

## PROJECT INFORMATION

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<b>Title:</b>	Yellow-Billed Loon Database Project Agreement No: L13PG00154
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## PROJECT OVERVIEW

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The Bureau of Land Management- Arctic Field Office has a requirement for coordinating research and monitoring projects related to the effectiveness of stipulations and surface resource impacts in the National Petroleum Reserve - Alaska. Yellow-billed Loons are among the least common breeding birds in the mainland United States and the U.S. breeding population is concentrated largely within the National Petroleum Reserve – Alaska (NPR-A). Interest in developing the oil and gas reserves within NPR-A has increased within the last 10 years, along with a need for better information with which to protect loon populations. Fundamental to protection strategies is a good understanding of distribution and abundance.

In 2007, the U.S. Fish and Wildlife Service (Service), in cooperation with the Bureau of Land Management (BLM), began development of a comprehensive database of yellow-billed loon observations (*Gavia adamsii*). The database was intended to provide a qualitative "first look" at where loons have been recorded and where surveys have been conducted. From the standpoint of project assessment, the purpose was to provide a "one-stop shop to identify data sources and data quality, and a general sense of relative abundance for a particular project area". Data assembled during the initial effort was compiled and distributed to users in 2008. The database was further updated in 2010 and is now available for download from the Arctic LCC website (<http://arcticlcc.org/projects/ALCC2010-14>).

The 2013 agreement with BLM (# L13PG00154) provided the financial support necessary to further update the *Yellow-billed loon Geodatabase* by incorporating recent information on observations and surveys for yellow-billed loons within Alaska and expand the geographic scope to include the Canadian Arctic (Figure 1).

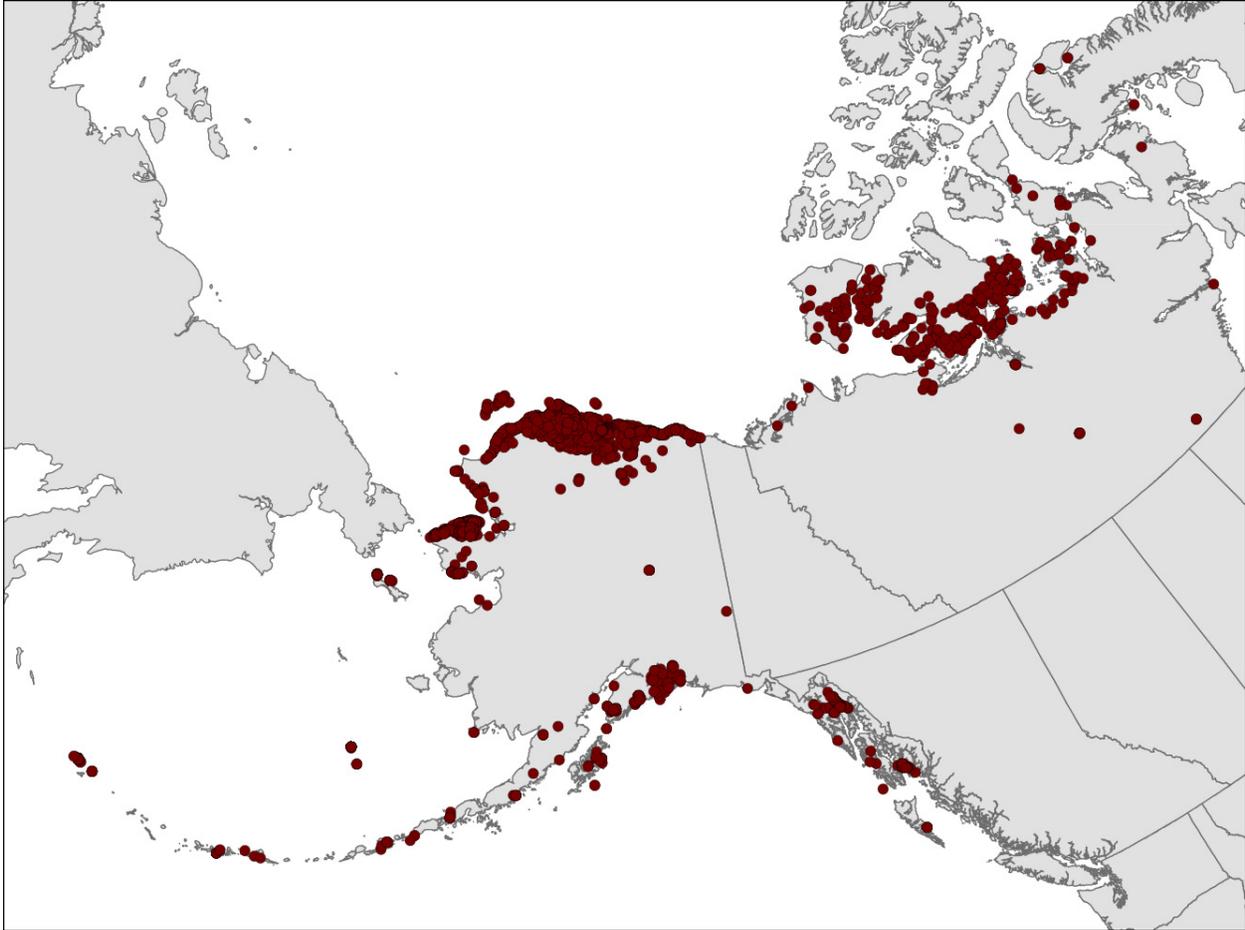


Figure 1. Simple map showing the geographic extent of the Yellow-billed loon database. Loon observations are depicted as dark red circles.

### ***Database structure:***

The geodatabase is comprised of two feature classes (observations and survey\_poly) and two tables (incidental\_attributes and reference\_information). Each Observation is assigned an ID that is used to link it to either a Survey (Survey\_ID) or an Incidental (Incd\_ID) record. Observations of yellow-billed loons (YBLOs) are considered to have been derived from a survey if both of the following conditions are met 1) there was a search area with reasonably well-defined boundaries, and 2) YBLOs were among the taxa specifically targeted by the survey. Any observation that does not meet these criteria is classified as incidental observations. Incidental observations can include observations contributed by persons engaged in activities other than wildlife surveys, observations obtained during the course of biological survey work targeted at another species such as caribou, historical observations from the literature, or observations derived from surveys that cannot be matched with a corresponding survey polygon. Incidental observations are assigned the non-unique value "Incidental" in the Survey\_ID field and are related to the incidental\_attributes table via a unique value in the Incd\_ID field. A simplified schema for the geodatabase is presented in Figure 2. A complete data dictionary is provided in Appendix A.

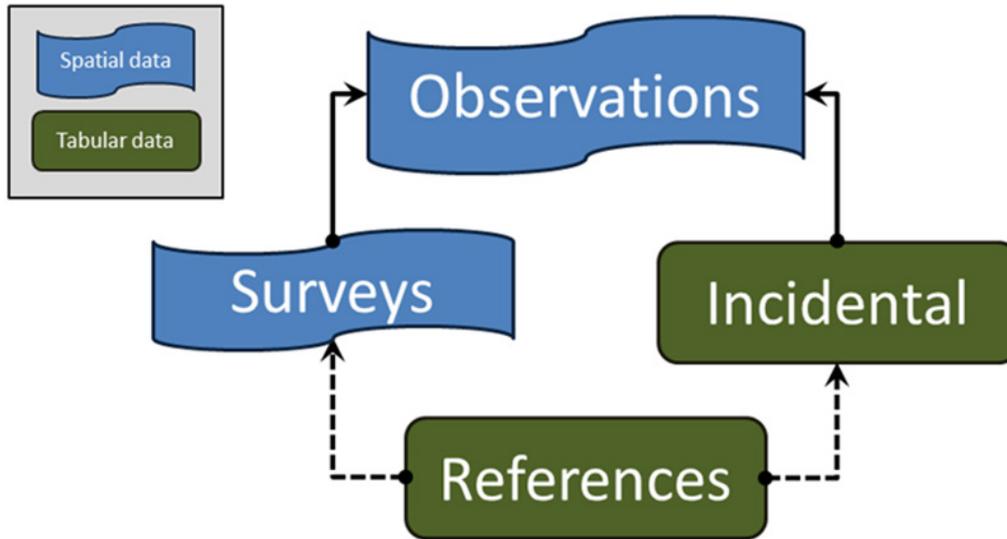


Figure 2. Simplified database structure.

## SUMMARY OF ACCOMPLISHMENTS

### **Addition of new information:**

The 2013 effort to update the Yellow-billed loon Geodatabase (Geodatabase) resulted in the addition of 3,645 observation points and 47 sources. A *partial summary* of new data added to the Geodatabase is presented below:

Author(s) or name of data provider	Name of dataset
Platte, R.M, Larned, W.W, Stehn, R.A.	Analysis of Aerial Survey Indices Monitoring Waterbird Populations of the Arctic Coastal Plain, Alaska, 1986-2012
Dau, C.P. and K.S. Bollinger	Aerial Population survey of common eiders and other waterbirds in near shore waters and along barrier islands of the Arctic Coastal Plain of Alaska, 2011
Johnson, C.B., A.M. Wildman, J.P. Parrett, J.R. Rose, T. Obritschkewitsch, and P.E. Seiser	Avian Studies for the Alpine Satellite Development Project, 2012.
Corcoran, R.	Kodiak Refuge Breeding Nearshore Marine Bird Survey, 2012
Lok, C.M. and J.A.J Vink	Trends and Fluctuations in Bird Populations on the Tundra at Cambridge Bay, Nunavut.
Groves, D.J. and E. J. Mallek	Migratory bird survey in the western and central Canadian Arctic, 2011
Flamme, M.	ARCN Yellow-Billed Loon Occupancy Survey 2013, Bering Land Bridge National Preserve
Flamme, M.	ARCN Yellow-Billed Loon Productivity Survey 2011, Bering Land Bridge National Preserve
Flamme, M.	ARCN Yellow-Billed Loon Occupancy Survey 2011, Bering Land Bridge N.P., Cape Krusenstern N.M.
Johnson, C. B., A. M. Wildman, J.P. Parrett, J. R. Rose, T. Obritschkewitsch, and P.E. Seiser	Avian Studies for the Alpine Satellite Development Project, 2011.

Author(s) or name of data provider	Name of dataset
Groves, D.J. and E. J. Mallek	Migratory bird survey in the western Canadian Arctic, 2010
Johnson, C.B., A.M. Wildman, J.P. Parrett, J.R. Rose, T. Obritschkewitsch, and P.E. Seiser	Avian Studies for the Alpine Satellite Development Project, 2010.
P.E. Seiser and C.B. Johnson	Eider Nest Searches at the CD-3 Pad, Ice road, Spill Response Sites, and Pipeline Bridges on the Colville River Delta, 2010.
Johnson, C.B., A.M. Wildman, J.R. Rose, and T. Obritschkewitsch	Avian Studies for the Alpine Satellite Development Project, 2009.
Groves, D.J., E.J. Mallek, and T.J. Moser.	Migratory bird surveys in the Canadian Arctic 2008.
Groves, D.J., E.J. Mallek, R. MacDonald, and T.J. Moser.	Migratory bird surveys in the Canadian Arctic 2007.
Bollinger, K.S.	Aerial Population survey of common eiders and other waterbirds during the breeding season- Northwestern Alaska, July 2009
Groves, D.J., E.J. Mallek	Migratory bird surveys in the Canadian Arctic, 2009.
Johnson, C.B., A.M. Wildman, J.P. Parrett, J.R. Rose, T. Obritschkewitsch, and A.A. Stickney	Avian Studies for the Alpine Satellite Development Project, 2008.
Bollinger, K.S., R.M. Platte, R.A. Stehn, and D.K. Marks	Western Alaska Yellow-billed Loon Survey - 2007
Johnson, C.B., A.M. Wildman, J.P. Parrett, J.R. Rose, T. Obritschkewitsch, and J. Shook	Avian Studies for the Alpine Satellite Development Project, 2007. Fifth Annual Report.
Johnson, C.B., J.P. Parrett, and P.E. Seiser.	Spectacled Eider Monitoring at the CD-3 Development, 2007.
Conant, B., D.J. Groves, and T.J. Moser.	Distribution and Abundance of Wildlife from Fixed-Wing Aircraft Surveys in Nunavut, Canada June 2006.
Johnson, C.B., J.P. Parrett, and P.E. Seiser.	Spectacled Eider Monitoring at the CD-3 Development, 2006.
Johnson, C.B., A.M. Wildman, J.P. Parrett, J.R. Rose, and T. Obritschkewitsch	Avian Studies for the Alpine Satellite Development Project, 2006.
Conant, B., F. Roetker, and D.J. Groves.	Distribution and abundance of wildlife surveys from fixed-wing aircraft surveys on Victoria Island and Kent Peninsula, Nunavut, Canada, June 2005.
Platte, R., R. Stehn, and E. Mallek	Western Alaska Yellow-billed Loon Survey – 2005.
Johnson, C.B., A.M. Wildman, J.P. Parrett, J.R. Rose, and J.E. Shook.	Avian Studies for the Alpine Satellite Development Project, 2005.
Johnson, C.B., R.M. Burgess, A.M. Wildman, A.A. Stickney, P.E. Seiser, B.E. Lawhead, T.J. Mabee, A.K. Prichard, and J.R. Rose	Wildlife Studies for the Alpine Satellite Development Project, 2004.
Johnson, C.B., R.M. Burgess, A.M. Wildman, A.A. Stickney, P.E. Seiser, B.E. Lawhead, T.J. Mabee, J.R. Rose, and J.E. Shook	Wildlife Studies for the Alpine Satellite Development Project, 2003.
Johnson, C.B and A.A. Stickney	Avian Surveys of Exploration Sites in the National Petroleum Reserve-Alaska, 2001.

#### **Edits to database:**

The 2013 update also provided the opportunity to review existing data for errors and omissions, match existing observation records with newly acquired survey polygons, and restructure the *Incidental Attributes* table to more closely match the *Survey* attributes table. Furthermore, both the *Survey* and *Incidental Attributes* tables now include a field that allows users to record information about a survey ID that may have been assigned by the data provider (R\_Svy\_Code).

## PRODUCTS

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The product generated from this agreement is an updated version of the Yellow-Billed Loon Geodatabase with FGDC-compliant metadata. In an effort to maximize usability of the database, we have made the dataset available in three different formats:

1. Esri Filegeodatabase version 10.1 (gdb)
2. Shapefiles (shp) and text files (csv)
3. FGDC-compliant metadata formatted as XML and indented text.

The Yellow-Billed Loon Geodatabase will be distributed to the public via the Arctic LCC website (<http://arcticlcc.org/projects/ALCC2010-14>)

**Observation Points: (observations)**

Feature class that depicts observations of yellow-billed loons.

Field name:	Data type:	Description:
Observ_ID	Text	<b>Required.</b> Unique identifier for each observation, assigned when data are aggregated into the database. This field serves as the primary key for the <b>Observation attributes</b> table. The 'Observ_ID' is a combination of contributor (limited to 6 characters), year (YYYY), and observation # (sequential). Examples: ABR_2005_001 and FWS_2005_001.
Survey_ID	Text	<b>Required.</b> Unique identifier for each survey, assigned when data are aggregated into the database. A survey will be assigned a 'SURVEY_ID' only if loons are one of the targeted species <b>or</b> survey methods are such that there is a reasonable probability that the presence of loons would be detected. The 'SURVEY_ID' is a combination of contributor (limited to 6 characters), year (YYYY), purpose code (PN, NE, BR, BP, FM, SP; see <b>Survey table for purpose code definitions</b> ), and survey # (sequential). Examples: ABR_2005_BP_001, and FWS_2005_PN_001.
Incd_ID	Text	<b>Required.</b> Unique identifier for incidental observations, assigned when data are aggregated into the database. Any observation that occurs outside of surveys that targeted loons will be assigned an incidental ID (Incd_ID). The 'Incd_ID' is a combination of 'Incd', year (YYYY), and incidental # (sequential). Examples: Incd_2004_999 and Incd_2005_002. Incidental observations will also be assigned the non-unique value 'Incidental' in the 'SURVEY_ID' field.
Species	Text	<b>Required.</b> Species. Entries will be limited to YBLO.
Year_	Number	<b>Required.</b> Year of observation (YYYY).
Date_	Date/Time	Date of observation (MM/DD/YYYY).
Time_	Integer	Time of observation (HHMM).
LatDD83	Number	Latitude, in decimal degrees.
LongDD83	Number	Longitude, in decimal degrees.
Pairs	Number	Number of pairs seen.
Ad_Cnt	Number	Number of adults seen.
Yg_Cnt	Number	Number of young seen.
Brood	Text	Describes if a brood was seen (Yes or No).
TOT_CNT	Number	Number of adults and young seen.
Nest	Number	Number of nests seen; 'unknown' will be a subset of zero.
Flying	Text	Were the bird(s) flying? Y (yes) or N (no).
On_Transect	Text	Were the bird(s) seen on a transect? Y (yes) or N (no).
Habitat	Text	Wetland habitat type where bird(s) were observed.
Behavior	Text	Brief summary of behavior and/or breeding status.
Notes	Memo	Additional information about the observation provided by the data contributor.
Comments	Memo	Any comments/notes made by the data steward of the YBLO GDB.
R_Code	Text	Original identifier within the researcher's database.
Datum_Trans	Text	Datum transformation used on these data, if any.

**Survey polygon feature class: (survey\_poly)**

Feature class that represents survey areas.

Field name:	Data type:	Description:
Survey_ID	Text	<b>Required.</b> Unique identifier for each survey, assigned when data are aggregated into the database. A survey will be assigned a 'SURVEY_ID' only if loons are one of the targeted species <b>or</b> survey methods are such that there is a reasonable probability that the presence of loons would be detected. The 'SURVEY_ID' is a combination of contributor (limited 6 characters), year (YYYY), purpose code (PN, NE, BR, BP, MO; see 'Purpose' for code definitions), and survey # (sequential). Examples: ABR_2005_BP_001, FWS_2005_PN_001.
Survey_Loc	Text	General description of the survey location. For example, Barrow Triangle, Alpine, Prudhoe Bay, Colville River Delta.
Survey_Name	Text	Name of the survey. For example, Eider breeding population survey Arctic Coastal Plain.
Ref_ID	Number	Identifies the record, within the 'references_information' table that is associated with a survey.
Start_Date	Date/Time	Start date of survey (MM/DD/YYYY).
End_Date	Date/Time	End date of survey (MM/DD/YYYY).
Start_Year	Number	Year survey started (YYYY).
End_Year	Number	Year survey ended (YYYY). Only those surveys that start in December of one year and end in January of the next year will have different start and end years.
Type_	Text	Describes the type of survey. Suggested values are: aerial or ground
Platform	Text	Describes the platform used for the survey. Suggested values are: fixed-wing, helicopter, non-motorized, motorized.
Purpose	Text	Biological purpose of the survey. Suggested values are: pre-nesting (PN), nesting (NE), brood-rearing (BR), breeding pair (BP), and fall molt (FM), or spans multiple time periods, such as brood-rearing and molting (SP).
Coverage	Text	Describes how thoroughly an area was searched. Suggested values are: sample, census, incomplete, or unknown.
Replicate	Number	Replicate number, if applicable.
Map_Mthd	Text	Method used to map the survey area, if known. Suggested values are: topographic map, aerial photo, satellite image, GPS, or a combination of these.
Error_Ind	Text	Indicator of accuracy. May be scale of map or photo (for example; 1:250,000, 1:63,360, 1"=500') or precision of GPS coordinates.
Null_Suy	Text	If YBLOs were <u>NOT</u> detected, this field contains a Y. If YBLOs were detected, this field contains a N.
YBLO_tot	Number	Total number of YBLOs seen during the survey.
YBLO_adult	Number	Total number of adult YBLOs seen during the survey.
YBLO_yng	Number	Total number of young YBLOs seen during the survey.
YBLO_nest	Number	Total number of YBLO nests seen during the survey.
YBLO_broods	Number	Total number of YBLO broods seen during the survey.
Notes	Memo	Additional information about the survey made by the data provider.
Comments	Memo	Any comments/notes made by the data steward of the YBLO GDB.
R_Svy_Code	Text	Original survey ID assigned by data provider.
DatumTrans	Text	Datum transformation used on these data, if any.

**Incidental observations table: (incidental\_attributes)**

Information related to incidental observations of yellow-billed loons.

Field name:	Data type:	Description:
Incd_ID	Text	<b>Required.</b> Unique identifier for incidental observations, assigned when data are aggregated into the database. Any observation that occurs outside of surveys that targeted loons will be assigned an incidental ID (Incd_ID). The 'Incd_ID' will be a combination of 'Incd' <u>underscore</u> year (YYYY) <u>underscore</u> incidental # (sequential). Examples: Incd_2004_999, Incd_2005_001, and Incd_2005_2005.
Incd_Loc	Text	General description of where the observation occurred. For example, Barrow Triangle, Alpine, Prudhoe Bay, Colville River Delta
Ref_ID	Text	Identifies the record, within the 'references_information' table that is associated with an incidental observation.
Start_Year	Number	First year (YYYY) of data associated with an Incidental ID. Similar to the "Start_Year" of a survey.
End_Year	Number	Last year (YYYY) of data associated with an Incidental ID. Similar to the "End_Year" of a survey.
Type_	Text	Describes the type. Suggested values are: aerial or ground.
Platform	Text	Describes the platform used. Suggested values are: fixed-wing, helicopter, non-motorized, motorized.
Map_Method	Text	Method used to map the observation area. Suggested values are: topo, aerial photo, satellite image, GPS, or a combination of these.
Error_Ind	Text	Indicator of accuracy. May be scale of map or photo (example; 1:250,000, 1:63,360, 1"=500') or precision of GPS coordinates.
YBLO_tot	Number	Total number of YBLOs seen during the survey.
YBLO_adult	Number	Total number of adult YBLOs seen during the survey.
YBLO_yng	Number	Total number of young YBLOs seen during the survey.
YBLO_nest	Number	Total number of YBLO nests seen during the survey.
YBLO_broods	Number	Total number of YBLO broods seen during the survey.
Notes	Memo	Additional information about the survey made by the data provider.
Comments	Memo	Any comments/notes made by the data steward of the YBLO GDB.
R_Svy_Code	Text	Original survey ID assigned by data provider.
DatumTrans	Text	Datum transformation used on these data, if any.

**Reference information table: (reference\_information)**

Information about the references (publications, personal communications) where the user can find additional information about loon observations and surveys included in the Yellow-billed loon geodatabase.

Field name:	Data type:	Description:
Ref_ID	Integer	<b>Required.</b> Unique identifier for each record.
Species	Text	This field identifies the loon species are referenced by the report.
Author	Text	Author(s) of a report <b>or</b> the name of the data provider
Publication_Year	Number	Year report was published (YYYY).
Title	Text	Title of the reference or name of the dataset.
Publication_Name	Text	Name of the publication
Volume	Text	Volume of publication.
Pages	Text	Pages number in a publication or the number pages in a report.
Source_Type	Text	Brief description of the reference. Suggested values are: Chapter, Conference proceedings, Data, Dissertation/thesis, Draft report, Journal article, or Report.
Published	Text	Was the reference published? Y (yes) or N (no)
Publisher	Text	Name of the publisher.
Years_of_Study	Text	Year or years of study. Example, 2000, 2010-2012.
Website	Text	Web address where a copy of the reference can be found.
Agency	Text	Agency or organization responsible for collecting the data presented in the reference.
Client	Text	Agency or organization providing support for collection of the data presented in the reference.
Contact	Text	Point of contact for the reference.
Email	Text	Email address for point of contact.
Phone	Text	Phone number for point of contact.
Data_Type	Text	Describe data type