

第四十屆 歐洲水生哺乳類研討會

*40th Annual Symposium of the European Association for Aquatic Mammals*



地點與日期：西班牙 9<sup>th</sup> to 12<sup>th</sup> of March, 2012

參與人數：約 150 人（歐洲水生哺乳類動物園、水族館、以及多國專家學者非營利組織等）

本國參與人員：

國立成功大學 生命科學系 王建平 教授

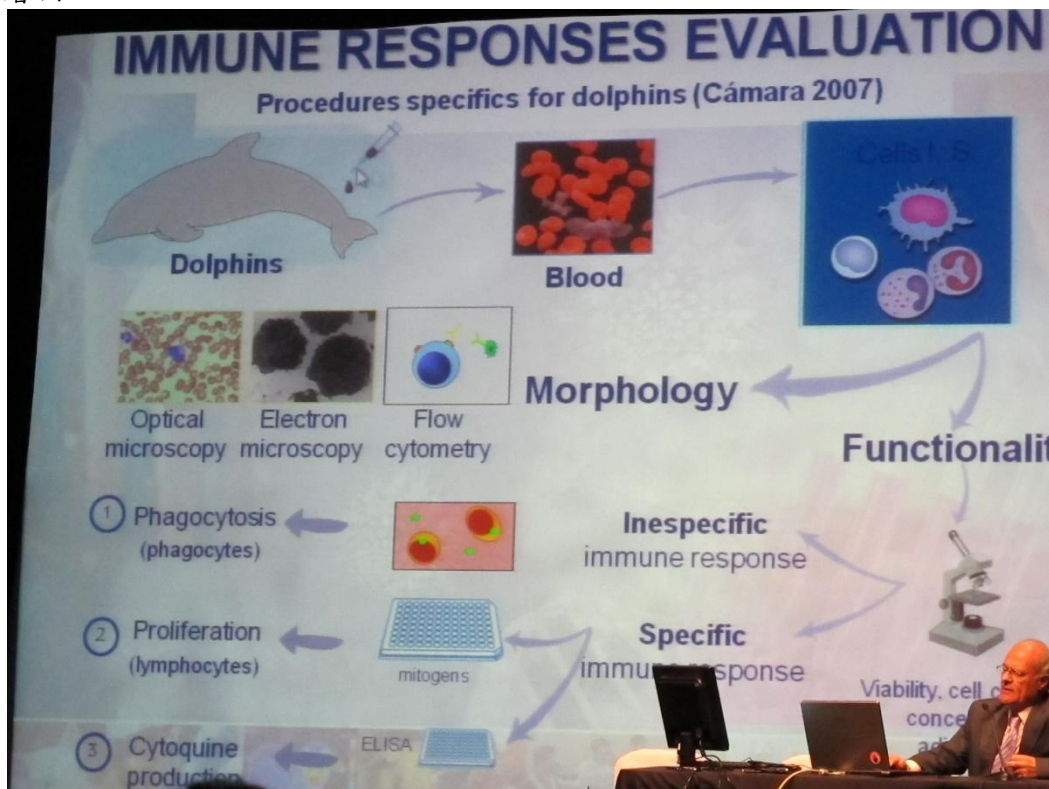
國立嘉義大學 獸醫學系 楊瑋誠 助理教授

此研討會簡介與重要性：

此次「歐洲水生哺乳類研討會」是由歐洲水生哺乳類協會(European Association for Aquatic Mammals)主辦，其他協辦單位包括馬德里動物動物園(Madrid Zoo)等。



會議中邀請 **Prof. JM. Sánchez-Vizcaíno** (Visavet Center. Universidad Complutense. Madrid) 就海豚因病毒感染的疾病診斷做專題演講([NEW ADVANCES IN THE DIAGNOSIS OF VIRAL DISEASES IN DOLPHINS](#)): 包括(血液、免疫、生理等) 層面。



Virus infections are still not well studied in dolphins. Only a few DNA and RNA genome viruses have been reported until now. From these, Morbillivirus is the most known virus which affects wild and captive dolphins and has caused important losses among different populations of these animals during the last 25 years. In the past, the diagnosis of most viral disease was mainly carried out by immunohistochemistry but the limitations, especially in sensitivity, of this method yielded to molecular diagnosis that has been proven to be more sensitive. The new early and rapid detection and

characterization of specific nucleic acids have demonstrated invaluable for diagnostic purposes in herpesvirus, papillomavirus or poxvirus. Although there have been many advances in dolphins' virology diagnostics in the last years, relations of these viruses with pathologic states of dolphins have not been found in all cases. For this reason, viral metagenomics provide a powerful technology to investigate sick dolphins with unknown diseases. Using these methodologies, we'd gain a better understanding in the etiology and pathology of dolphin viral diseases. Another important topic related to virus infection is the evaluation of the immune response, e.g., how infection can affect the cell mediated and humoral immune response in wild and captive dolphins. To achieve this, several techniques are already available to evaluate these effects that could give importance information of the real role of this type of infection. Finally, the molecular epidemiology is another tool that improves our understanding of the pathogenesis of disease by identifying specific pathways, molecules and genes that influence the risk factor for developing the viral disease. A complete review of these technologies and a summary of the main results obtained until now will be presented.

其次, **TR Robeck, KJ Steinman, GA Montano and JK O'Brien** 等人 (SeaWorld and Busch Gardens Reproductive Research Center, San Diego, CA) 就海豚生殖技術的現況做專題演講 ([CURRENT STATUS OF APPLICATION OF ASSISTED REPRODUCTIVE TECHNOLOGY IN CETACEANS](#)).

Research with *ex-situ* populations serves as a foundation of biological information necessary to improve and influence decisions concerning *in-situ* population management and policy and provides tools for active intervention when passive management strategies are unsuccessful. The development and application of assisted reproductive technology (ART), including artificial insemination (AI), gamete cryopreservation, sex-selection (using sperm sorting), IVM, IVF and embryo collection and transfer, has the potential to integrate small, genetically isolated populations of a species into a sustainable *ex-situ* population. Once developed in *ex-situ* populations, these technologies can be applied towards the rescue and/or genetic management of endangered *in-situ* populations. Among cetaceans, the development of ART began with semen collection and analysis research in the bottlenose dolphin during the 1970s. Since then, ARTs have progressed to become viable tools for population management in several cetaceans including the bottlenose dolphin, killer whale, Pacific white-sided dolphin and the beluga. The modification of extenders and the evolution of cryopreservation techniques from pellets and straws to directional freezing have lead to enhanced cryopreserved sperm quality. Methodologies for artificial insemination have also been developed and successfully applied in the aforementioned cetacean species. Together, these semen cryopreservation and AI methodologies allow for the use of ART in cetaceans globally. Currently, sex-sorted, frozen-thawed spermatozoa are routinely used for AI in bottlenose dolphins with 13 calves being produced globally to date. One of those calves was produced using sexsorted spermatozoa derived from previously cryopreserved semen, which further increases the utility of this ART. Although successes with these techniques are significant to cooperative population management strategies, continued improvements and widespread application will be dependent on standardization of techniques between operators, systematic data collection and reporting. Future application of ART to endangered cetaceans will first require the formation of temporary or permanent *ex-situ* populations from at risk *in-situ* populations for research on their basic reproductive physiology.

**Jeff Jouett** (Chief Executive Officer, Dolphin Quest / Quest Global Management)  
就海豚的溝通行為學等([COMMUNICATING ABOUT OUR ANIMALS](#))  
做專題演講

Effective communication is both an art and a science. When the subject matter is as sensitive and multi-layered as “animals” in general, or “marine mammals” in particular, effective communication becomes a fine art, and the science of it becomes more psychology than biology. How we express what we do and why we do it has a tremendous impact – positive or negative – on public understanding and approval, and, ultimately, on how successful we will be in reaching our animal care, education and conservation goals. Whether we are talking to the media, to a government panel, to guests in our parks and aquariums, or to the person standing in front of us in the grocery store check-out queue, we have an opportunity to deliver key messages that will make a difference for our animals. Like a true performance art, good communication is a skill and a talent that can be developed and improved with training and practice. Today we’ll talk about how we can be better communicators by being aware of the process and context, being mindful of our true audiences, identifying our key messages, saying what we want to say and then saying it again, seizing the emotional high ground, and giving a healthy nod to our ever-present non-verbal communication. We’ll talk about some things to look out for in media interviews, and how to take advantage of them. With just a little coaching, we can all do our best job of spreading the good word about all of the good things that we do.

會議中本人也張貼海報(Cetacean strandings, rehabilitation and pathology in southern Taiwan from 1990 to 2010) 和與會人士交換心得(附錄二)。



圓桌會議中(Round tables) ，本人也和嘉義大學獸醫學系楊瑋誠助理教授共同參與海豚新生兒 (Dolphin neonatology) 會議。就海豚新生兒有關之生殖、臨床、醫療共同探討。

Dolphin neonate mortality has been long identified as a key factor to increase population size of captive dolphins in Europe. Recent changes in management, allowing for interaction with the calves and therefore making veterinary treatment possible have shown great success in several European facilities. The aim of this round table is to exchange experiences of cases, recent findings, as well as our increase in the understanding of the reasons for calf mortality.

此次歐洲水生哺乳類研討會是一次特別的機會，能使我們更加了解海豚醫療、生殖、行為的重要連結，替未來海豚醫療、生殖、行為研究發展提供解決方針。

此次參與除了解研究部分外，最重要的是知道台灣未來在海豚醫療、生殖、行為研究上有很高的參考價值，將可作為未來在政策制定與學術研究方向上的範本。

#### 行程

日期	說明	
3/8	離台	
3/9	上午前到達馬德里 下午註冊與晚上參加晚宴會。	
3/10-12	會議	如附錄一 附錄二
3/13	離西班牙	
3/14	抵台	

#### 預算

科目	說明	
機票食宿費	台北西班牙來回機票	45,000 x 1 人 = 45,000 元
	合計	45,000 元

附錄一

**SATURDAY, 10TH OF MARCH 2012**

**Opening of the Symposium by the host Grupo Parques Reunidos, ZooAquarium Madrid and the EAAM board**

**CHAIRMAN: Dr. Jesús Fernández Morán**

Invited speaker:

**New Advances in the diagnosis of viral diseases in dolphins.**

Prof. J.M. Sánchez-Vizcaíno

**Unusual striped dolphin mass mortality episode related to cetacean morbillivirus in the Spanish Mediterranean Sea.**

Consuelo Rubio-Guerri\*, Fernando Esperón, Mar Melero., Edwige Nina Bellière, Manuel Arbelo, Jose Luis Crespo, Eva Sierra, Daniel García, Jose Manuel Sánchez-Vizcaíno

**Elevated presence and variability of Herpesvirus in cetaceans stranded during 2010 and 2011 in the Region of Valencia.**

Mar Melero\*, Consuelo Rubio-Guerri, Edwige Nina Bellière, Fernando Esperón, Jose Manuel Sánchez-Vizcaíno

**The rehabilitation of a stranded killer whale.**

C.E. van Elk

**Suspected side effects of medication in bottlenose dolphins: a review.**

Manuel García Hartmann

**CHAIRWOMAN: Dr. Arlete Sogorb**

**Effect of Platelet Rich Plasma (PRP) treatment on wound healing in bottlenose dolphins**

**(*Tursiops truncatus*) and loggerhead sea turtles (*Caretta caretta*).**

D. García-Párraga\*, J.L. Crespo, T Alvaro, M. Valls

**Establishing ophthalmic ultrasound in bottlenose dolphins (*Tursiops truncatus*).**

K. Baumgartner\*, I. Hoffmann, H. Will

**Within-day and between-day variability of transthoracic echocardiography in the bottlenose dolphin (*Tursiops truncatus*): an anatomic M-mode study.**

J. Lichtenberger\*, M. Mellin, B. Mercera, F. Delfour, A.C. Hoffmann, G. Chaix, E. Trehiou-Sechi, C. Misbach, A. Petit, H.P. Lefebvre, R. Tissier, V. Chetboul

**The bottlenose dolphin from Torvaianica (Italy, Rome): the account of a rescue.**

G. Roncon\*, V. Manfrini\*, S. Mazzariol, F. Marcer, F. Scholl, C. Eleni, R. Meoli, C. Cocumelli, C. Di Francesco, G.Di Guardo

**Presentation of the Mom project, a conservation project funded by the EAAM.**

Mediterranean Monk Seal Conservation

**CHAIRMAN: Dr. Andrew Greenwood**

**Medical management of an acute renal insufficiency in a 15 year old male *Arctocephalus pusillus pusillus* after a bilateral lensectomy.**

Carla Flanagan\*, Nuno Silva, Joana Silva, M. H Carmen Colitz, James Bailey, Antonieta Nunes, Miguel Silveira, Márcia Neto Lucie Palma

**A few ideas about aquatic mammals' ophthalmology.**

Huguet, E. \*, C. Colitz, M. Pérez-Orrico, G. Lacave\*, D. García

**Ultrasound in pinnipeds – a review.**

Geraldine Lacave

**Identification of a C2 fracture and rachis deviation through CT scan in a California sea lion (*Zalophus californianus*).**

Geraldine Lacave\*, Laurent Marescaux, Jean-Luc Bourgain, Justine Deschamps, Corinne Godet, William Gournay, Aurelia Pouille, Virginie Roy

**Treatment of traumatic lesions in stranded harbour seals (*Phoca vitulina*) and grey seals (*Halichoerus grypus*) under rehabilitation.**

G.J.Sánchez Contreras\*, A. Rubio García, N. Osinga, D. Morick

**Field anaesthesia of leopard seals (*Hydrurga letonyx*) at Cape Shirreff, Western Antarctic peninsula**

Nicola Pussini \*, Michael E. Goebel, Ray Bucheit, Kevin Pietrzak, George Watters

**SUNDAY, 11TH OF MARCH 2012**

**CHAIRMAN: Dr. Daniel García Párraga**

Invited speaker:

**Current Status of Application of Assisted Reproductive Technology in Cetaceans.**

T.R. Robeck\*, K.J. Steinman, G.A. Montano and J.K. O'Brien

**Medical management of 4 bottlenose dolphins' calves from 0 to 12 months.**

E. Guglielmi\*, M. García Hartmann, M. Vella, B. Biancani  
**Handling of neonate dolphins – the past and the present.**

Ulf Schönfeld\*, Kerstin Jurczynski

**Veterinary management of neonate dolphins at the Duisburg Zoo.**

Kerstin Jurczynski\*, Dimitri Widmer, Sandra Langer, Ulf Schönfeld

**CHAIRWOMAN: Dr. Kathleen Dudzinski**

**Automatic localization by acoustic methods of “*Orcinus orca*” individuals at Loro Parque facilities.**

Jose Carlos Sanluis, Jonas Phillip Luke, Fernando Rosa, Javier Almunia

**Bridging: Beyond the Basics.**

Thad Lacinak\*, Angi Millwood\*

**Marine mammal feeding ecology and adaptations: feeding opportunities for marine mammals housed under human care.**

Sabrina Brando

**MONDAY, 12TH OF MARCH 2012**

**CHAIRWOMAN: Birgitta Mercera**

Invited speaker:

**Communicating About Our Animals.**

Jeff Jouett

**Personality assessment and social dynamics in two groups of bottlenose dolphins (*Tursiops truncatus*).**

Sabina Birgersson\*, Steven Birot de la Pommeraye, Fabienne Delfour, Birgitta Mercera

**Comparing Object Play in Captive and Wild Dolphins.**

W.E. Greene\*, K. Melillo-Sweeting, K.M. Dudzinski

**Development and reciprocity in pectoral fin contact between dolphins.**

Kathleen M. Dudzinski

**Beyond operant conditioning: Results of applying a cognitive-emotional training model to sea lions.**

Carlos Alfonso López García, Carlos De las Parras Domingo, marine mammals staff

**CHAIRMAN: Kai Mattson**

**Large repertoire of behavior training with harbor seals in a multiple species context.**

Jérémy Ferrier\*; Marjorie Flamey\*; Jérémy Nemoz; Elodie Sene; Géraldine Lacave

**Solving a life-threatening regurgitation problem in a California sea lion through training and satiation.**

Pablo Joury\*, Alexandre Le Blanc, Emilie Treviglio, Christilla Bouchet, Candice Jourdan, Claudia Mahtali, Alexis Maillot, Vanessa Alerte, Geraldine Lacave

**Training of Geriatric Marine Mammals.**

Márcia Neto\*, Elsa Quintino, Lucie Palma, Hugo Camacho, Carla Flanagan, Luís Roque, Joana Silva, Miguel Silveira

**Round tables (free participation, no registration necessary):**

**Dolphin neonatology.**

Chair: Dr. Manuel García Hartmann

**Training as a tool in the introduction of cetaceans into a social group**

Chair: Lindsay Rubincam

**Dolphin transport methodologies update.**

Chair: Dr. Daniel García Parraga



## 海報 (Posters)



Relative quantity judgments in the South American sea lion (*Otaria flavescens*), the beluga whale (*Delphinapterus leucas*) and the bottlenose dolphin (*Tursiops truncatus*).

Experimental evidence of action imitation in killer whales (*Orcinus orca*).

Development of a common repertoire in a new social group of orcas (*Orcinus orca*).

Citrobacter freundii septicemia in a newborn stranded Cuvier's beaked whale (*Ziphius cavirostris*).

Molecular diagnosis of lobomycosis-like disease in a bottlenose dolphin in captivity Cetaceans in Grand Comore: first evaluation.

### **Study on Cetacean Stranding, Rehabilitation, and Pathology along Coasts of Taiwan between 2007 and 2010.**

Improvement in sampling and analytical techniques for endocrinological and toxicological researches in marine mammals.

Use of radiographic parameters for age estimation in stranded cetaceans.

Pulmonary angiomatosis and hemangioma in common dolphins (*Delphinus delphis*) stranded in Canary Islands.

Use of enrichment objects by dolphins in captivity.

Decompression like sickness in Risso's dolphins.

Preliminary results of metal contamination in captive killer whales (*Orcinus orca*).

Successes and failures of a symbolic communication system between man and dolphin.

Training of a neonate bottlenose dolphin in the first year of life.

Report of cataract surgery in harbour seals.

Olfactory discrimination ability of South African fur seals (*Arctocephalus pusillus*) for enantiomers.

Study regarding the determination of biometric correlations in bottlenose dolphin *Tursiops truncatus* (Montagu, 1821).

Organoleptic evaluation of the decay of vitamin tablets in fish over time.

Integration of a bottlenose dolphin (*Tursiops truncatus*) mother and calf dyad to a social group of cetaceans.

Epilepsy in a Grey Seal.

Education through connection: zoological tours and educational demonstrations at Zoomarine Italy as a tool to get people involved in nature conservation.

Central nucleus of amygdale, locus coeruleus and paraventricular nucleus of dolphin's brain: Where and why?.

The resident bottlenose dolphin population in north western Adriatic: study by a small transect survey.

Muscular atrophies in stranded cetaceans in Canary Islands between 1996-2008.

The Role of Echolocation in the Development of Object Permanence in Bottlenose Dolphins.

Development of diagnostic protocol to highlight sub-clinical urolithiasis in bottlenose dolphin *Tursiops truncatus* (Montagu, 1821) hosted in controlled environment.

Sociogram focused on bottlenose dolphin infants on the basis of agonistic tactile interactions.

Non-invasive monitoring of hormonal profile in two pubertal captive polar bears (*Ursus maritimus*): thyroid hormones.

# 參加2012年歐洲水族哺乳動物大會 報告

服務機關：國立嘉義大學

姓名職稱：楊瑋誠

派赴國家：西班牙

出國期間：民國101年3月8日至101年3月12日

報告日期：民國101年4月5日

## 壹、摘要

- 一、國立嘉義大學獸醫學系助理教授楊瑋誠奉准赴西班牙參加歐洲水族哺乳動物學會舉辦之「第四十屆歐洲水族哺乳動物大會」，藉由世界頂尖的鯨豚疾病、營養、遺傳、管理界的專家共同研討，以及各國相關學界與產業的密切合作，推動2012年鯨豚疾病研究與保育策劃。
- 二、Morbillivirus為當代嚴重影響全球鯨豚最重要的病毒。目前還需要更深入的研究morbillivirus的出現和發病機轉，以有效控制全球該病毒之蔓延。
- 三、圈養鯨豚之繁殖技術由此次研討會專家學者所介紹的最新技術及設施可供參考，並討論其是否具保育上之效益及可行性。

## 貳、前言

海豚病毒感染目前仍然沒有很完整的研究，只有少數的DNA和RNA病毒曾被報告過。在過去的25年影響野生和圈養海豚最有名的病毒為麻疹病毒，並造成多個族群的重大損失。過去幾年裡，海豚的病毒學診斷已有一些進展，包括分子生物學、與病毒感染有關的免疫評估、以及分子流行病學。使用這些方法可讓我們獲得了解海豚病毒疾病病因和病理的知識。

輔助生殖技術（ART）於海洋公園圈養鯨豚的應用已有進展，包括人工授精（AI）配子冷凍保存，性別選擇（使用精子分揀），體外成熟，體外受精和胚胎收集與運輸等，這些技術對於瀕危鯨豚物種的保育可能有貢獻。

此次參加第四十屆歐洲水族哺乳動物大會重點學習目標即為此兩項，並且嘗試建立國際技術合作交流管道，對於未來台灣研究與管理鯨豚資源將有幫助。

## 參、會議議程及討論內容

### 第一天(3/10) 研討會

主軸講題：**New Advances in the diagnosis of viral diseases in dolphins**

討論重點：

- 1、死亡年齡和死因：感染好發年齡
- 2、免疫系統抑制的關鍵因素
- 3、臨床症狀的嚴重程度與在組織和血清的載毒量有關，IgG抗體的變化與血清中病毒量有關
- 4、疫苗的作用：降低死亡率及發病率 降低載毒量（血清，組織）及提早使血清呈現陽性，能交叉保護 的血清型
- 5、快速檢測技術的開發與確認

### 第二天(3/11) 研討會

主軸講題：**Current Status of Application of Assisted Reproductive Technology in Cetaceans**

討論重點：

- 1、輔助生殖科技概述
- 2、輔助生殖科技於瓶鼻海豚、白鯨、虎鯨等種類目前的進展
- 3、稀有種類利用輔助生殖科技進行域外復育
- 4、輔助生殖科技相關獸醫人才的培訓

### 第三天(3/12) 研討會

主軸講題：**Communicating About Our Animals**

討論重點：

- 1、動物訓練用以協助醫療行為
- 2、懷孕母海豚之產前與產後醫療訓練
- 3、新生海豚之醫療訓練
- 4、醫療訓練相關獸醫人才的培訓

#### 肆、結果

- 一、與西班牙病毒實驗室 Prof. JM. Sánchez-Vizcaíno 達成合作協議，他們將提供我國諸多鯨豚病毒之陽性對照組與實驗方法，以利我國開始進行回溯性研究並建立未來病例之診斷能力。
- 二、與SeaWorld 動物繁殖主任 Dr. Todd Robeck 達成合作協議，允許我國獸醫師前往他們的場地學習鯨豚人工繁殖技術，以利未來運用於台灣瀕危物種之域外復育。
- 三、與西班牙研究員Dr. Mar Melero 達成合作協議，協助我國進行擱淺鯨豚細菌性疾病之診斷，並可進一步與歐洲病原株進行多重比較，以更深了解細菌性疾病於鯨豚擱淺的重要性及全球傳播趨勢。

#### 伍、心得與建議

縱觀研討會專家所談內容及各國代表所提問題，顯示現在全球鯨豚疾病仍以病毒影響最為嚴重且難以防治，並對族群健康造成危害。所幸在各界努力下已有極大研究進展。我國面臨著存在多種病原感染鯨豚的可能性，海洋疾病可說是無國界可言，因此為能有效因應及預防新興疾病的入侵，亟需與國外專家學者交流，一則尋求更多研究的成果與脈動，二則洞悉各國鯨豚疫情與擱淺相關的現況，因此透過參加國際會議，聽取國外專家學者對該等病原的見解，並尋求國際間學術合作與資訊交流的管道與環境，對我國鯨豚疾病之防治與研究能力之提升，將有相當大的助益。

陸、活動照片



與會貴賓合照



**New Advances in the diagnosis of viral diseases in dolphins**



**Current Status of Application of Assisted Reproductive Technology in Cetaceans**

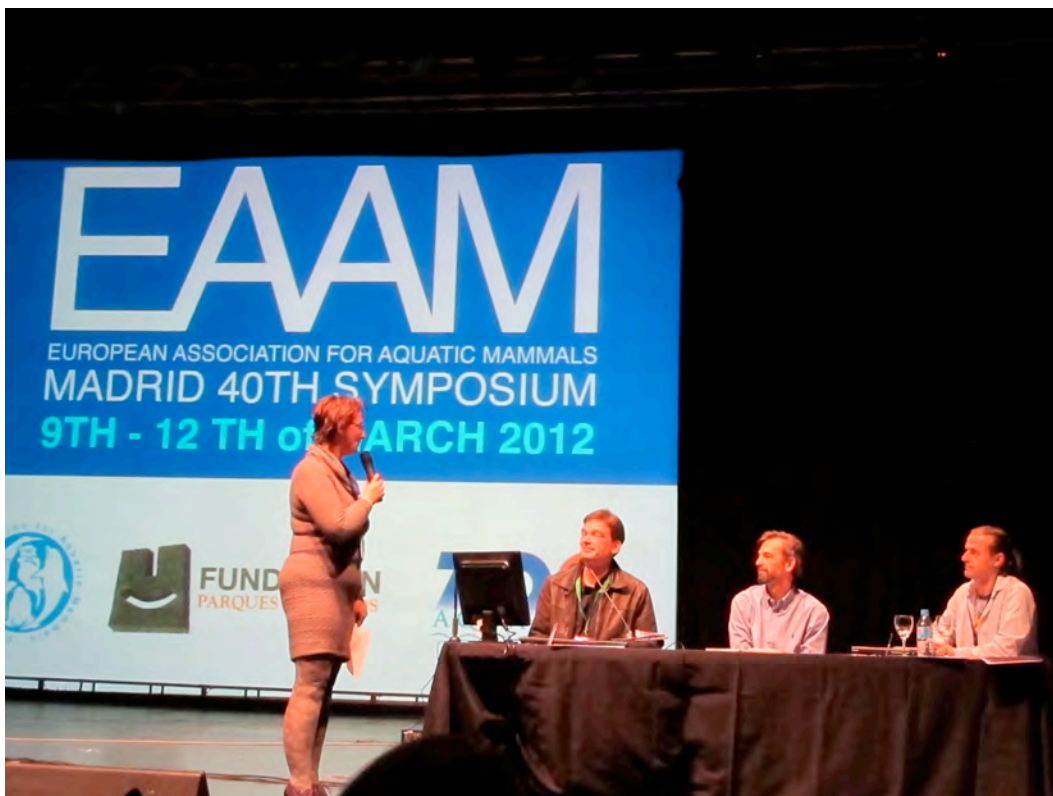


**Communicating About Our Animals**





Dolphin Neonatology



會後討論

