

MEXICO Progress Report on Cetacean Research Jan – Dec 2003

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1. Species and stocks studied

Common name	Scientific name	Area/stock(s)	Items referred to
Blue whale	<i>Balaenoptera musculus</i>	NPacific (Baja California)	
Sperm whale	<i>Physeter macrocephalus</i>	Pacific (Gulf of California)	
Gray whale	<i>Eschrichtius robustus</i>	Eastern	
Fin whale	<i>Balaenoptera physalus</i>	Gulf of California	
Humpback whale	<i>Megaptera novaeangliae</i>	Mexican Pacific	
vaquita	<i>Phocoena sinus</i>	Upper Gulf of California	
Bottlenose dolphin	<i>Tursiops truncatus</i>	Northern Gulf of California	

2. Sightings data**2.1 Field work****2.1.1 SYSTEMATIC**

During the 2003, non systematic surveys to photo-identified blue whales during spring/winter in the southwestern Gulf of California were conducted. Photo-identification, dart biopsies and sloughed skin sampling of blue whales continued during 2003. Sperm whales were also photo-identified and sloughed skin sampled during these surveys and also during a specific sperm whale acoustic survey in collaboration with Nathalie Jaquet from Texas A&M University during may 2003.

Photo Identification surveys for gray whales at the Bahia Magdalena breeding grounds were conducted, starting a systematic effort in the area that was the least covered in past years.

One two weeks cruise on a medium size boat was done in October to study the fin whales in the southwest and central Gulf of California.

Humpback whale studies included systematic surveys on both small and medium size boats from February to April were done in the southern coast of the Baja California Peninsula.

Vaquita surveys were performed and sighting data recorded for this and other species. Also there was some photo-identification effort for bottlenose dolphins in the Gulf of California

2.2 Analyses/development of techniques

Give brief details of any analyses of data carried out, with references where appropriate. A summary table of sightings and associated effort may be included.

3. Marking data**3.1 Field work****3.1.1 NATURAL MARKING DATA**

Species	Feature	Area/stock	Calendar year/season/ no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Blue whale	Right/left/flukes	Npacific	2003/winter/65	Yes	(390)	D. Gendron CICIMAR-
Sperm whale	flukes	Npacific	250	yes	(500+)	D. Gendron, CICIMAR
Gray whale	dorsal	Eastern	200 aprox	In process		H. Perez-Cortes
Fin whales	dorsal	Gulf of California	2003/40	yes	400+	J. Urban
Humpback	Flukes/dorsal	Mexican	2003 winter/72	yes	1500+	J. Urban

3.2 Analyses/development of techniques

4. Tissue/biological samples collected

4.1 Biopsy samples

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/30institute
Fin whale	Gulf of California	2003/35	y	0	150	J. Urban/UABCS
Humpback whale	Mexican Pacific	2003 winter/40	y	0	130	J. Urban/UABCS
Blue whale (skin & blubber)	Npacific Baja California	2003/ 35	Y	34	34/ blubber	D.Gendron, CICIMAR-IPN
Bottlenose dolphins	Northern Gulf of California	2003/21	Y	21	21	L. Rojas and Iris Segura INE/CICESE

4.2 Sloughed skin samples

Species	Area/stock	Calendar year/ season no. collected	Archived (Y/N)	No. analysed	Total holdings	Contact person/institute
Blue whale	Npacific Baja California	2003/24	Y	24	0	D.Gendron, CICIMAR-IPN
Sperm whale	Gulf of California	2003/36	Y	36	214	D.Gendron, CICIMAR-IPN

4.4 Analyses/development of techniques

Blue whales:

Blue whales biopsies and sloughed skin were analysed at the lab. De genetika of the University UABC of Ensenada. Sex determination and DNA(mt) are completed. The analysis of results is undergoing. Contamination (organochlorine and pesticides) from the blue whale biopsies (2001-2003) is undergoing.

Sperm whales:

Sex analysis of sperm whale biopsies is undergoing for a Master's thesis at Centro de Investigación Biológica del Noroeste (CIBNOR). Fatty acids from the biopsies were analyzed to determine relationship with squid prey.

Bottlenose dolphins:

Currently a study on Phylogeography and differentiation of bottlenose dolphins from the Gulf of California is being carried out by I. Segura from INE/CICESE.

9. Other studies and analyses

A study of blue whales morphometry was made from aerial photographs taken during aerial surveys in the Baja California waters (1994-2003). Body proportions such as peduncle (from dorsal fin to notch of flukes) were compared with *B. m. intermediata* and *B.m. breviceauda*. Results of peduncle proportions clearly indicated blue whale photographed in the Baja California water were not pigmy blue whales but had a similar proportion of peduncle compared to *B. m. intermediata* (no data available for *B. musculus musculus*)

A morphological approach to the study the morphological differentiation of dorsal fins of bottlenose dolphins, from different regions, is being carried out by E. Morteo from INE/CICESE.

11. Publications

11.1 Published or 'In Press' papers only

Heckel, G., I. Espejel, et al. 2003. Issue Definition and Planning for Whalewatching Management Strategies in Ensenada, Mexico. *Coastal Management* 31(3): 277-296.

Goerlitz, D., J. Urbán R., L. Rojas-Bracho, M. Belson, and C. Schaeff. 2003. Mitochondrial DNA variation among Eastern North Pacific Gray Whales (*Eschrichtius robustus*) on winter breeding grounds in Baja California. *Candian Journal of Zoology* 81(12): 1965-1972 (2003)

- Mate, B.R., B.A. Lagerquist, and J. Urbán R. 2003. A note on using satellite telemetry to document the use of San Ignacio Lagoon by gray whales (*Eschrichtius robustus*) during their reproductive season. **Journal of Cetacean Research and Management**. 5(2): 149-154
- Mate, B.R. and J. Urbán R. 2003. A note on the route and speed of a gray whale on its northern migration from Mexico to central California, tracked by satellite-monitored radio tag. **Journal of Cetacean Research and Management**. 5(2): 155-157
- Rojas-Bracho, L., P. Clapham, J. Urban, et al. 2003. A word of caution for the Nautical Steps tourist development. **Journal of Cetacean Research and Management** 5 (SUPPL): 357-358
- Rojas-Bracho, L.; C.G. Mittermeier y Sheila A. MacKenna. 2003 "Whales, dolphins and porpoises" Ballenas, delfines y marsopas" In: R.A. Mittermeier, P. Robles Gil, C.G. Mittermeier; T. Brooks; M. Hoffman, W.R. Konstant, G. Da Fonseca y R.B. Mast.
- Ruelas-Inzunza, J. R., M. Horvat, H. Pérez-Cortés, and F. Paez-Osuna. 2003. Distribucion de metilmercurio y mercurio en tejidos de ballenas grises (*Eschrichtius robustus*) y delfines tornillo (*Stenella longirostris*) varados en el bajo Golfo de California, Mexico. *Ciencias Marinas*. 29(1):1-8.
- Ruiz-Castro, R.I., D. Gendron, S. Aguiñiga, S. Mesnick, J.D. Carriquiry. (in press). Trophic relationships between sperm whales and jumbo squid using stable isotopes of C and N. *Marine Ecology Progress Series*
- Urbán-R., J., L. Rojas-Bracho, H. Pérez-Cortés, A. Gómez-Gallardo, S. L. Swartz, S. Ludwig, and R. L. B. Jr. 2003. A review of gray whales (*Eschrichtius robustus*) on their wintering grounds in Mexican waters. *J. CETACEAN RES. MANAGE*. 5(3):281-295.
- Urbán R., J., A. Gómez-Gallardo U., and L., S. Ludwig. 2003. Abundante and mortality of gray whales at Laguna San Ignacio, México, during the 1997-98 El Niño and the 1998-99 La Niña. **Geofísica Internacional** 42(3): 439-446
- Urbán R., J., V. Flores de Sahagún, M.L. Jones, S.L. Swartz, B.R. Mate, A. Gómez-Gallardo and M. Guerrero-Ruiz. 2004. Gray whales with loss flukes adapt and survive. **Marine Mammal Science** 20(2) :
- Valdez-Marquez, M., M.L. Lares, V. Camacho Ibar & D. Gendron. 2004. Chlorinated hydrocarbons in skin and blubber of two blue whales (*Balaenoptera musculus*) stranded along the Baja California Coast. *Bulletin of Environmental Contamination and Toxicology* 72:490-495.

11.2 Unpublished literature

- Mejía-Acosta, S. 2003. Hábitos alimentarios de ballena azul en el suroeste del Golfo de California, con base en el contenido en heces. Professional thesis, Universidad Autónoma de Baja California, Ensenada, Baja California, Mexico.
- Días-Gamboa, R. 2003. Diferenciación entre tursiones *Tursiops truncatus* costeros y oceánicos en el Golfo de California por medio de isótopos estables de carbono y nitrógenos. Master Thesis, CICIMAR-IPN, La Paz, Baja California, Mexico.
- Jaume-Schinkel, S. 2004. Hábitos alimentarios del rorcual común *Balaenoptera physalus* en el Golfo de California mediante el uso de isótopos estables de nitrógeno y carbono. Master Thesis, CICIMAR-IPN, La Paz, Baja California, Mexico.
- Rivera Galicia, G. C. and M. G. Martinez Villalba. 2003. Impacto del ecoturismo en el comportamiento de la ballena gris, *Eschrichtius robustus*, en Bahía Magdalena, BCS, Mexico. Facultad de Estudios Superiores Zaragoza. Nezahualcoyotl, Mex., UNAM: 119.