



**1st South American Workshop
on Aquatic Mammal Abundance Estimation Methods**
Laboratório de Estatística/DMT/ FURG
Museu Oceanográfico “Prof. Eliézer de Carvalho Rios”/ FURG
20 a 30 de outubro de 2003

STATEMENTS OF PARTICIPANTS

A personal evaluation on my participation to this workshop from a perspective of expected impact on future research and conservation work;

During the Workshop I was able to achieve:

1. A profounder understanding of some underlying statistical concepts to the idea of distance sampling for abundance estimation, which were not sufficiently treated or understood from the individual (autodidact) learning process ('distance' manual)
2. A better view on the possibilities of application of distance sampling under specific field conditions, through personal interaction with tutors and exchange with other field experiences
3. A first contact with the latest version of DISTANCE (had some experience with previous versions of DISTANCE software) and satisfactory introduction to the use of this software
4. A review of capture/recapture methods and potential of applications for different situations and population features
5. A first contact with software MARK and satisfactory introduction to its use

This intensive training opportunity provided for criteria and increased capacity of critical evaluation in matters related to abundance estimation, which in future work should become reflected in:

- installed capacity of developing a quality research proposal related to abundance estimation, and other population dynamics related issues
- critical judgment of the quality of data in the context of violation of basic assumptions, interpreting bias,
- ability to think and appropriately design data collecting and surveys in the field
- the use of installed networking, through this Workshop, to receive feedback (ante and ex-post) and other suggestions on experimental design
- increased quality in results through wider participation/debating and peer review

and reach some of the following specific results:

- an adequate evaluation and analysis of previously collected field data on *Lagenorhynchus australis* in the extreme south of Chile, for the purpose of abundance estimation
- a specific proposal for abundance estimation of a *geographically isolated* population of *Lagenorhynchus australis* in the Straits of Magellan, through an aerial survey
- the study of future proposals on small cetaceans populations in the south of Chile (*L. australis* and *Cephalorhynchus eutropia* mainly) with clearly defined research objectives, and concisely described field methodology

Together with this evaluation, I would like to thank the organizers of this Workshop, Dr. Enrique Crespo and Dr. Paul Kinas, tutors Alexandre Zerbini, Susana Pedraza, Cibele Quiroz and Fernanda Marques, as well as the entire local team, for this very rewarding professional and personal learning experience.

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The attendance to the workshop was outstanding at the academic, professional and personal levels. The workshop program was well designed, the sharing accommodations and daily itineraries facilitate studying and getting to know each other, creating an amazing atmosphere, and updated references and software were used. Besides traditional lectures, there were hands on experience with tools to ease our data handling and interpretation, including theoretical analysis, methodological design and software use.

There is a tremendous importance of the scientific and conservation benefits or results from this workshop. To mention a few, we will be soon producing so needed robust abundance estimates with existing data sets in our study areas, will design appropriate projects to address specific goals on abundance and density as well as be able to pass on the knowledge acquired within our research groups and to others. The lack of courses on this matter at even graduation levels in any South American country may also give a clue of the importance of this workshop. Another highlight was the combination of researchers (both as professors and attendants) with different levels of expertise both open and willing to share their knowledge and problems as well. Clearly, the financial support provided by the sponsor institutions paid off.

Therefore, this so needed and profitable initiative was tremendously successful and deserves to be continue and more frequent. I would like to express special gratitude to Drs. Paul G. Kinas and Enrique A. Crespo, the organizing committee and the financial institutions for this unforgettable experience.

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I must congratulate the coordinators and tutors of the 1st Workshop on Aquatic Mammal Abundance Estimation developed at FURG, Rio Grande, Brazil, for their enormous efforts and dedication. They provided us, the participants, with a handful of analytical tools that I had never been able to apply to my data due to the lack of this specialty in my country, Chile. Not only we learnt about different software capabilities, but, most importantly, about the necessity of understanding the underlying assumptions of each abundance estimation method and its relevance when designing a specific research protocol and/or when analyzing or communicating our results. I am grateful for having being selected to participate and I really hope that these types of initiatives continue in the future years. In Latin America we have an enormous potential to contribute to world-class science, but few opportunities to level off with commonly used analytical methods applied elsewhere. I thank those institutions who believed that this Workshop would be a worthy cause for funding and encourage them to continue helping us in the noble task of providing new opportunities for those who need them most.

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The first Abundance Estimation Workshop for Aquatic Populations of Mammals was an event of big relevance for the participants, because it integrated researchers, from different countries of South America, of different areas of work to study different species, however, with similar objectives. The making of events like this is fundamental for the exchange of information and knowledge between the participants, because of the few opportunities of interaction between researchers.

Particularly, the workshop contributed significantly and on different ways to my professional education as well as for the project that I develop with the pink dolphin (*Inia geoffrensis*) in Rio Tocantins, TO, Brazil, as:

a) Improving skills and more professional responsibility to develop a work of better quality in order to contribute to qualified professionals by going over again the knowledge acquired;

b) Improve the experimental drawing to collect better data, to obtain consistent results, and to be able to more precise solutions for possible problems;

c) The exchange of experience and information with other researchers who study the same species in another area initiated the need to standardize methodology of the population estimation for certain species in distinct areas for a future partnership in other projects.

Due to the difficulties of obtaining resources to develop projects, the optimization of the process (adequate experimental drawing and methodology, better results obtained) to obtain better answers to the problem is of fundamental importance for the success of professionals, projects and consequently for the species studied. Therefore, to me the importance of this workshop went beyond its proposed objective.

Yara Camargo
Asociacion Amigos do Peixe Boi AMPA
Tocantins - Brazil

Attending the abundance estimation workshop was important not only for me as an aquatic mammal researcher, but also for the institution which I am affiliated – Instituto Baleia Jubarte (Brazilian Humpback Whale Institute) since the knowledge acquired at the workshop will be applied in order to improve the researches that we been done. The exchange of experience among participants contributed in a very positive way for all. This kind of initiative should be encouraged and supported as this can equalize the Latin American researches knowledge and improve the quality of the projects done in these countries.

Cristiane C. A. Martins
Instituto Baleia Jubarte

Belo Horizonte, November 26th, 2003

To whom it may concern,

My name is Leonardo Flach, I carried out my research on abundance a distribution of the *Sotalia guianensis* at Sepetiba Bay, Brazil. Since I finished my fieldwork, I was seeking some way to learn how to analyze my data and use the program "Distance". Fortunately, my project was accepted by the organizers and, at the workshop, I could learn many important things for my currently analyses and future researches.

The positive aspects of the workshop were the way it was structured, giving opportunity to researches standardizing their knowledge about statistics, fieldwork data collection and fieldwork analyses. Furthermore, we had laboratorial and field classes to learn how to use the programs to estimate population size. Therefore, after the workshop I became more self-sufficient to know how to collect data properly and how to use the correct program to analyze it.

As a form of improvement, the next workshop should give more time to researches to present their project, to discuss it more and to analyze it during the workshop. Therefore, the first days could serve to introduce the programs and statistical interpretations to be used, and the following days could be spent with those aspects mentioned above.

I assure you that my expectations about the workshop were fulfilled, since I learned how to use the program "Distance" and how to analyze the data and interpret the statistical results.

Leonardo Flach
Universidade Federal de Minas Gerais

I think this workshop had improved my personal skills as a researcher as well as professional capacities in the region. At first, even I have experience in distance sampling methods, I improved my knowledge about theoretical aspects and mainly how to solve possible violations to assumptions in the practice. The use of the last version of the program DISTANCE and the incorporation of environmental covariates will contribute to my current work indeed, since I will improve abundance estimates. On the other hand, I am not working with mark-recapture techniques but I will use them in a mediate future. Then, the workshop gave me the theoretical and practical bases for an appropriate design of future studies.

Concerning the regional impact of the workshop, it promoted the discussion and exchange of ideas among the participants, which result in the enrichment of all of them. This kind of activities, if they may be sustained, will create a consistent critical mass and the bases for an optimal forum of opinion and discussion. Also, it represents a first important step for future workshops on related subjects as well as other fundamental tools for the evaluation of the conservation status of many marine mammals populations in Latin America.

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I am very glad of having been able to participate of the 1st. Workshop on Abundance Estimation of Aquatic Mammals at Rio Grande do Sul. The level of the professors, their commitment and their simpleness, helped to understand all the thematic ones better. One very important thing was that all the participants shared their experience truly. Our work in the future will be useful as far as we are able to work together and sharing objectives. It will be enriching to coordinate this effort all along South America. With regards my personal experience, I have acquired the basic tools to work in the estimate of abundance of small cetaceans as well as their application immediate problems of conservation of vulnerable species like the franciscana dolphin.

I hope this workshop could be repeated in the next future.

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The participation at the 1st. *Workshop of Estimate of the Abundance of Aquatic Mammals* was very positive both at the personal and academic levels. Currently, there is a deficit of courses and workshops related to this themes in Uruguay, and this type of events allow us to obtain new methods and applications. To share these activities with more experienced researchers gave us the opportunity to participate in an atmosphere of discussion that does not exist in our academic community. As these workshops have a regional character, allowed us to establish contacts and exchanges experiences with neighbour countries, which is fundamental to coordinate in immediate future new actions, giving priority to the gathering methods and criteria. Due to the above, we believe that it is essential for the development of this area of study in Uruguay and in the region, the continued communication between the different groups of work and its researches, in the atmosphere of discussion and exchange as those obtained in this event.

Mariana Piedra and Caterina Dimitriadis
Facultad de Ciencias, Universidad de la República Oriental del Uruguay

This workshop will have a great impact on my professional career as well as in my personal life. The most valuable items I can visualize now are those regarding my research activities. Throughout the meeting I have improved my skills on how to design and analyze an abundance estimate study. Specifically, now I feel much confident in recognize which are the appropriate techniques for a different set of situations. This was accomplished by sharing experiences with other attendees, examining the particular problems they face and finding the best solutions. Many times these solutions are not only those dealing with technical aspects of the research but also with financial and logistic issues. At the end of it all I am able to recognize that many of the problems that all of us share can be overcome by working together. I think that this workshop has lay the foundations for a collaborative process that will take place in the next few years.

I also have increased my background knowledge on the capture-recapture experiments and distance sampling, and acquired new analytical tools by the training received on the latest software. This will lead to a better understanding of the statistical aspects of model building, deriving in a more solid basis on the quantitative approach of my future research.

On the whole I enjoy the Workshop and I see it as a first step. Hopefully it can be taken forward for a richer interaction among Latin-American scientists, leading to a better understanding of the conservation problems that many of the cetacean species face in this part of the world.

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I want to express that taking part of the first workshop on Abundance Estimation on Marine Mammals, was a very rich experience from the academic as well as from the human point of view. In Uruguay there are several handicaps related to the study of marine mammals since there are no specialists who can guide or lead studies on cetacean species. Besides, there is a lack of courses and experience on fieldwork, which makes events like the workshop crucial for our instruction. They constitute a time for us to learn and to talk with experienced people who have different problematic issues in connection with their work. The exchange of information, experiences and problems was interesting, as I got to know the obstacles and difficulties which I may find in my way as a researcher working on these cetacean species. It was really a good opportunity, and I think we took advantage of it, for the contact made with the rest of the participants will last forever. As a matter of fact, and as an example, different proposals for working were set during this event.

Paula Laporta
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The present workshop provided me with tools to be applied in the monitoring of marine mammals by means of shore-based surveys with a minimum of mistakes and help us to evaluate our data, gathering important information on population parameters in the eastern coast of Rio de Janeiro State. During this 10 days, I learned basic knowledge on statistics, sampling design, assumptions and software applications of MARK-RECAPTURE and DISTANCE SAMPLING methods, essential to upgrade our methodology procedures.

One of the most important things that I have learned is that it is very useful the collaboration between researchers in Latin America, standardizing methods that can be applied in management and conservation of marine mammals populations.

I have just obtained my degree in Marine Biology. My statistical knowledge is poor and I was in a meeting with lecturers with Ph.D. or M.Sc. degrees in Statistics or Biology in marine mammals. All them did their best to help me to understand the topics and I learned more day after day.

I wish to congratulate the workshop organization's members for the great work done and thank all present researchers for show me the path to be a good researcher.

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First, I would like to say that the Workshop was completely successful. The contribution of this event in my professional life and in particular, in the actual project involving population size estimation of *Tursiops truncatus* in Patos Lagoon Estuary, was very important. In addition, the possibility opened for discussion and change knowledge inter-researchers of different countries was very constructive and productive. Furthermore, like a human experience, was very good. This kind of events allow the union inter-researchers, contributing for science development.

Congratulations for the Workshop organization and thanks for the opportunity!

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The 1o. Workshop para Estimação de Abundância de Mamíferos Marinhos was a peerless opportunity to learn the methodologies used to estimate populations of marine mammals. The team of teachers as well as the approach of the classes were arranged have permitted not only to learn a lot, but also helped to draw a picture of how to employ these tools for better understand the marine mammal populations. To participate of the Workshop was a very important opportunity, since we have not learned these disciplines in the University and neither during the post-graduation. In Brazil, for example, less than a handful of Universities have marine mammal disciplines in its regular course. In this sense, this Workshop will certainly allow a number of South American marine mammal students and specialists to develop their own projects to access the marine mammal abundance, a fundamental information for this group conservation. We wish to extend our best congratulations and acknowledgments to the organizers and the sponsors of this workshop for this unique opportunity.

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Prezados Coordenadores,

Ao cumprimentá-los venho através desta considerar:

Em decorrência da forte pressão de caça realizada em décadas passadas, o peixe-boi marinho (*Trichechus manatus manatus*) encontra-se seriamente ameaçado. Em função deste contexto, em 1980 surgiram as primeiras atividades de conservação desta espécie, através do Projeto Peixe-Boi Marinho (Projeto Executivo do Centro Mamíferos Aquáticos/IBAMA). Entre as atividades desenvolvidas neste Projeto vem sendo realizado desde 1987 o acompanhamento de populações de peixes-bois nativos em áreas de importância no litoral nordestino. A partir de 1999, a metodologia de coleta dos dados desta atividade foi padronizada e replicada para os estados de Alagoas, Paraíba, Piauí e Maranhão. Com a oportunidade de participar do 1º Workshop de Estimação de Abundância para Populações de Mamíferos Aquáticos, tivemos a possibilidade de captar novas informações, conhecer novos modelos estatísticos, trocar experiências com outros profissionais, além da apresentação da atividade de monitoramento dos peixes-bois marinhos. Desta maneira recebemos considerações importantíssimas para a melhor execução da atividade, bem como a assimilação de novas metodologias que certamente favorecerão nos estudos para a conservação da espécie em questão. Estamos extremamente gratificados dos benefícios concedidos neste Workshop e na oportunidade aproveitamos para exaltar toda a comissão organizadora, patrocinadores e equipe de apoio e aclamar pela possibilidade da realização de novos eventos dessa plenitude.

Atenciosamente,

João Carlos Gomes Borges
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