

**Appendix 4.** Summary of active (2006) and otherwise-known BRPE breeding colonies for the *Mexican Mainland, Estuarine (MME)* subpopulation<sup>a</sup>.

Site Name	Approx LAT	Approx LONGI	Nests (Air)	STG <sup>b</sup>	Da/Mo	r/s <sup>c</sup>	#Nests	Da/Mo/Yr	#Nests (fin. est.)	Source Final Est <sup>d</sup>	Dis <sup>e</sup>	# not @ Nests <sup>f</sup>	Est Non-YY # <sup>i</sup>	% BH <sup>f</sup>	REM <sup>g</sup>
Bahía Ohuira (nr. Topolobompo), SIN	25 37.2	109 00.8	0	NO	30/03	*	*	*	0	1,2	ND	0	±500	?	34
Bahía Ohuira (nr. Lazaro Cardenas), SIN	25 36.1	108 59.0	50	MM	30/03	*	*	*	50	1,2	ND	0	few	?	35
Bahía Ohuira (nr. Lazaro Cardenas), SIN	25 35.6	108 59.3	0	NO	30/03	*	*	*	0	1	ND	0	few	?	35
Bahía Navachiste (nr. Huitussi), SIN	25 29.5	108 47.5	<100	MM	30/03	*	*	*	90	1,2	ND	0	3,000+	?	36,37
Estero Colorado (outer peninsula island), SIN	25 25.3	108 47.4	2	MM	30/03	*	*	*	2	1	ND	0	*	?	36,37
Estero Island (mouth of Bahía Navachiste), SIN	25 23.3	108 46.7	10	MM	30/03	*	*	*	10	1	ND	?	*	*	36,37, 38
Isla Pájaros ("Leonard's Island", inside Isla Macapule), SIN	25 22.9	108 43.5	1,000+	MM	30/03	15,16	1,500	25/4	1,080*	1,2,6	CD	?	400	<5	39,40
Isla el Mero (N Bahía Santa Maria), SIN	25 05.6	108 15.0	2,000	MM	30/03	17	*	*	1,850	1,2	CD	many	many	<5	41,42
Isla el Saltero (N Bahía Santa Maria), SIN	25 05.1	108 13.9	Present	?	30/03	17	*	*	250	1,2	CD	many	many	<5	41,42
Isla Pájaros (N Bahía Santa Maria), SIN	25 04.8	108 13.9	6,000	MM	30/03	17	*	*	6,950	1,2	CD	many	many	<5	41,42
Isla las Tunitas (N Bahía Santa Maria), SIN	25 04.5	108 13.2	?	?	30/03	17	*	*	90	1,2	CD	many	many	<5	41,42
Isla Talchichilte (mid-east edge), SIN	24 56.2	108 02.6	15	MM	30/03	*	*	*	15	1	ND	?	?	?	
Islas las Tijeras (4 close islands + islets, Ensenada Pabellones), SIN	24 27.4	107 34.0	0	NO	30/03	*	*	*	0	1,2	ND	?	few	?	41,43
Islas la Brasilera (outermost of series in Ensenada Pabellones), SIN	24 24.6	107 31.5	Present	MM	30/03	*	*	*	150	1,2	ND	?	few	<10	44
"Bird Island" (Bahía Tempehuaya), SIN	24 06.1	107 10.8	0	NO	30/03	*	*	*	0	1	ND	0	210	80	45

## NOTES &amp; REMARKS (footnoted from above):

<sup>a, b, d, e, f, g</sup>These footnotes are identical to those from Appendix 1.

<sup>c</sup>r/s = References and Sources (as numbered):

15—Leonard Montenegro, Jr., Arizona State University, *pers. comm.*

16—González-Bernal *et al.* (2002).

17—Carmona & Danemann (1994).

<sup>9</sup>ADDITIONAL REMARKS FROM THIS COLUMN ("REM"):

34—Although some species of waterbirds (mostly ardeids) commonly nest in two important estuaries to the north (Esteros Tóbari and San José, southern Sonora), there are no known colonies of BRPE (Palacios & Mellink 1995). On our 2006 survey, this area contained about 5500 loafing BRPE, approximately 90% immatures.

35—All of the three major islands in Bahía Ohuira, near Topolobampo, Sinaloa had numerous nesting seabirds and ardeids, but few pelicans nesting; there were many hundreds of BRPE and Magnificent Frigatebirds throughout this bay associated mostly with human activities.

36—At least 10 other islands in Bahía Navachiste could be potential BRPE and other species' nesting sites.

37—Several thousand (estimated at 3000+) BRPE were seen scattered about in this and nearby bays (San Ignacio and Navachiste Bays).

38—Later, DWA recalled Osprey plus Double-crested Cormorant nesting in close proximity to BRPE in mangroves at this location (a very unusual situation), but in the excitement, observers did not record the pelican nesting (DWA recalled the estimate).

39—There are 3 additional, potential BRPE nesting islands in this bay (precise names unknown, just inside Isla Macapule). Isla Pájaros was visited later, on pure coincidence, by his nephew after DWA learned that he was in the area on vacation and then asked him to visit the island with a local ecotourism guide to obtain some detailed photographs. Mean age of BRPE chicks at this location on 25 April (about 3 weeks after our survey) was 6.0 weeks (N = 55 broods tallied from photos). A correction factor of 1.081 was used.

40—An offshore island in the Topolobampo area, Isla Farallón de San Ignacio (25 26.5, 109 21.9), is not listed here as a potential BRPE nesting site because BRPE has never been reported as nesting there (see review by González-Bernal *et al.* 2002). This flat-topped island is an important nesting area for other seabird species, however.

41—Carmona & Danemann (1994) report about 1500-2000 BRPE nests as "regular" for this colony in the late-1980s (on 4-5 separate, close islands) and Knoder *et al.* (1980) also reported 1500 nests at this location in Bahía de Santa María in 1972. DWA (*field notes*) also previously confirmed about the same numbers in several past aerial surveys; yet, our 2006 estimates in Bahía Santa María were much higher. To the south about 100 km, and in the 1970s and 1980s, about 5000-6000 BRPE nests were "regular" at Islas los Tijeras in Ensenada Pabellones (DWA *field notes*); and, Knoder *et al.* (1980) reported 5000 BRPE nests at this same location in 1971. Yet, there were no BRPE nesting there in 2006 (but many nesting individuals of other species). The numbers in Bahía Santa María were enough to "account-for" the much lower numbers of pelicans seen on our 2006 survey in Ensenada Pabellones.

42--In passing overhead several times to photograph and census at Isla el Mero and Isla Pájaros, only an overall estimate of totals for the main two nesting islands was recorded, as indicated above. Further examination of photographs led us to the conclusion that there had been some undetected pelican nesting on two additional, small islands in this archipelago. There are about 4 additional islands in the north end of Santa María Bay, for example, and another 16 or so in the south, that could support nesting waterbirds.

43—In Ensenada Pabellones, there were many potential islands for Brown Pelican nesting, but few nesting pelicans were found; in addition, very low numbers of BRPE were seen in this bay, in general. In contrast, large numbers of ardeids, Magnificent Frigatebirds, and two species of cormorants (plus other species such as Wood Stork, *Mycteria Americana*, Roseate Spoonbill, *Ajaia ajaja*, and White Ibis, *Eudocimus albus*) were found nesting on about 5-6 of the many islands. There are at least 17 islands in the south bay and another 25 or more in the mid- and north-bay that could be suitable pelican and waterbird nesting habitat, plus many more small islets. Due to the high numbers of other species nesting in this area, it is possible that we did not detect small colonies of nesting pelicans in some of the areas; but, low numbers of pelicans elsewhere in the bay (and being mostly immatures) indicated that not many breeding pelicans were in this general area in 2006.

44—On the coast south of this last colony in the MME sub-population, amongst several thousand non-breeding pelicans, age-ratios again shifted to dominantly “brown-heads” (immatures) (80-90%).

45—In the 1970s and 1980s, DWA (*field notes*) reported 25-175 BRPE nests near this location in trees. The position given is estimated, as a new channel had been cut to the outer ocean since earlier surveys, and even the nesting island is now gone, apparently due to erosion or dredging.