December-April 1998-2011. The average number of lairs used by studied individuals was 3.27 ± 1,01 SD (ranged from 2 to 6). The average home range size of tagged seals (N=5) measured by minimum convex polygons was less than 8 km^2 (ranged from 4 km^2 to 14 km^2) in wintertime. The home ranges of studied seals were found to be smaller during the ice-covered season than during the open water season. However, home ranges during the ice-covered season were larger than supposed earlier. These results may have consequences for developing monitoring and conservation plans for the Saimaa seal population. The observed lair numbers per seal were also bigger than supposed before; as a result, individual variation in lair usage should be pointed out when making population estimates based on lair counts. In addition, ringed seals are more sensitive to disturbance during the breeding season. Therefore, the home ranges and the lair distribution of breeding animals should be taken into account when planning land usage and wintertime activities (e.g. snowmobile trails) within Saimaa ringed seal distribution areas.

Determination of beluga (*Delphinapterus leucas*) movement type using aerial photography

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During aerial surveys we collect a high quality and resolution aerial photography data, each photo having geographical coordinates and timestamp. Photo quality allows determination of beluga number, age class, instant spatial and social distribution, and belugas orientation. Beluga orientation reflects the direction of beluga short term local movements and even seasonal migrations. Photographs used for analysis are taken with cameras rigidly fixed to the plane bottom and precisely aligned with the plane fuselage. Only photos where belugas perform direct movement behaviour (usually, with a characteristic wave around melon and a tail trail) are analyzed. Photos with feeding, resting or diving belugas are excluded. The direction of beluga movement is calculated based on its spatial orientation on photo (precision of azimuth definition is 22.5°, or 2 bearings) relative to the plane course at that moment. The obtained results are compared to the available data on beluga movement features, and checked for correlation with oceanographic parameters: bathymetry, currents, tidal state and other factors influencing beluga movements. We analyzed aerial photographs from the survey in the White Sea (July, 2007) and defined a dominant direction of beluga migration. Determination of beluga movement direction helped us to understand that, during the survey, belugas were entering the White Sea basin, but not leaving it, thus, confirming our choice for the survey design and time period was correct. Based on aerial photographs taken in the Okhotsk Sea (August-September, 2009), we confirmed local daily movement pattern for belugas in Sakhalinsky and Penzhina Bays that had been previously described based on land observations. Results of photo-analysis for determination of beluga dominant movement direction can be used for planning future aerial surveys, and for prediction of animal presence and distribution in unsurveyed regions. The method can be applied for different types of water areas and marine mammals.

Whale Identification, Logging and Display Software use in MED 09 and SOCAL 10 fieldwork.

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The Whale Identification, Logging and Display (WILD) software system was developed to assist researchers tracking marine mammals in real time. The WILD logger is used to record visual observations of marine mammals and broadcast these observations over a ship's network. The system uses National Marine Electronics Association (NMEA) standard and custom data sentences to move all acoustic and visual observations throughout the ship and displays them in a dynamic, real time map within an ESRI ArcGIS map. The WILD system was used successfully on the MED 09 sea trial in July-September 2009 aboard the NATO Research Vessel Alliance. The system proved to be very flexible, allowing vessel positions, visual and acoustic observations from a range of sensors to be integrated into one, common operational awareness picture available throughout the ship. The WILD software also was a critical component to the numerous successful Behavioral Response Study (BRS) playbacks performed as part of the SOCAL 10 BRS in the Southern California bight July-August 2010. The WILD software allowed researchers to quickly determine the feasibility of performing an acoustic playback on a subject animal in addition to monitoring permit compliance in real time. In both studies WILD software served as an invaluable tactical decision aid for the research teams.

A PAM datalogger detection function obtained by visual observations may be used to assess porpoise density acoustically

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Monitoring abundance and population changes of small odontocetes, like the harbour porpoise, is notoriously difficult and labour intensive. There is a need to develop alternative methods to the traditional visual line transect surveys, especially for low density areas. Rigorous application of methods from distance sampling theory to passive acoustic monitoring provides the tools needed for obtaining estimates of absolute animal densities. Here we made a detection function for TPODs by tracking harbour porpoises visually while concurrently recording them with static acoustic dataloggers (T-PODs). The data were analysed in a mark-recapture approach, where a visual sighting constituted a "mark" and a simultaneous acoustic detection a "recapture". As a distance could be assigned to each visual observation the probability of acoustic detection with increasing distance from the T-POD could be estimated, i.e. the so-called detection function was obtained. Effective detection radius of T-PODs ranged from 22 to 104 m and depended on TPOD type, T-POD sensitivity and train classification settings. By applying the mean group size observed, a realistic density estimate was obtained from T-POD recordings and corresponded to density derived from the visual observations. This study was regarded as a feasibility test with the goal to obtain a detection function. With more dataloggers and adequate design of survey layout a density estimate would be