, we initiated an effort to enter historical records from SWAN area parks into AKN and its sister database, eBird (Gotthardt et al. 2010). We summarized 8,704 incidental observations for 183 bird species from 82 unique data sources, spanning the time period 1919 to 2004. Here, we continue with that effort with the goal of archiving additional bird datasets into the AKN, and to provide park personnel with a guide to instruct them how to access the now archived information.

The following 16 datasets were formatted and uploaded to AKN during this phase of the project:

- Inventory of breeding birds in Aniakchak National Monument and Preserve, summer 2008 (Ruthrauff and Tibbitts 2009).
- Inventory of montane-nesting birds in Katmai and Lake Clark National Parks, summer 2004-2006 (Ruthrauff et al. 2007).
- Summer inventory of landbirds in Kenai Fjords National Park, summer 2005 (Van Hemert et al. 2006).
- Katmai nearshore marine bird surveys, summer 2006-2010, winter 2009 (Bodkin et al. 2007, Bodkin et al. 2008, Coletti et al. 2009, Coletti et al. 2010, Coletti et al. 2011).
- Lake Clark nearshore marine bird survey, summer 2009 (Coletti et al. 2010).
- Kenai Fjords nearshore marine bird survey, summer 2007-2010, winter 2008, 2010 (Bodkin et al. 2008, Coletti et al. 2009, Coletti et al. 2010, Coletti et al. 2011).

An effort was made to crosswalk as many fields from the NPS bird survey datasets with fields acceptable for data entry into AKN. Of the sixteen total datasets, inventory of breeding birds in Aniakchak National Monument and Preserve (summer 2008), and inventory of montane-nesting birds in Katmai and Lake Clark National Parks (summer 2004-2006) used similar survey techniques and data entry fields; the summer inventory of landbirds in Kenai Fjords National Park (summer 2005) was unique and data entry fields were cross-walked independent of other surveys; and Katmai (summer 2006-2010, winter 2009), Lake Clark (summer 2009), and Kenai Fjords nearshore marine bird survey (summer 2007-2010, winter 2008, 2010) all used similar survey techniques. The crosswalk for each of the three surveys types is presented in Appendices A, B, and C, respectively. Only bird survey data identified to the species level (except for Redpoll spp.) with spatial coordinates were uploaded to AKN. All data were collected by trained personnel; therefore, we assumed species were identified correctly. For each survey uploaded to AKN, the standard AKN metadata questionnaire was completed and the data were uploaded into a project specific geodatabase with associated metadata information.

Results and Discussion

A total of 29,575 records were formatted and uploaded into AKN (see Figure 1 for spatial distribution): 1,215 in Aniakchak National Monument and Preserve, 10,837 in Katmai National Park and Preserve (4,732 from montane bird inventory and 6,105 from marine bird surveys), 12,468 in Kenai Fjords National Park (4,725 from breeding bird inventory and 7,743 from marine bird surveys), and 5,055 in Lake Clark National Park and Preserve (4,810 from montane bird inventory and 245 from marine bird survey). The records uploaded had a total of 173 unique bird species.

To download data from AKN, go to the Avian Knowledge Network website (<http://www.avianknowledge.net/content/>), and choose “download” from the main menu bar. Accept the data liability disclaimer and terms, and you will be directed to the main download page where you can select one of two primary ways to download data; via the “prepackaged data options” or using the “database query tool.” At this time, AKN does not have the capabilities to query data for a specific location (e.g., a specific national park) beyond the state level.

The database query tool (Figure 2) allows more customization of the download process, including downloading data for a specific date (temporal) range; thus the process is described below. The database query tool allows the user to choose the location and range of the data. Remember that the location cannot be queried in more detail than at the state level. To download data for all species for the chosen location and dates, leave the species box empty or narrow the search to only certain bird species by typing them in. To return data for all projects that are compiled in the AKN database, select all projects from the project box, and enter the number of records you want returned (leave blank if you want all records returned). Download type refers to whether the data includes positive observations only, or both positive and negative (absence) observations, and also the type of file (file extension) that will be downloaded. We suggest selecting the default, “positive obs data- Full BMDE (tab delimited. txt),” which returns all positive observations and can be easily opened in Excel.

To further analyze the data, such as using it to update NPS bird checklists, the data will need to be queried and clipped by the desired spatial location using software outside of AKN, such as ArcGIS. Records formatted for this project included the park name at the beginning of the locality field, allowing users to query by location within Excel, but data uploaded by other users may not follow this format.

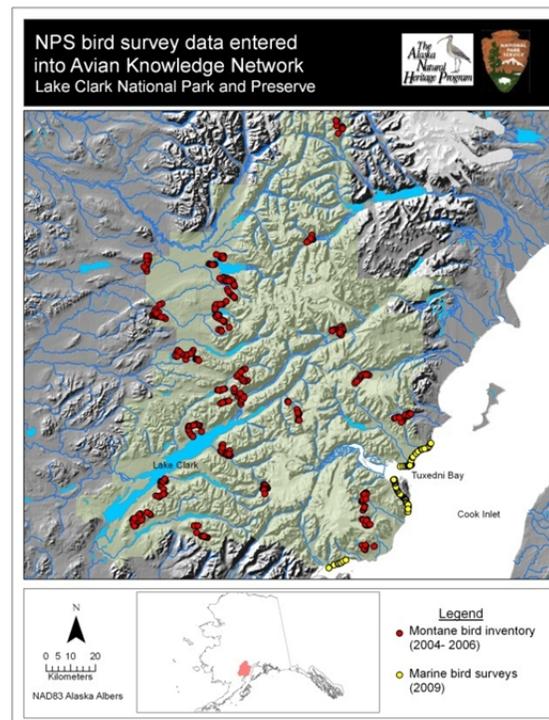
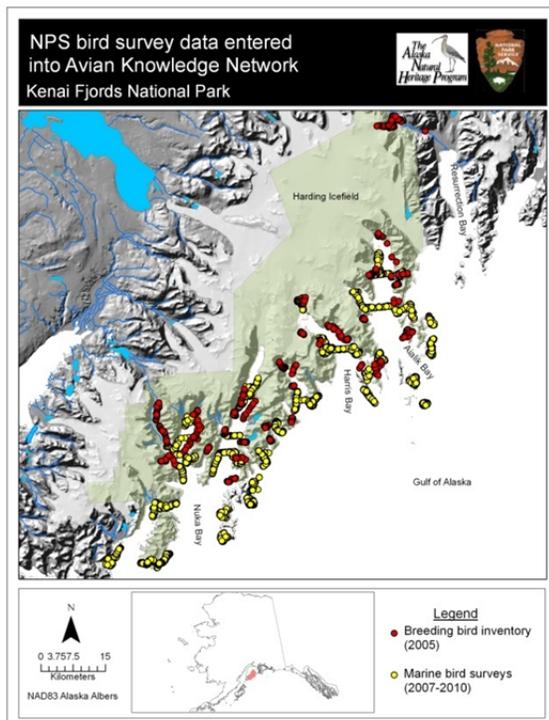
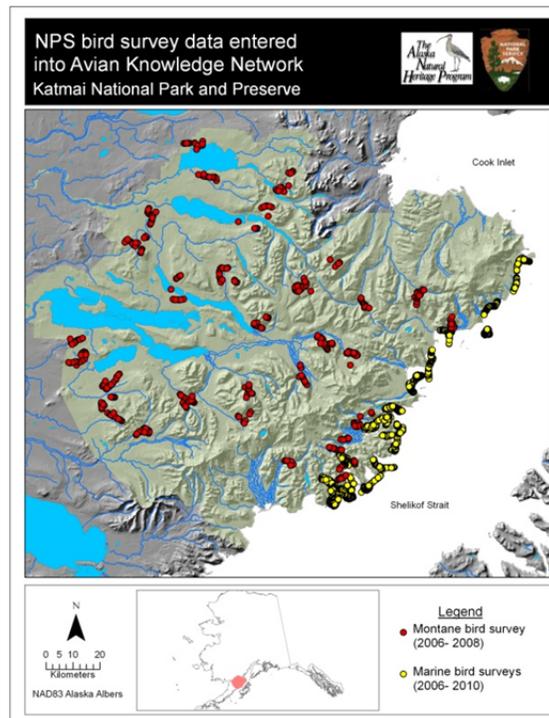
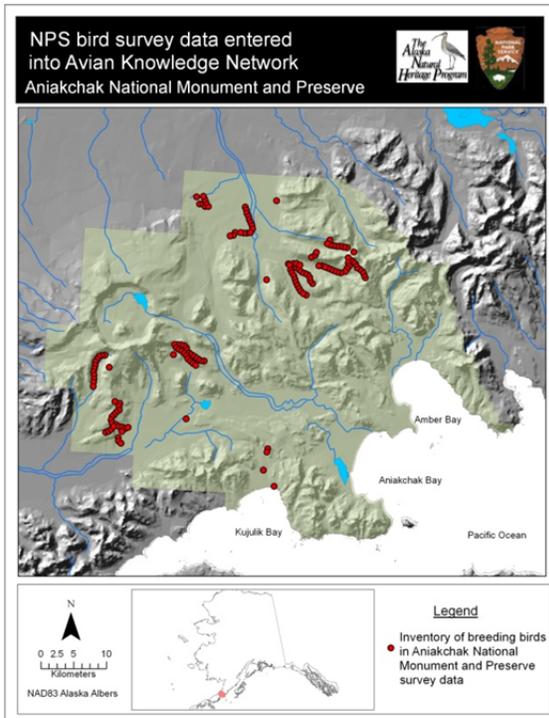


Figure 1. Maps depicting spatial locations of Southwest Alaska Network bird survey data formatted and uploaded into the Avian Knowledge Network database for Aniakchak, Katmai, Kenai Fjords, and Lake Clark National Parks.

Download Data

Location (required)

Country

State

Date Range Continuous Periodic

Start Month -- Year --

End Month -- Year --

Species

Projects Banding Observation

eBird Canada
eBird Peru
eBird Puerto Rico

Maximum Number of Returned Records

Download Data Type

I have read and understand the AKN Data Sharing Policy, and Recommended Citations.

Help

Location

Data for a particular country can be queried by choosing the country from the pull-down list. If you are interested in data for a state/province, type in a postal code or fragment of a state name and press 'Find Location.' Select the state/s of interest. To query for data from multiple locations see instructions for Multiple Species and Location Selections below.

Date Range

Date Range criteria is not required for a well-formed data request. If you are interested in data for a particular date range, select either a Continuous or Periodic date range and enter the required Start and End criteria. Any set of months may be selected for a Periodic date range.

Species

Queries use scientific name/s to lookup up data records. If you know the scientific name for the data you are interested in, enter it in the 'Species' text widget. If you do not know the scientific name, you can do searches on common names or name fragments by typing in some text into the 'Species' text widget and pressing 'Search.' You can then select from the search results. To query for multiple species see instructions for Multiple Species and Location Selections below.

Project

Select 'All projects', a specific project, or make a multi-project query using the CTRL or SHIFT keys while making your selection. Not selecting a project defaults to 'All projects.'

Number of Return Records

Figure 2. Screen shot from Avian Knowledge Network's database query tool.

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Appendix A: Crosswalk table for Aniakchak, Lake Clark, and Katmai

Table A1. AKN fields and the corresponding NPS bird survey field used for data entry of the Aniakchak, Lake Clark, and Katmai breeding landbird surveys. Text in bold in the NPS Field column are the actual field names from the dataset.

AKN Field	AKN Field Definition	NPS Field
BasisOfRecord	A descriptive term indicating whether the record represents an object or observation.	Derived from report
ScientificName	The full name of the lowest level taxon to which the organism can be identified.	Derived from species code
HigherTaxon	The combination of names of taxonomic ranks less specific than Genus.	Derived from taxonomic fields below
Kingdom	The name of the kingdom in which the organism is classified.	Derived from species code
Phylum	The name of the phylum in which the organism is classified.	Derived from species code
Class	The name of the class in which the organism is classified.	Derived from species code
Order	The name of the order in which the organism is classified.	Derived from species code
Family	The name of the family in which the organism is classified.	Derived from species code
Genus	The name of the genus in which the organism is classified.	Derived from species code
SpecificEpithet	The specific epithet of the scientific name applied to the organism.	Derived from species code
HigherGeography	The combination of all geographic elements less specific than locality.	Derived from geography fields below
Continent	The full, unabbreviated name of the continent from which the organism was collected.	Derived from location
Country	The full, unabbreviated name of the country or major political unit from which the organism was collected.	Derived from location
StateProvince	The full, unabbreviated name of the state, province, or region from which the organism was collected.	Derived from location
Locality	The description of the locality from which the organism was collected. This includes park name and ecological subsection.	Park name: Subs (ecological subsection)

AKN Field	AKN Field Definition	NPS Field
MinimumElevationIn Meters	The minimum altitude in meters above (positive) or below (negative) sea level of the collecting locality.	Elevation
MaximumElevationIn Meters	The maximum altitude in meters above (positive) or below (negative) sea level of the collecting locality.	Elevation
DecimalLatitude	The latitude of the location from which the organism was collected, expressed in decimal degrees.	Lat_decdeg_WGS84
DecimalLongitude	The longitude of the location from which the organism was collected, expressed in decimal degrees.	Long_decdeg_WGS84
GeodeticDatum	The geodetic datum to which the latitude and longitude refer.	Derived from report
CoordinateUncertaintyIn Meters	The upper limit of the distance (in meters) from the given latitude and longitude describing a circle within which the whole of the described locality must lie. Use NULL where the uncertainty is unknown, cannot be estimated, or is not applicable (because there are no coordinates).	Derived from report
YearCollected	The four digit year in which the organism was collected from the field.	Date
MonthCollected	The two digit month of year during which the organism was collected from the field.	Date
DayCollected	The two digit day of the month which the organism was collected from the field.	Date
TimeCollected	The time of day the observation was collected from the field, expressed as decimal hours from midnight.	Derived from TimeCollected and Elapsed_seconds
Collector	The name(s) of the collector(s) of the original data for the observation.	Observer
Sex	The sex of a biological individual observed.	Sex
FieldNotes	A flag marking the existence of, or a reference to, notes taken in the field for the observation.	Notes
OriginalCoordinateSystem	The name of the system in which the original geographic coordinates were recorded.	Derived from report
Remarks	Free text comments accompanying observation record.	Precipitation; Wind_kt

AKN Field	AKN Field Definition	NPS Field
ProtocolType	Broad categories of protocols, such as Point Count, Transect, Banding, Aerial Survey, Area Search, etc.	Derived from report
ProtocolSpeciesTargeted	A short description of the species or taxonomic group targeted by the survey protocol.	Derived from report
ProtocolReference	A published reference describing the protocol used to collect the observation data.	Derived from report
ProtocolURL	The URL of the reference describing the protocol used to collect the observation data.	Derived from report
SamplingEventIdentifier	A unique identifier identifying the sampling event during which the observations were made.	PTP (derived from plot, transect, and point number)
RouteIdentifier	A unique identifier for a route, a transect or any higher organizational unit that comprises a collection of sampling events.	Plot (derived from statewide GIS grid of 10-km X 10-km blocks)
TimeObservationsStarted	The time of day the entire observation event started, expressed as decimal hours from midnight, local time.	Time
TimeObservationsEnded	The time of day the entire observation event ended, expressed as decimal hours from midnight, local time.	Derived from Time and duration
DurationInHours	The total duration of the entire observation event during which this particular observation was made, expressed as decimal hours.	Derived from duration
NumberOfObservers	The total number of observers who participated in the observation event.	Derived from report
EffortMeasurement1	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Elapsed_seconds (elapsed time since the start of point survey when the detection occurred)
EffortUnits1	Units of measurement for the matching effort field.	Derived from Elapsed_seconds
EffortMeasurement2	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	150_50M (variable referring to whether the percent cover by vegetation type was assessed within a 150-m or 50-m radius of the point count)
EffortUnits2	Units of measurement for the matching effort field.	Derived from 150_50M

AKN Field	AKN Field Definition	NPS Field
EffortMeasurement3	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Aspect
EffortUnits3	Units of measurement for the matching effort field.	Derived from Aspect
EffortMeasurement4	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Slope
EffortUnits4	Units of measurement for the matching effort field.	Derived from Slope
DistanceFromObserver	Distance (in meters) between the observer and the specimen being observed.	Exact_distance
DistanceFromObserverMin	Minimum distance of a range (in meters) between the observer and the specimen being observed.	Minimum_distance
DistanceFromObserverMax	Maximum distance of a range (in meters) between the observer and the specimen being observed.	Maximum_distance
ObservationDescriptor	Other descriptor that provides further information on the behavior or location of the specimen observed.	Behavior
ObservationCount	Number of individuals detected or observed during this observation event.	Number
AllIndividualsReported	Whether the ObservationCount for a given taxon includes all individuals that have been detected during the sampling event.	Derived from report
AllSpeciesReported	Whether the ObservationCount for a given taxon includes all individuals that have been detected within a higher taxonomic group.	Derived from report
CommonName	Common vernacular name to describe the taxon.	Common_Name
RecordPermissions	Permissions regarding the display and distribution of this record.	Derived from report
TaxonomicAuthorityAuthors	Name of the author(s) who published the taxonomic authority used for this record.	Derived from report
TaxonomicAuthorityVersion	Version number of the taxonomic authority.	Derived from report

AKN Field	AKN Field Definition	NPS Field
TaxonomicAuthorityYear	Year of publication of the taxonomic authority, including minor version and supplement.	Derived from report
SpeciesCode	Alphanumerical code describing a species.	Species
HabitatDescription	General description of the habitat within the survey area.	USGS_Viereck_Code and Percent_Circle (modified Viereck classification used to define vegetation cover. Percent of the circle covered by the vegetation cover type. Top two habitats listed.)
Remarks2	Additional remarks field.	Type_detection (describes manner in which bird was detected); Vocalization

Appendix B: Crosswalk Table for Kenai Fjords

Table B1. AKN fields and the corresponding NPS bird survey field used for data entry of the Kenai Fjords breeding bird surveys. Text in bold in the NPS Field column are the actual field names from the dataset.

AKN Field	AKN Definition	NPS Field
BasisOfRecord	A descriptive term indicating whether the record represents an object or observation.	Derived from report
ScientificName	The full name of the lowest level taxon to which the organism can be identified.	Scientific_Name
HigherTaxon	The combination of names of taxonomic ranks less specific than Genus.	Derived from taxonomic fields below
Kingdom	The name of the kingdom in which the organism is classified.	Derived from scientific name
Phylum	The name of the phylum in which the organism is classified.	Derived from scientific name
Class	The name of the class in which the organism is classified.	Derived from scientific name
Order	The name of the order in which the organism is classified.	Derived from scientific name
Family	The name of the family in which the organism is classified.	Derived from scientific name
Genus	The name of the genus in which the organism is classified.	Derived from scientific name
SpecificEpithet	The specific epithet of the scientific name applied to the organism.	Derived from scientific name
HigherGeography	The combination of all geographic elements less specific than locality.	Derived from geography fields below
Continent	The full, unabbreviated name of the continent from which the organism was collected.	Derived from location
Country	The full, unabbreviated name of the country or major political unit from which the organism was collected.	Derived from location
StateProvince	The full, unabbreviated name of the state, province, or region from which the organism was collected.	Derived from location
Locality	The description of the locality from which the organism was collected. This includes park name and ecological subsection.	Park name and Route_name

AKN Field	AKN Definition	NPS Field
MinimumElevationIn Meters	The minimum altitude in meters above (positive) or below (negative) sea level of the collecting locality.	Elevation_m
MaximumElevationIn Meters	The maximum altitude in meters above (positive) or below (negative) sea level of the collecting locality.	Elevation_m
DecimalLatitude	The latitude of the location from which the organism was collected, expressed in decimal degrees.	Latitude
DecimalLongitude	The longitude of the location from which the organism was collected, expressed in decimal degrees.	Longitude
GeodeticDatum	The geodetic datum to which the latitude and longitude refer.	Datum
CoordinateUncertaintyInMeters	The upper limit of the distance (in meters) from the given latitude and longitude describing a circle within which the whole of the described locality must lie.	Location_Error (averaged)
YearCollected	The four digit year in which the organism was collected from the field.	Survey_Date
MonthCollected	The two digit month of year during which the organism was collected from the field.	Survey_Date
DayCollected	The two digit day of the month which the organism was collected from the field.	Survey_Date
Collector	The name(s) of the collector(s) of the original data for the observation.	Observer_ID
FieldNotes	A flag marking the existence of, or a reference to, notes taken in the field for the observation.	Notes
OriginalCoordinateSystem	The name of the system in which the original geographic coordinates were recorded.	Derived from report
Remarks	Free text comments accompanying observation record.	Water_Type (present at survey point)
ProtocolType	Broad categories of protocols, such as Point Count, Transect, Banding, Aerial Survey, Area Search, etc.	Derived from report
ProtocolSpeciesTargeted	A short description of the species or taxonomic group targeted by the survey protocol.	Derived from report

AKN Field	AKN Definition	NPS Field
ProtocolReference	A published reference describing the protocol used to collect the observation data.	Derived from report
ProtocolURL	The URL of the reference describing the protocol used to collect the observation data.	Derived from report
SamplingEventIdentifier	A unique identifier identifying the sampling event during which the observations were made.	Route_Point_ID (Route and point identification number)
RouteIdentifier	A unique identifier for a route, a transect or any higher organizational unit that comprises a collection of sampling events.	Route_Number
TimeObservationsStarted	The time of day the entire observation event started, expressed as decimal hours from midnight, local time.	Hour, Min (combined)
TimeObservationsEnded	The time of day the entire observation event ended, expressed as decimal hours from midnight, local time.	Derived using time and duration
DurationInHours	The total duration of the entire observation event during which this particular observation was made, expressed as decimal hours.	Derived from duration
TimeIntervalStarted	Time (in decimal hours) of the start of the interval where this observation was made, relative to the start of the entire observation event.	Count_Period
TimeIntervalEnded	Time (in decimal hours) of the end of the interval where this observation was made, relative to the start of the entire observation event.	Count_Period
TimeIntervalsAdditive	Indicates whether values in ObservationCount can be added together across different time intervals (Yes or No). Additive intervals mean that only new individuals are reported in each interval.	Derived from report
NumberOfObservers	The total number of observers who participated in the observation event.	Derived from report
EffortMeasurement1	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Slope_degree
EffortUnits1	Units of measurement for the matching effort field.	Derived from Slope_degree

AKN Field	AKN Definition	NPS Field
EffortMeasurement2	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Aspect_degree
EffortUnits2	Units of measurement for the matching effort field.	Derived from Aspect_degree
EffortMeasurement3	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Dist_Shore_m
EffortUnits3	Units of measurement for the matching effort field.	Derived from Dist_Shore_m
DistanceFromObserver	Distance (in meters) between the observer and the specimen being observed.	Exact_Dist_m
DistanceFromObserverMin	Minimum distance of a range (in meters) between the observer and the specimen being observed.	Distance_Code_m
DistanceFromObserverMax	Maximum distance of a range (in meters) between the observer and the specimen being observed.	Distance_Code_m
ObservationDescriptor	Other descriptor that provides further information on the behavior or location of the specimen observed.	Behavior_Code
ObservationCount	Number of individuals detected or observed during this observation event.	Total_Number_Birds
AllIndividualsReported	Whether the ObservationCount for a given taxon includes all individuals that have been detected during the sampling event.	Derived from report
AllSpeciesReported	Whether the ObservationCount for a given taxon includes all individuals that have been detected within a higher taxonomic group.	Derived from report
CommonName	Common vernacular name to describe the taxon.	Common_Name
RecordPermissions	Permissions regarding the display and distribution of this record.	Derived from report
TaxonomicAuthorityAuthors	Name of the author(s) who published the taxonomic authority used for this record.	Derived from report
TaxonomicAuthorityVersion	Version number of the taxonomic authority.	Derived from report

AKN Field	AKN Definition	NPS Field
TaxonomicAuthorityYear	Year of publication of the taxonomic authority, including minor version and supplement.	Derived from report
SpeciesCode	Alphanumerical code describing a species.	Species_Code
HabitatDescription	General description of the habitat within the survey area.	Vegetation_Description and Percent_Circle (some values missing, only descriptions derived from Viereck et al. (1992) habitat classification system were entered (Kessel and NWI left out). Percent of the circle covered by the vegetation cover type. Top two habitats listed).
Remarks2	Additional remarks field.	Topo_Feature; Topo_Position

Appendix C: Crosswalk table for marine nearshore surveys

Table C1. AKN fields and the corresponding NPS bird survey field used for data entry of the nearshore marine bird survey data. Text in bold in the NPS Field column are the actual field names from the dataset.

AKN Field	AKN Definition	NPS (marine bird) Fields
BasisOfRecord	A descriptive term indicating whether the record represents an object or observation.	Derived from report
ScientificName	The full name of the lowest level taxon to which the organism can be identified.	Derived from species code
HigherTaxon	The combination of names of taxonomic ranks less specific than Genus.	Derived from taxonomic fields below
Kingdom	The name of the kingdom in which the organism is classified.	Derived from species code
Phylum	The name of the phylum in which the organism is classified.	Derived from species code
Class	The name of the class in which the organism is classified.	Derived from species code
Order	The name of the order in which the organism is classified.	Derived from species code
Family	The name of the family in which the organism is classified.	Derived from species code
Genus	The name of the genus in which the organism is classified.	Derived from species code
SpecificEpithet	The specific epithet of the scientific name applied to the organism.	Derived from species code
HigherGeography	The combination of all geographic elements less specific than locality.	Derived from location fields below
Continent	The full, unabbreviated name of the continent from which the organism was collected.	Derived from location
Country	The full, unabbreviated name of the country or major political unit from which the organism was collected.	Derived from location
StateProvince	The full, unabbreviated name of the state, province, or region from which the organism was collected.	Derived from location
Locality	The description of the locality from which the organism was collected. This includes park name and ecological subsection.	Park name

AKN Field	AKN Definition	NPS (marine bird) Fields
DecimalLatitude	The latitude of the location from which the organism was collected, expressed in decimal degrees.	Latitude
DecimalLongitude	The longitude of the location from which the organism was collected, expressed in decimal degrees.	Longitude
GeodeticDatum	The geodetic datum to which the latitude and longitude refer.	Derived from report
YearCollected	The four digit year in which the organism was collected from the field.	YYYY
MonthCollected	The two digit month of year during which the organism was collected from the field.	MM
DayCollected	The two digit day of the month which the organism was collected from the field.	DD
TimeCollected	The time of day the observation was collected from the field, expressed as decimal hours from midnight.	HH, MM, SS fields merged
Collector	The name(s) of the collector(s) of the original data for the observation.	L_OBS (left observer); R_OBS (right observer)
FieldNotes	A flag marking the existence of, or a reference to, notes taken in the field for the observation.	Comments
Remarks	Free text comments accompanying observation record.	COND; COND_1 (observer condition, 1- 5 (excellent to poor))
ProtocolType	Broad categories of protocols, such as Point Count, Transect, Banding, Aerial Survey, Area Search, etc.	Derived from report
ProtocolSpeciesTargeted	A short description of the species or taxonomic group targeted by the survey protocol.	Derived from report
ProtocolReference	A published reference describing the protocol used to collect the observation data.	Derived from report
ProtocolURL	The URL of the reference describing the protocol used to collect the observation data.	Derived from report
SamplingEventIdentifier	A unique identifier identifying the sampling event during which the observations were made.	TRIPID and TX# (Trip ID and transect number combined)
RouteIdentifier	A unique identifier for a route, a transect or any higher organizational unit that comprises a collection of sampling events.	TRIPID and Block (Trip ID and block number combined)
NumberOfObservers	The total number of observers who participated in the observation event.	NumberObs

AKN Field	AKN Definition	NPS (marine bird) Fields
EffortMeasurement1	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	HH; MM; SS (time as hours:minutes:seconds)
EffortUnits1	Units of measurement for the matching effort field.	Derived from HH; MM; SS
EffortMeasurement2	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Tx_Width (transect width)
EffortUnits2	Units of measurement for the matching effort field.	Derived from TX_Width
EffortMeasurement3	A measure of the effort that was devoted to the observation event. Units are defined by the matching EffortUnits field.	Beaufort (Beaufort sea scale)
EffortUnits3	Units of measurement for the matching effort field.	Derived from Beaufort
ObservationDescriptor	Other descriptor that provides further information on the behavior or location of the specimen observed.	Behavior
ObservationCount	Number of individuals detected or observed during this observation event.	Count
AllIndividualsReported	Whether the ObservationCount for a given taxon includes all individuals that have been detected during the sampling event.	Derived from report
AllSpeciesReported	Whether the ObservationCount for a given taxon includes all individuals that have been detected within a higher taxonomic group.	Derived from report
CommonName	Common vernacular name to describe the taxon.	Derived from report
RecordPermissions	Permissions regarding the display and distribution of this record.	Derived from report
TaxonomicAuthorityAuthors	Name of the author(s) who published the taxonomic authority used for this record.	Derived from report
TaxonomicAuthorityVersion	Version number of the taxonomic authority.	Derived from report
SpeciesCode	Alphanumeric code describing a species.	Spp (four letter species code)
HabitatDescription	General description of the habitat within the survey area.	TransType (coastal or pelagic)
Remarks2	Additional remarks field.	REC (record number)