WINTER WATERFOWL SURVEY

MEXICO WEST COAST AND BAJA CALIFORNIA

Ed Mallek, Jim Wortham, and Bill Eldridge
U.S. Fish and Wildlife Service

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Introduction

The survey aircraft arrived at Imperial, California on 11 January. We initiated the survey on 13 January and terminated the survey at Imperial, California on 23 January. Areas surveyed this year were the mainland west coast from Tiburon to Pabellon, and the west coast of Baja California from Bahia Magdalena through Bahia San Quintin. This survey is a continuation of the annual winter waterfowl survey which is conducted in the United States and Canada. Major survey emphasis was placed only on Pacific brant wintering areas during the periods 1966-1976, 1983-1984, 1986-1987, 1989-1990, 1992-1993, 1995-1996, 1998-1999, 2001-2002, 2004-2005, 2007-2008, and 2010. This survey was not conducted in 2009 due to safety concerns regarding drug related violence in Mexico. All major coastal waterfowl wintering areas were surveyed (wintering duck surveys as well as Pacific brant) every fifth year prior to 1977, every year from 1977 through 1982, and every third year beginning in 1985.

Ed Mallek, Waterfowl Management, Fairbanks, Alaska served as pilot/observer; Jim Wortham, Chief-Waterfowl Population Surveys/DMBM, Laurel, Maryland was the primary observer on the west coast mainland of Mexico; and Bill Eldridge, Waterfowl Management, Anchorage, Alaska (retired) was the primary observer on the Baja Peninsula. We were happy that biologists from CONANP, Pronatura, and the University at La Paz were able to join us on the survey. Their help was greatly appreciated and we hope to collaborate with them on future surveys.

The specially modified Alaskan deHavilland beaver aircraft on amphibious floats (N754) was used this year, making its twenty-second trip to Mexico and it has increased both the safety and the quality of the surveys. The following itinerary outlines the daily flights during the survey.

Date	Route and Area Surveyed
13 January	Imperial, California to Guaymas, Sonora
	Surveyed unit Tiburon.
	Flight time: 5.5 hours
14 January	Guaymas to Los Mochis, Sinaloa
	Surveyed units: Guaymas to Estero de Lobos, Estero de Lobos, Isla Tobari, Bahia de Santa Barbara, and Agiabampo.
	Flight time: 4.4 hours
15 January	Los Mochis
	Surveyed units: Bahia de San Esteban and Topolobampo.
	Flight time: 3.8 hours
16 January	Los Mochis
	Surveyed units: Bahia de Santa Maria and Pabellon.
	Flight time: 5.0 hours
17 January	Los Mochis to La Paz, B.C.S.
	Cross country flight.
	Flight time: 3.1 hours
19 January	La Paz to Loreto, B.C.S.
	Surveyed unit Bahia de Magdalena, returned to La Paz, and flew a cross country flight to Loreto.
	Flight time: 6.5 hours
20 January	Loreto
	Surveyed unit Bahia San Ignacio.

Flight time: 4.7 hours

23 January Loreto to Imperial, California

Surveyed units: Scammon’s Lagoon and Bahia San Quintin.

Flight time: 8.0 hours

A total of 41.0 survey related hours was flown in Mexico in eight days.

Weather conditions during the survey flights were normal with generally clear skies, visibility unlimited, and winds were calm to 20 knots. However, we did encounter two “weather days” on 21 and 22 January that did not provide good survey conditions due to heavy rain, reduced visibilities, and wind in the survey area (Scammon’s Lagoon and San Quintin) so we did not fly surveys on those days. The San Quintin area received very heavy rain resulting in flooding conditions adjacent to the survey area. This heavy rain may have caused movement of brant in this survey unit.

Habitat Conditions

Habitat conditions on the mainland side of the survey area were found to be normal this year.

On the west side of the Baja Peninsula, coastal waterfowl habitat appeared little changed, although heavy rains and flooding around San Quintin resulted in standing water in areas that are normally dry.

Waterfowl Populations

Ducks

Duck populations were not surveyed in western Mexico this year.

Brant

A complete survey of the traditional brant wintering areas in Mexico was accomplished this year and the data are presented in Table 1 by survey unit for the years 1999-2008 and 2010. The total number of brant recorded in 2010 was 95,077. The 2010 count was 8% below the 2008 count and was 2% above the previous

ten year mean (1999-2008). Mainland brant numbers increased 68% from the previous ten year mean (23,389 in 2010 versus 13,934 in 99-08) with the following survey unit totals: Tiburon (10,426,+96%), Obregon (7,719, +35%), Agiabampo (1,458, +444%), Topolobampo (992, +62%), and Santa Maria (2,794, +37%). Brant recorded on the Baja Peninsula decreased 10% from the previous ten year mean (71,688 in 2010 versus 79,220 in 99-08) with the following survey unit totals: Magdalena (5,884, -1%), San Ignacio (11,568, -44%), Scammon's (32,836, +5%), and San Quintin (21,400, +1%).

The relative distribution and numbers of brant in 2010 are shown in Figure 1.

Brant Population Comparisons and Trends

Table 2 presents a comparison of the 2009 and 2010 Pacific brant wintering estimates (Alaska, west coast of the U.S., and Mexico) and the previous fall population estimates at Izembek Lagoon (Pacific brant staging area in southwest Alaska).

There now are 30 years of comparative estimates of the fall staging population of brant at Izembek National Wildlife Refuge. Figure 2 compares these estimates to those obtained on the wintering grounds along the west coast (primarily in Mexico but also in Washington, Oregon, California, and Izembek NWR). In spite of the technical limitations of obtaining all of these estimates, both the fall and the winter surveys have tracked the populations of Pacific brant in a similar fashion.

Since 1965 the majority of brant counted during the winter surveys in Mexico, Washington, Oregon, California, and Alaska have been tallied in Mexico. However, in recent years a larger proportion of the population has wintered in Alaska and the northwest U.S. than previously. A plot of population estimates in Mexico (with the omission of an obvious outlier and data from 2009) reveals a significant downward trend (Figure 3). A plot of annual productivity data (percent juvenile) collected at Izembek Lagoon in the fall previous to the winter survey shows a slight downward trend (Figure 4). However, this slight downward trend in Figure 4 is primarily due to a "clump" of good production throughout most of the 1970s. Figure 5, the AHY component in Mexico, also illustrates the recent status of brant wintering in Mexico.

Table 1. Total Brant by Survey Unit for the West Coast and Baja California, Mexico 1999-2008 and 2010.

Survey Area	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2010	Previous 10-Year Average	Percent Change From 2008	Avg.
Tiburon	8,140	4,780	6,415	2,730	3,388	5,040	6,867	3,662	4,403	7,738	10,426	5,316	35	96
Obregon	3,495	8,805	3,415	6,080	3,067	6,450	4,472	7,207	6,767	7,239	7,719	5,700	7	35
Agiabampo	240	775	115	40	77	110	220	224	120	761	1,458	268	92	444
Topolobampo	660	835	1,520	380	628	370	260	145	1,057	266	992	612	273	62
Santa Maria	3,260	1,225	1,545	1,825	905	1,300	2,249	3,016	1,585	3,439	2,794	2,035	-19	37
Pabellon	0	0	0	0	29	0	0	0	0	0	0	3	0	-100
Mainland Subtotal	15,795	16,420	13,010	11,055	8,094	13,270	14,068	14,254	13,932	19,443	23,389	13,934	20	68
Magdalena	1,870	4,045	4,000	3,705	4,808	4,520	7,065	10,341	8,061	11,306	5,884	5,972	-48	-1
San Ignacio	21,460	16,720	20,790	28,950	26,212	19,700	15,272	25,781	14,094	18,836	11,568	20,782	-39	-44
Scammon's	36,485	42,570	33,670	32,970	23,028	27,675	20,938	31,181	30,054	33,194	32,836	31,177	-1	5
San Quintin	25,150	28,685	20,390	28,370	20,084	19,790	16,685	20,180	13,041	20,520	21,400	21,290	4	1
Baja Subtotal	84,965	92,020	78,850	93,995	74,132	71,685	59,960	87,483	65,250	83,856	71,688	79,220	-15	-10
TOTAL BRANT	100,760	108,440	91,860	105,050	82,226	84,955	74,028	101,737	79,182	103,299	95,077	93,154	-8	2

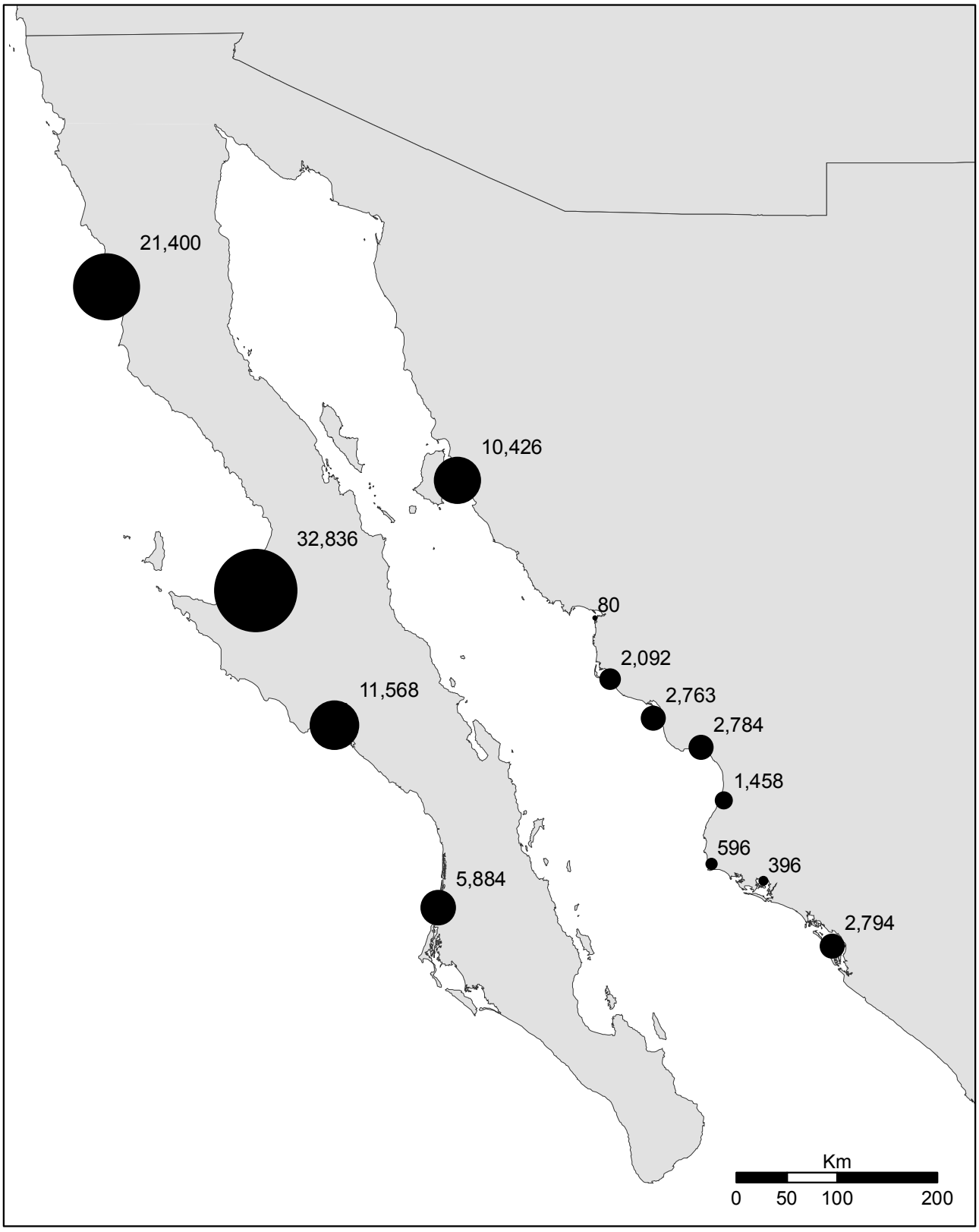

Figure 1. Relative abundance of Pacific brant among survey units of the Mexico West Coast and Baja California survey, January 2010.

Table 2. Comparison of brant survey estimates, numbers are in thousands.

		2010		2009
WINTER	Total	Juvenile[a]	AHY[b]	Total
Mexico	95.1	25.5	69.6	NA[c]
WA,OR,CA	37.5	10.0	27.5	36.5
Alaska	26.4	7.1	19.3	21.5
Total	159.0	42.6	116.4	NA[c]
w/o WHA[d]	143.9	38.6	105.3	NA[c]

		2009		2008
FALL	Total	Juvenile[a]	AHY[b]	Total
Izembek	120.6 168.6			115.8 164.8 119.6 120.9
Average	144.6	38.8	105.8	130.3

a Based on 26.8% juvenile measured from ground observations at Izembek Lagoon in the fall of 2009.
b AHY = after hatch year bird
c The 2009 Mexico brant survey was not conducted – data not available.
d WHA = western high arctic brant

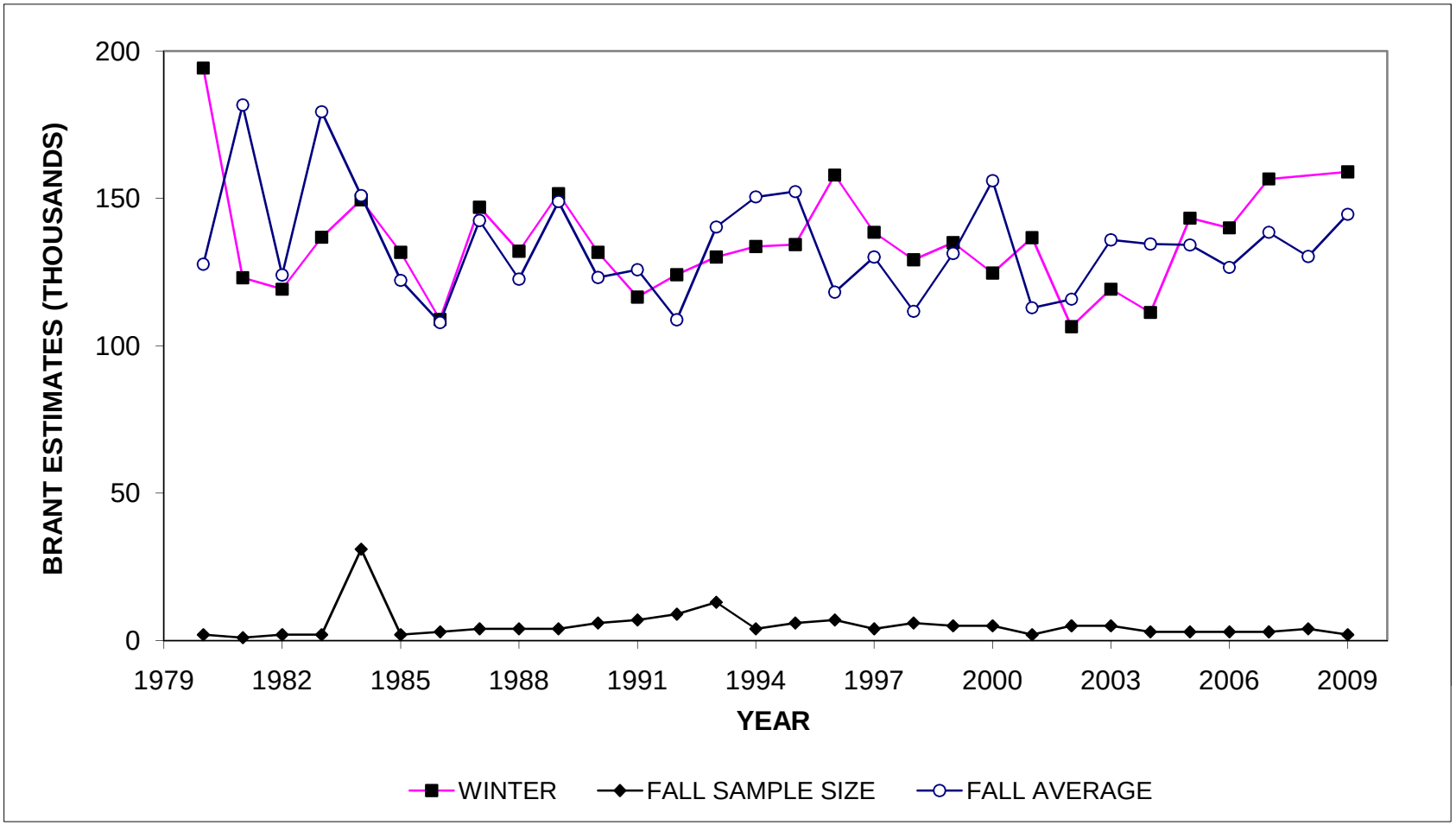

Figure 2. Average fall estimates of brant at Izembek Lagoon and adjacent habitats since 1980. Sample sizes for fall averages are illustrated at the bottom. Winter estimates were made three to four months after the respective fall surveys (in the next calendar year) in the coastal areas from Mexico to Alaska.

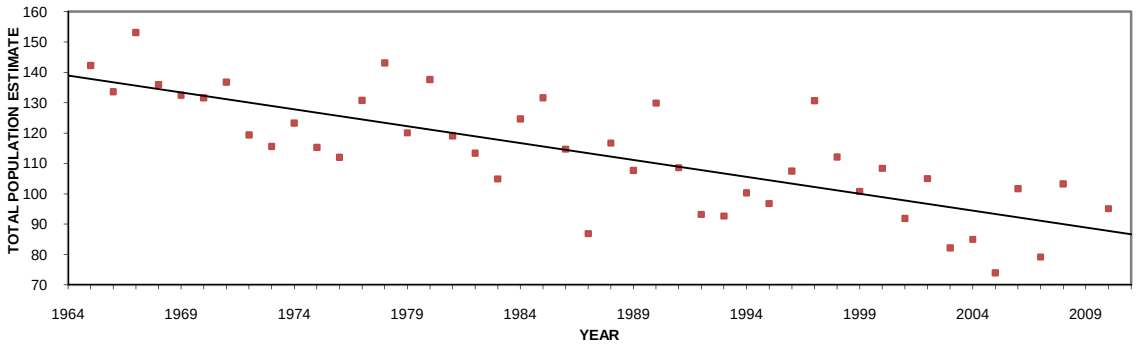

Figure 3. Mexico - Total population estimates in thousands, $p<0.01$.

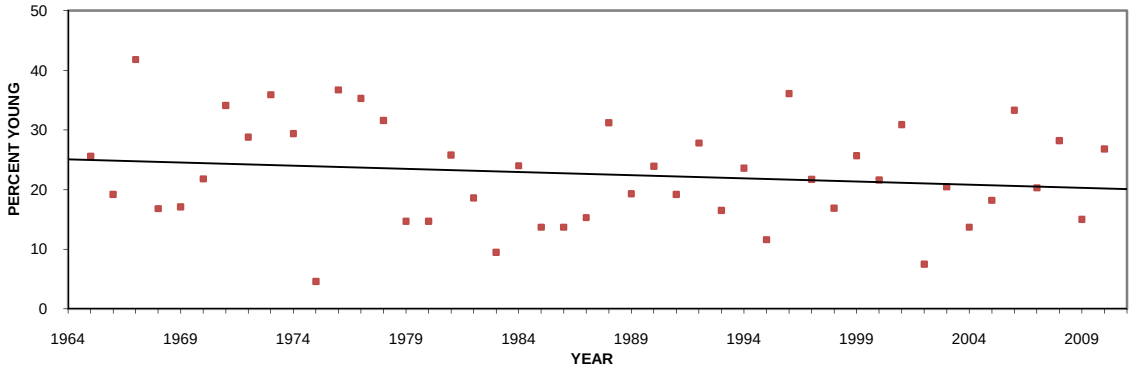

Figure 4. Izembek Lagoon - Percent juvenile in fall.

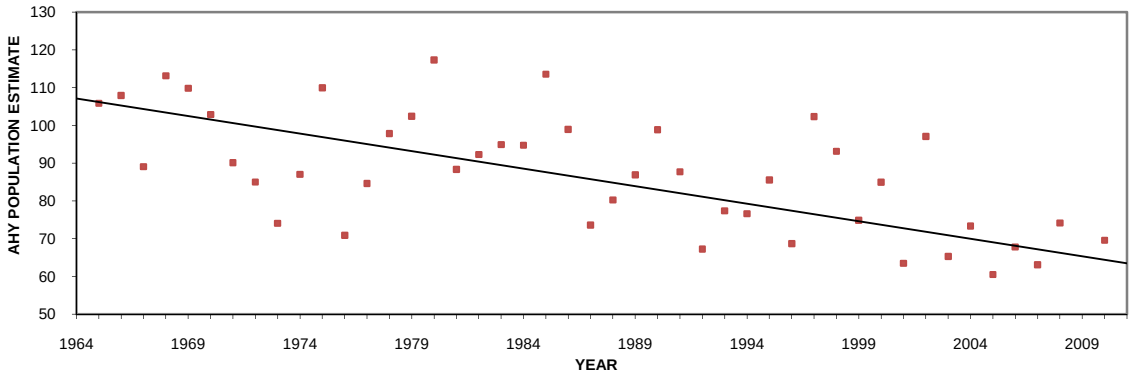

Figure 5. Mexico After Hatching Year Component - Total population estimate in thousands, minus juveniles (as measured at Izembek Lagoon in the previous fall).

Bald Eagles

Three bald eagle nests were located on Isla Creciente, south of Bahia Magdalena during the 1983 survey. Since then these sites as well as other "new" sites have been checked opportunistically. This year we found three active nests (adults on nest). Table 3 summarizes the active bald eagle nests located during the 2010 survey.

Discussion

Survey coverage and intensity for brant was similar to past years and data collected are comparable to historical records. The total estimate for brant on the wintering grounds in Mexico this year (95,077) was 2% above the previous ten year mean (1999-2008 range = 74,028 to 108,440). The brant estimate for the west coast of Mexico for 2010 (23,389) exceeded the previous ten year mean (1999-2008 range = 8,094 to 19,443) by 68%. The brant estimate for the Baja Peninsula for 2010 (71,688) was 10% below the previous ten year mean (79,220).

Due to lack of data from the 2009 Mexico brant survey, the current "three year mean" is calculated by using 2008 and 2010 data only and is 145,655. This mean is higher than previous three year means (1988-2008 three year mean range 104,834 to 135,331) and may indicate an increasing trend in the brant population.

Recommendations

Continue the formal survey design for only brant wintering areas in years between the expanded Mexico Mid-Winter Surveys.

Continue to standardize observers to the extent possible to enhance the comparability of the data.

Consider developing an additional survey design for inland wintering ducks and modify the coastal design for ducks in years when all waterfowl are surveyed.

Continue to monitor radio telemetry frequencies throughout the survey trip from Alaska.

Date submitted: May 21, 2010 Submitted by: Ed Mallek

Table 3. Active Bald Eagle Nest Observations - Bahia Magdalena, Baja California, Mexico during the 2010 brant survey.

Nest Location Lat.-Long.	Occupied Territory (No. of Adults)	Incubating Adult	Eggs or Young
N24^0 32.034′ W111^0 48.186′	1	yes	?
N24^0 22.182′ W111^0 33.732′	2	yes	?
N24^0 22.044′ W111^0 38.958′	1	yes	?

Appendix 1. Latitude-Longitude positions of survey units for Mexico West Coast and Baja California.

Survey Unit	Starting Position	Ending Position
Mainland - West Coast		
1.Mexicali to Tiburon[a]	N32°10'-W115°00'	N29°17'-W112°20'
2.Tiburon to Guaymas[a]	N29°17'-W112°20'	N28°00'-W111°11'
3.Guaymas to Estero de Lobos[b]	N27°55'-W110°50'	N27°30'-W110°35'
4.Estero de Lobos[b]	N27°30'-W110°35'	N27°05'-W110°05'
5.Isla Tobari[b]	N27°05'-W110°05'	N26°40'-W109°40'
6.Bahia de Santa Barbara[b]	N26°40'-W109°40'	N26°30'-W109°16'
7.Agiabampo	N26°30'-W109°16'	N26°00'-W109°20'
8.Bahia de San Esteban[c]	N25°50'-W109°25'	N25°40'-W109°17'
9.Topolobampo[c]	N25°40'-W109°17'	N25°20'-W108°35'
10.Bahia de Santa Maria	N25°18'-W108°27'	N24°45'-W107°55'
11.Pabellon	N24°40'-W108°00'	N24°20'-W107°25'
12.El Dorado to Dimas	N24°20'-W107°25'	N23°57'-W107°00'
13.Caimanero	N23°06'-W106°13'	N22°52'-W106°00'
14.Marismas Nacional	N22°52'-W106°00'	N21°50'-W105°25'
15.Cuyutlan	N20°05'-W105°34'	N18°56'-W104°02'
Baja de California		
16.Bahia de Magdalena	N25°44'-W112°05'	N24°18'-W111°22'
17.Bahia San Ignacio	N26°25'-W112°46'	N26°50'-W113°30'
18.Scammon's Lagoon	N27°30'-W113°52'	N28°15'-W114°08'
19.San Quintin	N30°23'-W115°55'	N30°30'-W116°00'

Note: In Tables 2 and 3

[a] Units 1 and 2 = Tiburon
[b] Units 3 - 6 = Obregon
[c] Units 8 and 9 = Topolobampo