

EXPERT REPORT

People for the Ethical Treatment of Animals, et al.

v.

Miami Seaquarium

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QUALIFICATIONS

A copy of my CV, including a list of publications, is included in **Appendix 1**. I have not testified as an expert at trial or by deposition in any case during the previous four years.

I graduated as a Doctor in Veterinary Medicine (DVM) from the University of Liège, Belgium, in 2000. During those 6 years of the program I specialized in marine mammal medicine and pathology participating in the Belgian stranding network (MARIN) which was based at my faculty. I carried out a 6-month internship at the Duisburg Zoo, which at that time hosted bottlenose dolphins, Amazon River dolphins, a Commerson's dolphin, a beluga whale, and pinnipeds (both seals and sea lions). After graduating I carried out a 2-year Masters in Veterinary Science in the same Zoo with the thesis "Dolphin blow cytology". During this Masters I also carried out consultancy work in different dolphinarium in Europe.

I carried out another Masters in 2004 in Marine Mammal Science in the University of Bangor, Wales, UK, which included a specific program on marine mammal captivity, conservation and welfare. I carried out my Master's thesis on the codas of sperm whales from the Canary Islands under the supervision of Dr Michel Andre from the LAB in Vilanova i la Geltru, Spain. After completing this Masters I was invited as guest lecturer in marine mammal medicine and pathology at this same University for the 2 following years. I am now a PhD candidate at the University of Liège, Belgium, with the subject "Toxicology and stable isotopes in humpback whales from the Dominican Republic and Ecuador".

Since 2005 I have been appointed head of delegation for the government of Luxembourg at the Scientific Committee of the International Whaling Commission, actively participating in working groups specifically dealing with cetacean medicine, pathology, conservation and welfare issues (Whale Killing Methods and Associated Welfare Issues, Cetacean Emerging and Re-emerging Diseases, Intersessional Working Group on Welfare). I am also appointed alternate commissioner for the Government of Luxembourg at the IWC.

I have been appointed scientific advisor for the Ministry of Environment of Luxembourg at different international conventions such as ACCOBAMS (Agreement on the Conservation of Cetaceans in the Black Sea Mediterranean Sea and Contiguous Atlantic Area), CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora), CMS (Convention on the Conservation of Migratory Species of Wild Animals), AEW (African-Eurasian Migratory Waterbird Agreement) and the Bern Convention (Bern Convention on the Conservation of European Wildlife and Natural Habitats).

Since 2014, I am the president and cofounder of the Luxembourg based marine biology and conservation association *Odysea* (www.odyssea.lu).

I have studied wild orcas in the Strait of Gibraltar every summer for the past 11 years, looking into their biology, behavior, and welfare issues (human impact of both fishing activities and whale watching).

I have been a consultant for the Government of Luxembourg on the matter of the Faroese pilot whale hunt which takes place every year, and which has important cetacean welfare implications.

I have been a member of different international scientific societies for over a decade: European Cetacean Society, Society for Marine Mammalogy, Benelux Congress of Zoology.

I have consulted for several international NGOs related to issues dealing with cetacean captivity, releases, illegal trade or welfare issues. I have also acted as a consultant for an NGO in the matter of Morgan, an orca kept in captivity at Loro Parque, Spain.

I have consulted for dolphin release programs, including in South Korea on the Island of Jeju in 2013 and 2014, and in Turkey with the dolphins Tom and Misha in 2012. I was also a consultant for HEPCA in the illegal import of dolphins from Japan into Egypt in 2010.

I have worked as a consultant on the report which led to the closure of the Swiss dolphinarium from Connyland, and also on the case regarding a dolphinarium in Nürnberg, Germany.

In 2006 I carried out consultancy work regarding the seal hunt in Canada, and co-authored the publication "Welfare aspects of the Canadian seal hunt: Final report, 45 pp. Document submitted to EFSA (European Food Safety Authority)," which led to the European ban on the import of seal products.

SUMMARY OF OPINIONS

This report presents my medical evaluation of Tokitae's (Lolita) health status and adequacy of confinement at the Miami Seaquarium, Florida. The international NGO PETA requested that I evaluate the conditions under which the orca (killer whale) Tokitae is being kept on display, as well as her total health status, including physical and welfare aspects. The physical health aspects include any symptoms, illnesses, injuries, and medical treatments. The welfare aspects include mental health, social life, enclosure space and complexity, and environmental enrichment.

The information used for this report was obtained from the medical reports, animal behavior records, laboratory reports and water quality reports produced by the Miami Seaquarium, as well as from the observations carried out during the site visit at the facility on January 20th 2016 from 7am to 1:15pm. Although a much longer period of observation was requested in order to have more data from which to form an opinion, only this very short window of time was allocated to us. While a much longer observation period would allow for the opportunity to draw more absolute conclusions, the duration of this observation still provided clear indications of elements of concern.

After visiting the Miami Seaquarium on January 20th 2016, I concluded the following points. More detailed information on each point can be found in the discussion section that follows.

CONCLUDING POINTS

- The size of the pool, its disposition and concept are insufficient for such a large animal, and does not offer enough enrichment for the cognitive needs of the species.
- Tokitae has been kept in species-specific isolation for the past 35 years, and her cohabitation with the Pacific white-sided dolphins (PWD) is a source of stress to her. This stress has both welfare and medical implications, such as leading from frustration to depression (with reduced activity and the onset of stereotypical behaviors), and the potential of her chronic stress leading to increased cortisol production which has a depressing effect on her immune system, making her more susceptible to pathogens.
- There is clear evidence that the training and management personnel lack specific orca husbandry knowledge.
- Tokitae has significant tooth wear on 4 incisors of her lower jaw and 2 of her upper jaw. This contrasts with the reported low tooth wear of wild resident orcas. This tooth wear could be the result of stereotypical behavior, and results in discomfort and pain.
- For the past 4 years Tokitae has been diagnosed with a pterygium, also called "surfer's eye". This is caused by excessive exposure to UV radiation, leads to discomfort (foreign body sensation) and can cause a significant alteration in visual function. The lack of shade in the pool area is another negative aspect of Lolita's holding conditions.
- From her laboratory values, Tokitae seems to be a chronically ill patient with frequently recurring infections and mildly impaired kidney function. This is corroborated by the frequent medical treatments she has to incur. This frequent medication can have, and may have already had negative impacts on her liver and kidneys.

- The educational value of the show in which Tokitae takes part is questionable, as it provides misinformation as to the life of orcas in the wild. The Miami Seaquarium has not provided any proof of research or conservation efforts for killer whales.

As a conclusion I am of the opinion that both the facility and the management/husbandry conditions are unfit for a captive orca's both health and welfare requirements. In addition, Tokitae's blood-work shows clear indications of chronic pathologic ongoing processes, and thus such an animal should not be put to the pressure of performing several times a day, and having to cope with the stress of cohabitation with the PWD. I strongly recommend to retire Tokitae from the shows, and to move her to a semi-natural facility like a sea-pen where she would have more space for swimming and natural enrichment which would allow her to carry out her normal orca behaviors.

DISCUSSION

Pool size and disposition

- The size and disposition of the pool are in my expert opinion not satisfactory for housing an adult orca like Tokitae, because the platform in the center of the pool reaches to the bottom of the pool and separates it into two main areas. Thus Tokitae cannot swim the entire length of the pool in every direction. I observed during the site inspection that it takes Tokitae a maximum of 5 low-amplitude impulses of her fluke to swim across the entire length of the pool, which in my opinion is extremely insufficient. I know of no other animal in display in WAZA (World Association of Zoos and Aquariums) standard facilities which has such little space comparatively for physical exercise. Being confined in such a small pool strongly limits her ability to swim and exercise, which can lead to a decreased muscular mass, and an increase in boredom, which can lead to the onset of stereotypical behaviors, as have been observed during our visit to Miami Seaquarium. Tokitae's possibilities to explore anything in the pool are significantly limited.
- The pool is composed of bare concrete walls and bottom, with no natural substrate or natural elements. This does not provide Tokitae with any opportunity to display normal orca behavior such as using echolocation or rubbing herself on gravel, as resident orcas do in her population of origin. This goes in the opposite direction of the improvements that have taken place in most modern zoos and aquaria throughout the world in order to provide animals in display with an enclosure as natural as possible.
- The pool also lacks any structure which would provide shade during the times of day with highest sun exposure. In regard of Tokitae's issue with her right eye, constant direct sun exposure with no shade probably represents an important disturbance, especially when Tokitae has to focus on the trainers' signals during the shows. I noted a total absence of shade on the pool area during our visit at the Miami Seaquarium.

Welfare aspects, social life, and interactions with the PWD

- Orcas are highly cognitive animals and are apex predators in the wild, exhibiting a whole range of elaborate hunting techniques. They live in strong family bonds and are extremely sociable animals. Resident orcas, the population Tokitae is originally from, have been studied in detail during the past 35 plus years and have been shown to have very complex intra-specific and even intra-pod communication capacities which are transferred vertically, representing evidence of one of the few animal species with culture. For such a social, cognitive and cultural animal, depriving it of all these primordial interactions represents a serious limitation of its behavioral capacities and its need to communicate. Orcas can travel over 100km per day and use a sixth sense, namely echolocation, to orient themselves and to hunt. During her past 36 years in isolated captivity after Hugo, the orca with which she was held, died, Tokitae has been deprived of all these traits and behaviors which make her what she is, namely an orca. She has not been able to hunt, develop strong family bonds, communicate using her pod's unique dialect, swim any meaningful distance, or echolocate. Very little effort has been carried out to improve her situation during these past 36 years. She lives in isolated confinement. This has serious welfare implications for delphinids, including orcas: it can lead to the development of stereotypical behaviors (as are strongly suspected from observations of Tokitae), depression, and in some cases to self-mutilation and suicide.
- Tokitae has been kept in species-specific isolation for the past 36 years. This is especially critical when considering that orcas are highly social animals with strong social bonds, and highly-

evolved communication abilities, as noted above. The fact that Tokitae has been and is being kept with Pacific white-sided dolphins (PWD) does not compensate for the lack of conspecifics. Not only is vocal communication probably impossible between these species, but in addition, the PWD seem to be an important source of stress and aggression towards Tokitae. This constant stress can lead to frustration and lack of movement in order to avoid the PWD. Chronic stress induces the production of cortisol, which on the long term has a depressing effect on the immune system, thus rendering the patient (in this case Tokitae) more sensitive to pathogens, and even to bacteria which would not be of clinical relevance under normal conditions. This could be one of the reasons why Tokitae has such recurrent bacterial and fungal overgrowths, and why she seems not to be able to fight them off on her own.

- During the short 6h15 minutes visit, it was possible to identify behaviors indicating stereotypy in Tokitae: she stayed at the same area of the pool for over 80% of the time, not including the show, with clear indications that the PWD were a stressing factor and confined her to this area. The PWD targeted Tokitae while she was clearly resting and initiated chasing behavior. Although the PWD are significantly smaller than Tokitae, they are faster and more agile. Tokitae may be more imposing, but this is exactly what makes her reactions slow and her unable to avoid them. When in this location, she was mostly motionless at the surface facing in the same direction (clearly away from the dolphins), or moving her head from side to side, or sinking to the bottom of the pool for short immersions when the dolphins were in the same pool area. When the PWD were in the opposite side of the pool waiting for the trainers to begin their daily activity, Tokitae exhibited a more relaxed behavior including significantly longer static dives.
- During the observation period several chasing situations were observed which were all initiated by the PWD. Throughout the medical and animal behavior records there are many indications that Tokitae has had tooth rakes from the PWD, a sign that the pool is too small for the animals to avoid aggressive behavior. This would not happen in the wild. We also recognized scars and tooth rakes on different areas of Tokitae's body during the site inspection. PWD would not have this kind of behavior in the wild, and most rakes found in wild orcas are intra-specific rakes (from other orcas). Being repeatedly aggressed by the PWD has stress implications, but also medical ones, as the rakes can be a gateway for skin infections.

Medical aspects

- From the medical records (MSQ0001144-1200) it appears clearly that Tokitae is treated with many types of medications on a frequent basis (see **Table 1**), for both therapeutical and prophylactic reasons. In addition to antibiotics, antifungals, pain medication, antacids and hormones (see **Table 2**), Tokitae also gets large amounts of homeopathic substances and immunostimulants. The frequency with which Tokitae has been treated with antibiotics, antifungals, and stomach protectors is relatively high, and higher than what you would expect in a healthy animal. For a healthy delphinid you would expect 2 to 3 antibiotic/antifungal treatments per year. For Tokitae, for example, the frequency of antibiotic treatment ranges from 2 to 13 times per year (average 5.2). The duration of the treatments cannot be clearly defined from the records, as information on the onset or the end of a treatment is often unclear or missing. If considered conservatively, estimating that a full antibiotic treatment can range from 5 to 10 days (sometimes longer until clinical signs disappear or diagnostic values return to normal), Tokitae was treated with antibiotics alone from 65 to 130 days in 2013. From this treatment information it appears clearly that Tokitae is not a healthy animal, but is susceptible to recurrent infections. This could be due to chronic pathological processes in place, and/or to an immunosuppressive effect (due to chronic production of cortisol) of the stress she is exposed to either by the inappropriate

environment she has to live in (small pool size and sun exposure), or her stressful cohabitation with the PWD, or both.

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| AB | 2 | 2 | 2 | 1 | 5 | 3 | 2 | 2 | 9 | 3 | 6 | 12 | 13 | 10 | 6 |
| AF | | 4 | | 5 | 2 | 2 | 4 | 1 | 3 | 2 | 1 | 9 | 5 | 7 | |
| ST | 6 | 8 | 4 | 2 | 8 | 4 | 2 | 3 | 2 | 4 | 1 | 1 | 5 | 4 | 5 |
| PAIN | | | | | | | | | 1 | 2 | 2 | | 5 | | |
| EYE | | | | | | | | | | | | 4 | 1 | 3 | 4 |

Table 1: frequency of administration of medicines to Tokitae by year: AB = antibiotics, AF = antifungals, ST = stomach treatment, PAIN = painkillers; EYE = eye drops containing either antibiotics or corticoids.

| | | | | |
|--------------------|---------------|--------------------|-------------------|---------------|
| Antibiotics | Amoxicillin | Painkillers | Tramadol | |
| | Baytril | | Orajel | |
| | Metronidazole | | G-I ulcers | Sulfasalazine |
| | Cefpodoxime | | | Ranitidine |
| | Tobramycin | | | Carafate |
| | Neomycin | | | Roloids |
| | Cephalexin | | Hormones | Regumate |
| | Ciprofloxacin | | | Chorlulon |
| | Clavamox | | | Megace |
| | Amikacin | | | |
| Antifungals | Fluconazole | | | |
| | Voriconazole | | | |
| | Terbinafine | | | |

Table 2: List of the different medications administered to Tokitae during the past 15 years, listed by category.

- The examination of Tokitae’s blood values for the past 15 years (MSQ0001144-1200) show some consistent features. Her red blood cell count is slightly elevated in over 70% of the samples, and the mean cell volume is slightly decreased in over 90% of the samples. This could be indicative of a mild but frequent dehydration status, or of a reaction to a chronic hypoxic lung disease, or of both simultaneously. From the lab results and from the veterinary records it is clear that Tokitae has had numerous treatments for recurrent infections from her respiratory tract. Respiratory diseases are the most frequent pathology for cetaceans, both in terms of morbidity and mortality. Dehydration can result from inappropriate diet, as cetaceans take up their freshwater from their food sources. The possible dehydration could also mask a mild anaemia due to bleeding stomach ulcers, which would explain the persistent decreased mean cell volume. From the medical and behavior records we know that Tokitae has been on treatment for gastric ulcers for prolonged periods of time, both for therapeutical and preventive reasons. In the case of stomach ulcers which

would bleed moderately or intermittently, only a mild regenerative anaemia would result. The bone marrow would try to compensate for the loss of red blood cells by producing more red blood cells, and this would result in a slightly higher count, but also in more immature (smaller) red blood cells, which would fit with the lab results. Dehydration would mask an anaemia reducing the amount of serum, thus resulting in a seemingly normal concentration of red blood cells.

- It also appears from the lab results that both the nitrogen and the creatinine are slightly elevated in almost 100% of the samples, which indicates that her kidneys are suffering and do not have the full capacity of filtration. This could explain the above-mentioned possible dehydration, or the dehydration could be an aggravating factor. The cause for the kidney issue could be due to the intense medical treatments she has been exposed to, as most molecules are metabolized by the liver and eliminated by the kidneys. Some molecules can also have specific nephrotoxicity. Tokitae's lactate dehydrogenase (LDH) values are extremely elevated throughout the entire period of sampling (times 2.5), which could again be indicative of a possible pulmonary disease, which in this case would be chronic. LDH can be a marker for pathologic processes from the liver, muscles, or chronic lung disease. As the other liver markers appear normal, and there is no evidence in the records of muscular issues, it is most probable that the significantly constant increased LDH values indicate a chronic hypoxic pulmonary disease.
- To sum up, we are potentially dealing with a patient with a chronic pulmonary disease, decreased kidney function, possible stomach ulcer(s) and recurring dehydration. This does not represent an animal which should be performing every day in repeated shows. And yet even when she is under treatment for a diagnosed health issue, she still has to perform. Even when Tokitae has had her tooth drilled, she had to perform the same day, and in some occasions the trainers carried out water work with her, which included being pushed by putting the trainers feet on her rostrum. Because of her kidney values which are above the reference values, Tokitae would be a patient which I would qualify as needing a supplementation with freshwater. In the records there is no indication that she has been or is being supplemented with water.
- Tokitae exhibits significant tooth wear of four of her lower anterior incisors, and two of her upper incisors. This is particularly uncommon in wild resident orcas. This could be the result of stereotypical behavior due to a lack of stimulation during which Tokitae may chew on material in her direct environment, such as the sides and corners of the tank or the gates within it. These teeth seem to have led to medical situations and some teeth have had to be drilled. Throughout the records Tokitae has been reported to exhibit pain associated with these teeth and has had to be medicated with painkillers such as Tramadol (an opioid derivative used to treat moderate to moderately-severe pain). Despite the pain and discomfort described on several occasions in the medical records and the behavior logs, the show has only been interrupted once due to tooth pain.
- Since 2012 Tokitae has been treated repeatedly and for extended periods of time with eye drops for her right eye, which has been diagnosed by Dr Rodriguez as having a pterygium, also called "surfer's eye". This lesions are caused by prolonged exposure to UV radiation, lead to discomfort (foreign body sensation) and can cause a significant alteration in visual function. This is most probably due to the fact that the pool lacks any structure providing shade. Thus Tokitae is permanently exposed to sunlight during the day, as was noted during our observation. Tokitae also has to perform under these conditions, which adds stress to her eye and discomfort, as she needs to focus on the trainers' signs during the shows. Mr Hertz's declaration in document MSQ0010543 states that shade would be a risk to the proliferation of bacteria in the pool. This does not appear to have relevance as the water quality is a matter of filtration, and the direct UV from the sun has little impact on this topic. In addition, many dolphin facilities throughout the world are indoors facilities with no sunlight, and this does not affect the water quality.

The show and the educational dimension

- The show which we had the opportunity to observe during the site inspection was composed of information provided by the trainers to the public, and by the animals' performances. Part of the information presented is of questionable background, e.g., stating that Tokitae is much better off in this pool than in the wild because the orca population she originates from is classified as endangered and faces several threats ranging from pollution exposure to human disturbance. Being in captivity, they said, Tokitae would not have to face these threats and in addition she is under constant veterinary care. This defies the actual purpose of education. For example, the statement that orcas in captivity and in the wild have the same life expectancy is incorrect. Whereas the life expectancy cited by Miami Seaquarium in the wild is correct, a recent study (Jett and Ventre, 2015) has showed that:

Killer whales in U.S. facilities (12.0 yr) demonstrated a significantly higher median survival than those in foreign facilities (4.4 yr), as did whales entering captivity post-1 January 1985 (11.8 yr) vs. those entering prior to 1 January 1985 (3.9 yr). Median survival for captive-born (14.1 yr) was significantly higher than wild-captured killer whales (5.5 yr), though the two failed to differ among the post-1 January 1985 cohort. Facility location and pre- vs. post-1 January 1985 were predictors of the hazard rate. Survival of captive killer whale cohorts has generally improved through time, although survival to age milestones are poor when compared to wild killer whales.

Tokitae's age is a single value, and she is a special case. She represents an extreme of a distribution of ages in captivity. But the average (mean or median) age of orcas in captivity is much lower than for wild orcas. The statement by Mr Hertz that wild orcas face higher pollutant levels has no scientific background, as no toxicological analyses of Tokitae's tissues have been reported. In addition, as Tokitae is fed wild-caught fish (salmon, capelin and herring amongst others), her exposure to pollutants through her diet should be quite similar to that of wild orcas. Both wild orcas and salmon cover wide ranges through their yearly migration into the offshore Pacific Ocean, and there is no evidence to certify that Tokitae's exposure to pollutants would be lower than for wild orcas. Every animal display facility has a commitment to 3 basic principles: education, conservation and research. The educational aspect is clearly not fulfilled because the program contains misinformation. To my knowledge the Miami Seaquarium has neither contributed to the conservation of wild orcas, nor has it produced any significant research advancement in the field of killer whale biology. Thus my conclusion is that the Miami Seaquarium fails to the basic concepts of modern animal display facilities.

- From the records it seems that some of the items used as behavioral enrichment are partly inappropriate because they pose a risk of foreign body ingestion, or in the case of the wetsuit provided to Tokitae, it could lead to a potential risk towards trainers or divers wearing wetsuits, as Tokitae could misjudge them as a toy. This is a clear indication that the training personnel does not have relevant orca husbandry knowledge, as this is not a practice which would be encourage in other facilities, especially after the incidents which have happened in the past involving trainers.

My general recommendations are:

- Tokitae should be moved to a facility which should be more adapted for an animal this size and with such species-specific requirements, ideally a sea-pen. The size of the enclosure should be adapted in order to offer her more space for swimming, and in case she would be kept with other cetaceans, in order for her to be able to avoid aggressive interactions. Shade would be a

requirement as well, especially since she is suffering from a pterygium. A natural substrate and natural enrichment such as kelp and live fish would be positive additions to her environment.

- Her species-specific isolation (no contact to other conspecifics for the past 35 years) is a major concern for such a social and cognitive species. Efforts should be carried out in order to relocate her in company of other orcas.
- Because of her medical history and her present health status which seem to indicate that Tokitae has an ongoing chronic pathologic process, that she has a recurrent stomach issue, and that her kidney values are constantly above reference values, it is my expert opinion that Tokitae should not be included in shows any more, and that she should be managed in a way in which she could evade aggressive behaviors from the PWD.
- The information provided in the show has to be corrected in order to carry true educational content.

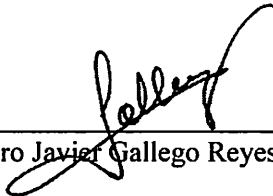
Compensation

I was hired as an expert witness by the Plaintiffs to review the medical reports, animal behavior records, laboratory reports and other records provided by Miami Seaquarium in this case and to conduct a site visit to observe Lolita's behavior and veterinary exam. I was asked to use my background and qualifications to provide my opinion on Lolita's current living conditions and whether she appears healthy and thriving, or if she is suffering physically and/or psychologically in this environment. In exchange for these services, I will be compensated at a rate of \$90.00 per hour, \$650.00 per day for out-of-town services exceeding seven hours, and reimbursement for out-of-pocket expenses.

Declaration

Pursuant to 28 U.S.C. § 1746, I, Pedro Javier Gallego Reyes, hereby declare that under the penalty of perjury the contents of the foregoing report are true and correct to the best of my knowledge.

EXECUTED on this 8th day of February 2016



Pedro Javier Gallego Reyes

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APPENDIX 1

CURRICULUM VITAE

EDUCATION

- January 2014-present: PHD CANDIDATE IN BIOLOGY, Oceanography Laboratory, University of Liege.
- September 2003 - November 2004 : MASTERS IN MARINE MAMMAL SCIENCE, University of Wales, Bangor, UK, with "distinction".
- Academic year 2001-2002: D.E.A. (DIPLOME D'ETUDES APPROFONDIES) DEGREE IN VETERINARY SCIENCE (dissertation presented on 30 September 2002: Investigation of dolphin blow cytology) at the Faculty of Veterinary Medicine (F.M.V.), University of Liege (Belgium), in collaboration with Duisburg Zoo (Germany), with "la plus grande distinction" ;
- 2000: D.V.M. (DOCTOR IN VETERINARY MEDICINE) degree obtained at the F.M.V., University of Liege, with "grande distinction" ;
- 1997: "CANDIDAT EN SCIENCES VÉTÉRINAIRES" degree obtained at the F.M.V., University of Liege, with "grande distinction" ;
- 1993: SUMMER SCHOLARSHIP at Miami University, Oxford, Ohio (U.S.A.). Lectures attended: microbiology and comparative vertebrate anatomy.

PROFESSIONAL EXPERIENCE

- 2014-present: organization of scientific internships on cetacean research for *Odyssea*.
- 2012 and 2013: head scientist and naturalist guide with Whale Samana, Samana, Dominican Republic.
- November 2011 and 2014: Head of delegation at the CMS CoP 10 and 11.
- 2010 and 2011: Scientific coordinator of the Association "Jonk Fuerscher Lëtzebuerg".
- From 2005 to present: Scientific Head of Delegation and Alternate Commissioner at the International Whaling Commission annual meetings for the Government of Luxembourg.
- June 2007: Scientific Advisor and Alternate Commissioner at the 14th CoP of CITES in The Hague, the Netherlands, and since then, member of the CITES scientific authority for Luxembourg.
- Since 2006: consultant for the Whale and Dolphin Conservation Society (WDCCS), and other INGOs.
- April 2005 and 2006: invited speaker to the Pathology module of the Marine Mammal Science Masters, University of Wales, Bangor, UK.

LANGUAGE SKILLS

- Mother tongues: French, Spanish.
- Excellent speaking, reading and writing skills in English, German and Luxembourgish.
- Good understanding of oral and written Italian, Portuguese and Dutch.

PUBLICATIONS

Peer-reviewed publications:

- Van Waerebeek, K., Sequeira, M., Williamson, C., Sanino, G.P., Gallego, P., Carmo, P. (2006) Live-captures of common bottlenose dolphins *Tursiops truncatus* and unassessed bycatch in Cuban waters: evidence of sustainability found wanting. LAJAM 5(1): 39-48.
- Meurens F., Schynts F., Keil G.M., Muylkens B., Vanderplasschen A., Gallego P., Thiry E. (2004) Superinfection prevents recombination of the alphaherpesvirus bovine herpesvirus 1. Journal of Virology, Vol. 78, No. 8, 3872-3879.
- Meurens, F., Gallego, P., Bourgot, I., Thiry, E. L'herpesvirus B du singe, un agent d'anthropozoonose méconnu. Ann. Méd. Vet., 2002, 146 (1), 1-8.

Other publications:

- Andréu, E., Medina, M., García, A., Martínez, M., Gallego, P., & Cervera, J. L., 2009. Breves periodos de ausencia del calderón común (*Globicephala melas*) en el Estrecho de Gibraltar; *Galemys* 21 (special n°): 181-194, ISSN: 1137-8700.
- Butterworth, A., Gallego, P., Gregory, N., Harris, S. and Soulsbury, C., 2007. Welfare aspects of the Canadian seal hunt: Final report, 45 pp. Document submitted to EFSA (European Food Safety Authority).

Conference communications:

- Gallego, P., Castro, C.; Killer whale (*Orcinus orca*) predation in the waters of Machalilla National Park, Ecuador; Poster presented at the 22nd Benelux Congress of Zoology, October 2015, Amsterdam, The Netherlands.
- Gallego, P., Das, K., Castro, C.; Assessing humpback whale (*Megaptera novaeangliae*) reactions to biopsy darting in the Machalilla National Park, Ecuador. Poster presented at the 29th Conference of the European Cetacean Society (ECS), April 2015, Malta.
- Gallego, P., Beddall, K., Bettancourt, L., Frediani, J.; Humpback whale (*Megaptera novaeangliae*) entanglement evidence from the Dominican Republic. Poster presented at the 27th Conference of the European Cetacean Society (ECS), April 2013, Setubal, Portugal.
- Acosta, M., Gallego, P. ; Longterm interspecific association and calf kidnapping between a bottlenose dolphin and common dolphins. Poster presented at the 24th Conference of the European Cetacean Society (ECS), March 2010, Germany.
- Gallego, P. Possible physiological and pathological impacts of climate change on cetaceans. Talk presented at the Workshop on climate change and cetaceans in Costa Rica, February 2009, San José, Costa Rica.
- Gallego, P., Acero Giménez, A., Cosentino, A., Pérez Martín, E., Medina, B., Andreu, E. Killer whale hunting behavior and acoustics in the Strait of Gibraltar. Poster presented at the 23rd Conference of the European Cetacean Society (ECS), March 2009, Istanbul, Turkey.
- Acero, A., Tello, M.J., Gallego, P., Andreu, E., Medina, B. Cetacean interactions with fisheries in the Strait of Gibraltar. Poster presented at the 23rd Conference of the European Cetacean Society (ECS), March 2009, Istanbul, Turkey.
- Tello, M.J., Andréu, E., Medina, B., Gallego, P., Acero, A. Dramatic decrease of short-beaked common dolphin (*Delphinus delphis*) sightings in the Strait of Gibraltar. Poster presented at the 23rd Conference of the European Cetacean Society (ECS), March 2009, Istanbul, Turkey.
- Pérez Martín, E., Cosentino, A., Gallego, P., Andreu, E., Acero Giménez, A., Medina, B. Skin lesions observed in cetaceans in the Strait of Gibraltar. Poster presented at the 23rd Conference of the European Cetacean Society (ECS), March 2009, Istanbul, Turkey.
- Cosentino, A., Zimmermann, C., Gallego, P., Pérez Martín, E., Andreu, E., Medina, B. First recaptures of fin whales (*Balaenoptera physalus*) migrating through the Strait of Gibraltar. Poster presented at the 23rd Conference of the European Cetacean Society (ECS), March 2009, Istanbul, Turkey.
- García, A., Andréu, E., Gallego, P., Lapuente, L., Martínez, M. & Medina, B. Collisions in the Strait of Gibraltar. Poster presented at the 22nd Conference of the European Cetacean Society (ECS), March 2008, Egmond aan Zee, the Netherlands.
- Andréu, E., Gallego, P., Medina, B., Lapuente, L., Pardo, D. & Cervera, J. L. High levels of interspecific interactions in the Strait of Gibraltar. Poster presented at the 22nd Conference of the European Cetacean Society (ECS), March 2008, Egmond aan Zee, the Netherlands.
- Medina, B., Andréu, E., Gallego, P., Tello, M.J., Martínez, M. & Lapuente, L. Bottlenose dolphin response to whale-watching vessels in the Strait of Gibraltar. Poster presented at the 22nd Conference of the European Cetacean Society (ECS), March 2008, Egmond aan Zee, the Netherlands.
- Martínez, M., Andréu, E. & Gallego, P. Sperm whales and climate change: unusual distribution in the Strait of Gibraltar. Poster presented at the 22nd Conference of the European Cetacean Society (ECS), March 2008, Egmond aan Zee, the Netherlands.
- Andréu, E., Gallego, P., Rodríguez, N., Cervera, J. L. Long-finned pilot whale response to whale-watching vessels in the Strait of Gibraltar. Poster presented at the 17th biennial Conference of the Society for Marine Mammalogy (SMM), December 2007, Cape Town, South Africa.
- Gallego, P., De los Rios y Loshuertos, A., Cosentino, A. (2007) Killer whales (*Orcinus orca*) from the Strait of Gibraltar on the brink of extinction. Poster presented at the 17th biennial Conference of the Society for Marine Mammalogy (SMM), December 2007, Cape Town, South Africa.
- Gallego, P., Andréu, E., Cosentino, A., Lott, R. & Scullion, A. Killer whale (*Orcinus orca*) diet in the Strait of Gibraltar. Poster presented at the 21st Conference of the European Cetacean Society (ECS), April 2007, San Sebastian, Spain.
- Andréu, E., Gallego, P., Rodríguez, N., Medina, B. & Cervera, L. Short seasonal absence of long-finned pilot whales in the Strait of Gibraltar. Poster presented at the 21st ECS Conference, April 2007, San Sebastian, Spain.

- Andreu, E., Medina, B., Gallego, P., Cervera L. Interspecific mating between bottlenose dolphin and long finned pilot whale. Poster presented at the 20th ECS Conference, April 2006, Gdynia, Poland.
- Gallego, P., Lott, R. Long finned pilot whales chase killer whales in the Strait of Gibraltar. Poster presented at the 16th biennial Conference of the SMM, December 2005, San Diego, USA.
- van der Schaar, M., Gallego, P., André, M. A standard method for sperm whale coda classification. Poster presented at the 19th ECS Conference, March 2005, La Rochelle, France.
- Culloch, R.M., Davies-Marshall, P., Gallego, P., Krzyszczyk, E., Lamb, J., Lott, R., McCully, S., McGee, J., Nelson, M., Nuuttila, H.K., Scullion, A.J., Tetley, M.J., Vanman, C., Weller, M., Reid, R.J., Goold, J.C.. Sound velocity in spermaceti oil from different locations in the head of a sperm whale (*Physeter macrocephalus*). Poster presented at the 18th ECS Conference, April 2004, Kolmarden, Sweden.
- Gallego, P., Garcia Hartmann, M., Coignoul, F. Methodology of dolphin blow cytology examination. Poster presented at the 30th Annual Symposium of the European Association of Aquatic Mammals (EAAM), March 2002, Aalborg, Denmark.
- Gallego, P., Garcia Hartmann, M. Food management in bottlenose dolphin (*Tursiops truncatus*), oral presentation at the 29th Annual Symposium of the EAAM, March 2001, Genoa, Italy.
- Garcia Hartmann, M., Gallego, P. Bacterial isolates from fish used for marine mammal feeding. Poster presented at the 29th Annual Symposium of the EAAM, March 2001, Genoa, Italy.

MISCELLANEOUS

- Co-founder and president of the Luxembourg Marine Biology and Conservation Association **ODYSSEA** (www.odyssea.lu) .
- Winner of the FNR 2009 Award for outstanding promotion of scientific culture.
- Winner of the 2008 Lions Club International Award.
- Co-founder of the associations *Polar.lu* and *Garum Tarifa*; member of the ECS, SMM, the Benelux Zoological Society, and the Grand Ducal Institute.
- Research associate of the Luxembourg National Natural History Museum.
- Carried out necropsies of cetaceans at the National Museum of Natural History of Leiden and the Dutch National Fisheries Institute (RIVO).
- Semi-professional photographer: many photographs have been published in scientific and guide books on marine mammals.