

MEXICO. PROGRESS REPORT ON CETACEAN RESEARCH, MAY 2005 TO MAY 2006, WITH STATISTICAL DATA FOR THE CALENDAR YEAR 2005 OR SEASON 2005/06

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This report summarises information obtained from: Universidad Nacional Autónoma De México, UNAM; Centro de Investigaciones Biológicas del Noroeste, CIBNOR; Instituto Nacional de Ecología, INE; Centro Interdisciplinarios de Ciencias del Mar, CICIMAR and Universidad Autónoma de Baja California Sur, UABCS.

1. Species and stocks studied

Common name	IWC recommended scientific name	Area/stock(s)	Items referred to
Vaquita	<i>Phocoena sinus</i>	Eastern North Pacific	2.1.1, 4.4
Bottlenose dolphin	<i>Tursiops truncatus</i>	Gulf of Mexico and Eastern	2.1.1, 4.1, 4.3, 4.4, 7.3.1
Spotted dolphin	<i>Stenella attenuata</i>	Eastern North Pacific	2.1.1
Spinner dolphin	<i>Stenella longirostris</i>	Eastern North Pacific	2.1.1
Striped dolphin	<i>Stenella coeruleoalba</i>	Eastern North Pacific	2.1.1, 4.3
Pacific white sided dolphin	<i>Lagenorhynchus obliquidens</i>	Eastern North Pacific	2.1.1, 7.3.1
Risso's dolphin	<i>Grampus griseus</i>	Eastern North Pacific	2.1.1,
Long beaked com. dolphin	<i>Delphinus capensis</i>	Eastern North Pacific	2.1.1, 7.3.1
Common dolphin	<i>Delphinus delphis</i>	Eastern North Pacific	2.1.1, 7.3.1
Short-finned pilot whales	<i>Globicephala macrorhynchus</i>	Eastern North Pacific	2.1.1, 4.1, 4.4
False killer whale	<i>Pseudorca crassidens</i>	Eastern North Pacific	2.1.1
Killer whale	<i>Orcinus orca</i>	Eastern North Pacific	2.1.1, 4.1,
Pigmy beaked whale	<i>Mesoplodon peruvianus</i>	Eastern North Pacific	2.1.1
Cuvier's beaked whale	<i>Ziphius cavirostris</i>	Eastern North Pacific	2.1.1
Dwarf sperm whale	<i>Kogia sima</i>	Eastern North Pacific	2.1.1, 4.3
Pigmy sperm whale	<i>Kogia breviceps</i>	Eastern North Pacific	2.1.1,
Sperm whale	<i>Physeter macrocephalus</i>	Eastern North Pacific	2.1.1, 3.1.1, 3.1.3, , 9
Humpback whale	<i>Megaptera novaeangliae</i>	Eastern North Pacific	2.1.1, 3.1.1, 4.1, 6.2.1
Minke whale	<i>Balaenoptera acutorostrata</i>	Eastern North Pacific	6.2.1
Fin whale	<i>Balaenoptera physalus</i>	Eastern North Pacific	2.1.1, 3.1.1, 4.1, 6.2.1
Blue whale	<i>Balaenoptera musculus</i>	Eastern North Pacific	2.1.1, 3.1.1, 1, 4.1, 5, 9
Gray whale	<i>Eschrichtius robustus</i>	Eastern North Pacific	2.1.1, 3.1.1, 4.3, 6.2.1,

2. Sightings data

2.1 Field work

2.1.1 SYSTEMATIC

UNAM

Line transects inside the Terminos Lagoon, Campeche were conducted in 2005 from March 13-22, Jul 22-29, Nov 06, and Nov 08-16 totalling 28 days. In all 28 days sampled the only species sighted was the bottlenose dolphin, *Tursiops truncatus*. This study was carried out by the National Autonomous University of Mexico (UNAM) to study habitat use by bottlenose dolphins in a coastal lagoon.

INE

Site fidelity of gray whales is being studied in Magdalena bay using photo ID techniques. This is an ongoing study and to date there are data for four winter seasons.

CICIMAR

During March-April 2005, a ship survey along the whole Gulf of California including inshore and offshore areas was conducted to photo-identified blue whales and sperm whales and to collect biopsies of these two species as well as other teuthophagous species such as pilot whales and bottlenose dolphins. A continuation of the LONG term surveys conducted in the south-western region of the Gulf of California since 1993 continued.

UABCS-INE

-Cetaceans of the Gulf of California, including blue, fin, Bryde's, gray, humpback, sperm, killer, false killer whales; beaked whales; dwarf, pigmy and giant sperm whales; and bottlenose, spotted, striped, spinner, white sided, Risso's and shorth beak and long beak common dolphins, base on Aerial and ship surveys in the Gulf of California, and systematic small boat surveys in the southwest Gulf of California.

- Gray whales at Laguna San Ignacio base on small boats systematic surveys.
- Humpback whales in the Revillagigedo Archipelago.

2.1.2 OPPORTUNISTIC, PLATFORMS OF OPPORTUNITY

2.2 Analyses/development of techniques

3. Marking data

3.1 Field work

3.1.1 NATURAL MARKING DATA

It would be helpful to provide this in the form of a table, e.g.

Species	Feature	Area/stock	Calendar year/season/ no. photographed	Catalogued (Y/N)	Catalogue total	Contact person/institute
Gray whale	knuckles	Eastern Pac.	88	N	306	H. Pérez-Cortés
Fin whale	Sides/ dorsal fin	Gulf of California	2005/all year/80	Y	>420	J. Urban, UABCS
Humpback whale	Sides/ dorsal fin/flukes	N. Pacific	2005/Winter- Spring/550	Y	>3500	J. Urban, UABCS
Killer whale	Sides/ Dorsal fin	N. Pacific	2005/all year/12	Y	> 90	J. Urban, UABCS
Gray whale	Right side	E. N. Pacific	2005/Winter- Spring/150	Y	>4,000	J. Urban, UABCS

3.1.2. ARTIFICIAL MARKING DATA

3.1.3 TELEMETRY DATA

Species	Tag type	No. successfully deployed	Maximum time transmitting	Contact person/institute
Sperm whales	Satellite TDR	5	8 days	D. Gendron , CICIMAR

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/institute
Blue whale (skin & blubber)	Npacific Baja California	2005/36	Y	36	36	D.Gendron, CICIMAR-IPN
Sperm whale (skin & blubber)	N pacific Gulf of California	2005/10	Y	0	10	D.Gendron, CICIMAR-IPN
Sperm whale (sloughed skin)	N pacific Gulf of California	2005/27	Y	0	27	D.Gendron, CICIMAR-IPN
Bottlenose dolphins (skin & blubber)	N pacific	2005/30	Y	0	30	D.Gendron, CICIMAR-IPN
Pilot whales (skin & blubber)	N pacific	2005/29	Y	0	29	D.Gendron, CICIMAR-IPN
Fin whale	Gulf of California	2005/50	Y	0	220	J. Urban, UABCS
Humpback whale	Mexican Pacific	2005/320	Y	0	500	L. Rojas-Bracho, INE
Gray whales (breath)	N Pacific	2006	Y	0	17	Lorenzo Rojas-Bracho-INE; Gretel Torres UCD

4.2 Samples from directed catches or bycatches

Species	Area/stock	Calendar year/ season total	Archived (Y/N)	Tissue type(s)*	Contact person/institute

*e.g. liver, skin, blubber etc.

4.3 Samples from stranded animals

Species	Area/stock	Calendar year/ season total	Archived	Tissue	Contact person/institute
Dwarf sperm whale	NE Pacific	1	N		T. Zenteno-Savín/CIBNOR tzenteno04@cibnor.mx
Bottlenose dolphin	NE Pacific	3	N		T. Zenteno-Savín/CIBNOR
Striped dolphin	NE Pacific	1			T. Zenteno-Savín/CIBNOR
Grey whales	NE Pacific	1	2	Y	Brain Luis Fueyo/PROFEPA lfueyo@correo.profepa.gob.mx

*e.g. liver, skin, blubber etc.

4.4 Analyses/development of techniques

Give brief details of any analyses of data carried out, with references where appropriate.

CICIMAR

Blue whales: Sex determination and DNA(mt) are completed. Fatty acids (polar and non-polar) and stable isotopes (carbon and nitrogen) analysis are undergoing.

Sperm whales : Sex determination from 2001-2004 samples are completed.

Sperm whales, pilot whales and bottlenose dolphins: Stable isotopes (C and N) analysis are undergoing

INE

Experiments to evaluate lipid and protein volatile metabolites composition of exhaled grey whale breath. This will allow to study nutritional status of whales

5. Pollution studies

CICIMAR

Organochlorine contaminant concentration were determined in 27 blue whale biopsies collected in the Gulf of California during 2005. The analysis was conducted under supervision of Dr. Vinicio Macías at the Instituto de Investigaciones Ocenológicas, Universidad Autónoma de Baja California in Ensenada. The results are discussed in a master thesis in process at CICIMAR-IPN.

6. Statistics for large cetaceans

6.1 Direct catches (commercial, aboriginal and scientific permits) for the calendar year 2005 or the season 2005/06

It is helpful if these statistics are included here. A table is probably the most convenient way to do this. However, it must be noted that this summary is not considered to fulfil the obligation to supply data to the Commission as specified in the Schedule.

[No Data]

6.2 Non-natural mortality for the calendar year 2005

[No Data]

Please indicate under comments for each section '0' if there was monitoring and there are no injuries or mortalities to report, or 'NR' if there was nothing to report.

6.2.1 STRANDINGS OR DEAD WHALES ENCOUNTERED AT SEA

The inclusion of this data was agreed by the Committee in 2004 (IWC, 2005a). Please provide the following information if known. If unknown enter 'U'. For location provide latitude and Longitude if available. In case of a mass stranding enter the number of whales in the 'sex' column and provide the detail under the comments. Please indicate how the cause of death was determined (Det.): N = full necropsy, V = visual observation entangled, cuts, etc., U = could not be determined. Provide a contact that can give further details if needed. Example given.

Whale species	Sex	Location	Cause of death	Det.	Source or contact institution, contact name and telephone and/or e-mail
Humpback whale (1)	F	Playa de Ponce, El Dorado, Sinaloa, mouth of the Gulf of California	U	V decomposed carcasses	Org.: PROFEPA/INE Contact: Luis Fueyo/ L. Rojas-Bracho E-mail: lfueyo@correo.profepa.gob.mx
Humpback whale (2)	U	Playas de Ensenada del Pabellón, Sinaloa	U	V decomposed carcasses	Org.: PROFEPA/INE Contact: Luis Fueyo/ L. Rojas-Bracho E-mail: lfueyo@correo.profepa.gob.mx
Gray whale calf (1)	M	Altata, Península de Lucenilla, Sinaloa	U	V	Org.: PROFEPA/INE Contact: Luis Fueyo/ L. Rojas-Bracho E-mail: lfueyo@correo.profepa.gob.mx
Minke whale (1)	U	Campo Pesquero Tastiota, Kino, Sonora	U	V	Org.: PROFEPA/INE Contact: Luis Fueyo/ L. Rojas-Bracho E-mail: lfueyo@correo.profepa.gob.mx
Fin whale (1)	F	Playa de Ponce, El Dorado, Sinaloa	U	V	Org.: PROFEPA/INE Contact: Luis Fueyo/ L. Rojas-Bracho E-mail: lfueyo@correo.profepa.gob.mx
Fin whale (1)	U	12 Km south of Sn Felipe, BC			Org.: PROFEPA/INE Contact: Luis Fueyo/ L. Rojas-Bracho

6.2.2 OBSERVED OR REPORTED SHIP STRIKES

The inclusion of this data was agreed by the Committee in 2004 (IWC, 2005a). If available, please use Latitude and Longitude for location or else specify as much detail as possible. Please indicate type of vessel, e.g. High-speed Ferry (HSF), Large Cargo (LC), Military, Fishing Vessel (FV), Passenger Carrying Excursion (PC), Other (O). Fate: Indicate if the whale swam away (X), appeared seriously injured (I), killed (D). Example given.

[No data]

6.2.3 FISHERY BYCATCH

The inclusion of this data was agreed by the Committee in 2004 (IWC, 2005a). If available, please use Latitude and Longitude for location. Indicate fate of whale (R = released alive, D = discarded dead or seriously injured, K = kept for sale or specimen), targeted fish species (e.g. tuna, herring, etc.). The Committee also agreed that types of fishing gear involved in bycatch should be documented (IWC, 2005a). Please use the internationally recognised standard gear description codes from FAO (given below), although more detail can be supplied if known. More detailed information and illustrations of the different types of fishing gear can be found on the FAO/FIGIS website¹. Please also include any instances of entanglement in shark exclusion nets, which are another important source of bycatch. Please indicate how observed: M = dedicated marine mammal observer, F = Fishery onboard observer, V = vessel logbook, A = anecdotal, DA = documented anecdotal, photos, etc. Example given.

[No Data]

FAO FISHING DESCRIPTION AND CODES

FAO FISHING GEAR CATEGORIES:		FALLING GEAR	FCN
SURROUNDING NETS		Cast nets	FG
With purse lines	PS	Falling gear (not specified)	
One-boat operated purse seines	PS1	GILLNETS AND ENTANGLING GEAR	
Two-boat operated purse seines	PS2	Set gillnets (anchored)	GNS
Without purse lines (lampara)	LA	Driftnets	GND
SEINE NETS		Encircling gillnets	GNC
Beach seines	SB	Fixed gillnets (on stakes)	GNF
Boat seines	SV	Trammel nets	GTR
Danish seines	SDN	Combined gillnet-trammel nets	GTN
Scottish seines	SSC	Gillnets and entangling gillnets (not specified)	GEN
Pair seines	SPR	Gillnets (not specified)	GN

¹ http://www.fao.org/figis/servlet/static?dom=root&xml=tech/gears_search.xml

Seine nets (not specified)	SX	TRAPS	
TRAWLS		Stationary uncovered pounds nets	FPN
Bottom trawls	TBB	Pots	FPO
Beam trawl	OTB	Fyke nets	FYK
Otter trawls (side or stern)	PTB	Stow nets	FSN
Pair trawls	TBN	Barriers, fences, weirs, etc	FWR
Nephrops trawls	TBS	Aerial traps	FAR
Shrimp trawls (not specified)	TM	Traps (not specified)	FIX
Midwater trawls		HOOKS AND LINES	
Otter trawls (side or stern)	OTM	Handlines and pole-lines (hand operated)	LHP
Pair trawls	PTM	Handlines and pole-lines (mechanised)	LHM
Shrimp trawls	TMS	Set longlines	LLS
Midwater trawls (not specified)	TM	Drifting longlines	LLD
Otter twin trawls	OTT	Longlines (not specified)	LL
Otter trawls (not specified)	OT	Trolling lines	LTL
Pair trawls (not specified)	PT	Hooks and lines (not specified)	LX
Other trawls (not specified)	TX	GRAPPLING AND WOUNDING	
DREDGES		Harpoons	HAR
Boat dredges	DRB	HARVESTING MACHINES	
Hand dredges	DRH	Pumps	HMP
LIFT NETS		Mechanised dredges	HMD
Portable lift nets	LPN	Harvesting machines (not specified)	HMX
Boat-operated lift nets	LNB	MISCELLANEOUS GEAR	MIS
Shore operated stationary lift nets	LNS	RECREATIONAL FISHING GEAR	RG
Lift nets (not specified)	LN	GEAR NOT KNOWN OR NOT SPECIFIED	NK
		SHARK CONTROL NETS	NSC

6.3 Earlier years' statistics

This would be a place to include any corrections to statistics presented in earlier years. It may also be appropriate to include references to studies that utilise time series of data here.

7. Statistics for small cetaceans

7.1 For the calendar year 20XX

It was first agreed to include this information in a Commission resolution in 1976 (IWC, 1977, p.31)). Furthermore, in 2005 (IWC, 2006, Annex J) it was agreed that these data should be brought into line with those reported for large cetaceans. **Therefore, this Section should be completed using the same guidelines as given in Section 6 above, Statistics for large cetaceans.**

7.2 Direct catches (commercial, aboriginal and scientific permits) for the calendar year 2005

[No data]

7.3 Non-natural mortality for the calendar year 2005

[No data]

7.3.1 STRANDINGS OR DEAD SMALL CETACEANS ENCOUNTERED AT SEA

Species	Sex	Location	Cause of death	Det.	Source or contact institution, contact name and telephone and/or e-mail
Long-beaked common dolphin		Magdalena Island, playa Sn. Lázaro	Probable GNS		Org.: INE Address: Contact: H. Pérez-Cort Tel.: E-mail: hperez@fieldstudies.org
Comments: 26 individuals plus 17 unidentified common dolphins through out the year.					
Pacific white sided dolphin		Magdalena Island, playa Sn. Lázaro	Probable GNS		Org.: INE Address: Contact: H. Pérez-Cort Tel.: E-mail: hperez@fieldstudies.org
Comments: 3 individuals in between January and May					
Bottle nose dolphins*		Magdalena Island, playa Sn. Lázaro	Probable GNS		Org.: INE Address: Contact: H. Pérez-Cort Tel.: E-mail: hperez@fieldstudies.org
Comments: 5 individuals through March, April and May					
Long beaked common dolphins		Along 24 Km. From Puertecitos to Campo Cristina in the Upper Gulf of California	Probable GNC		Org.: PROFEPA/INE Address: Contact: Tel.: E-mail: hperez@fieldstudies.org
Comments: 17 animals reported in April 2006					

7.3.2 OBSERVED OR REPORTED SHIP STRIKES

[No data]

7.3.3 FISHERY BYCATCH

[No data]

7.4 Earlier years' statistics

This would be a place to include any corrections to statistics presented in earlier years. It may also be appropriate to include references to studies that utilise time series of data here.

8. Strandings

If included, this section should only provide information on focal institutions/individuals who can be contacted.

CIBNOR, T. Zenteno S.

INE, H. Pérez-Cortés, L. Rojas-Bracho

PROFEPA L. Fueyo, V. Pliego

UABC, G. Heckel D.

UABCS, J. Urbán R.

9. Other studies and analyses**CICIMAR**

A study examined associations among the 409 photo-identified individuals of blue whale during winter-spring of 1993-2003 in the southwestern Gulf of California. Based upon direct association data (animals sighted together) blue whales were found in pairs including females and calves, trios, female-dominated groups as well as individuals sighted as solitary animals, corresponding to only 6% of all recorded associations. Three independent analyses at different time and space scales, identified the existence of 14 individuals, termed "core" or "nucleus" animals. The study concludes that blue whales are more social animals than previously thought. They may form long term group associations and nucleus individuals could play a nodal role in the complex web of relationships between individuals. This study was completed as a Master's thesis at CICIMAR by Ibiza Martinez Serrano (see publications).

To investigate whether different clans (groups of whales that share the same coda repertoire) are present in the Gulf of California, we examined seasonal variations in coda repertoires among recordings made during spring 2002, fall 2002, and spring 2003. Data were collected using standard techniques of photo-identification and codas from recordings were extracted using Rainbow Click software. We compared coda repertoires among seasons and different groups identified in different seasons using a multivariate similarity measure as done by Rendell & Whitehead (2003a,b). We recorded 509 codas from 15 sperm whale's groups, 120 in spring 2002, 304 in fall 2002, and 85 in spring 2003. The final analysis is undergoing and will be completed as a Master's thesis at CICIMAR by Armando Manolo Alvarez-Torres.

INE-UABCS-UCD-NMFS-Marine Mammal Ctr.

The nutritional status (fasting or feeding) of free-ranging gray whales can be determined by minimally invasive means. The aim of this investigation is to assess the nutritional status of feeding and fasting gray whales by analyzing the volatile lipid and protein metabolite composition of exhalant breath from gray whales using gas chromatography/ mass spectrometry. The analysis will focus on low molecular weight acids, alcohols, and ketones, which are distinctive volatile lipid metabolites, and pentane, which can provide information on protein catabolism.

10. Literature cited

Include all references cited in the text here. Please follow the official IWC style guide for references (<http://www.iwcoffice.org/publications/styleguide.htm>).

11. Publications*11.1 Published or 'In Press' papers only*

- M.E. Guerrero, J. Urbán y L. Rojas-Bracho. *In press. Grandes Cetáceos del Golfo de California*. Ediciones del Instituto Nacional de Ecología

- Heckel, G, P. Ladrón de Guevara y L. Rojas Bracho. Aceptado. Cetáceos. In: E. Ezcurra y G. Daneman (eds). Bahía de los Ángeles: Recursos Naturales y Comunidad, Línea Base 2005. San Diego Nat. Hist Museum y PRONATURA.

- Rojas-Bracho, L. 2005. *Balaenoptera physalus* (Linnaeus, 1758) Rorcual común, Ballena de aleta; *Lagenorhynchus obliquidens* (Peale, 1848) Delfín liso norteño; *Phocoenoides dalli* (trae, 1885) Marsopa de Dall. In: G. Ceballos y G. Oliva (coords). Pgs 437-438; 451-452; 469-470. Los Mamíferos Silvestres de México. FCE, CONABIO. 1986 p.
- Urbán R, J., L. Rojas-Bracho, MM. Guerrero-Ruiz and A. Jaramillo-Legorreta. 2005. Cetacean Biodiversity and Conservation in the Gulf of California. In: J.L. Cartron, G. Ceballos and T.R. Van Devender (eds). Biodiversity, ecosystems, and conservation in northern Mexico. Oxford University Press.
- Pérez-Cortés M., H., C.A. Barrera A. and F. Ollervides. *In press*. FIRST RECORD OF A HUMPBACK WHALE (*Megaptera novaeangliae*) MOTHER AND CALF INSIDE BAHIA MAGDALENA, BAJA CALIFORNIA SUR, MEXICO. *The Latin American Journal Of Aquatic Mammals*.

11.2 Unpublished literature

Please include information as to where the documents may be obtained.

Bazúa Durán, C. 2006. Protocolo de trabajo de campo y resultados preliminares 2005. Reporte CAMP-2003-C01-9102-04 FoMix-Edo. de Campeche. México, D.F. 10 Jan 2006. 61 pp.

Cruz-Vizcaino, M. 2005. Relación del perfil de ácidos grasos del cachalote (*Physeter macrocephalus*) y el calamar gigante (*Dosidicus gigas*) en el Golfo de California. Tesis de Maestría, Centro Interdisciplinario de Ciencias Marinas-Instituto Politécnico Nacional, La Paz, Baja California Sur. 72pp.

Enriquez-Paredes, L. 2005. Identidad genética de la población de ballena azul (*Balaenoptera musculus*) en el Pacífico Nororiental: Agregaciones Mexicanas. Tesis de Doctorado, Universidad Autónoma de Baja California, Ensenada, Baja California. 198pp.

Martinez-Serrano, I. 2005. Patrón de asociaciones entre individuos de ballena azul (*Balaenoptera musculus*) en el suroeste del Golfo de California. Tesis de Maestría, Centro Interdisciplinario de Ciencias Marinas-Instituto Politécnico Nacional, La Paz, Baja California Sur. 95pp.

Rubio Cisneros, N.T. 2005. Desarrollo de una técnica de PCR en tiempo real para la determinación del sexo en cetáceos y su aplicación en el estudio de cachalotes (*Physeter macrocephalus*) del Golfo de California. Tesis de Maestría, Centro de Investigación Biológica del Noroeste, La Paz, Baja California Sur. 85pp.

Ugalde de la Cruz, A. 2005. Descripción y cambios a través del tiempo de las marcas naturales en ballenas azules fotografiadas alrededor de la Península de Baja California. Tesis de Licenciatura, Universidad Autónoma del Estado de Morelos. Cuernavaca, Morelos. 65pp.