

Curriculum vitae of Natalia Gorska

Date and place of birth: born 26 May 1958, Nizhni Novgorod, Russia

Marital status: married, Antoni Staśkiewicz (age 65), Ph.D., Physical Oceanographer, Maritime Institute in Gdańsk, 1 child (age 33)

Nationality: Polish

Language skills: English, Russian, Polish

Affiliation: The Faculty of Oceanography and Geography, University of Gdańsk, al. Marszałka Piłsudskiego 46, 81 - 378 Gdynia, Poland, phone: + 48 58 523 68 83, fax: + 48 58 523 66 78, e-mail: natalia.gorska@univ.gda.pl.

Professional education:

2004 – **Habilitation** (second academic degree) in **Oceanography**, Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland.

1991 - **Ph.D. in Physics and Mathematics**, Institute of Applied Physics, Russian Academy of Sciences, Nizhni Novgorod, Russia.

1979 - **M.Sc. in Radiophysics and Electronics**, Gorky State University, Nizhni Novgorod, Russia.

1974 - 1979 - enrolled in Radiophysical Faculty, Gorky State University, Nizhni Novgorod, Russia.

Employment:

2008 - present – **Associate Professor, Director of Institute of Oceanography, Representative of the Rektor of the University of Gdańsk for research and innovation in the Baltic Sea basin.**

Employer: University of Gdańsk, The Faculty of Oceanography and Geography, al. Marszałka Piłsudskiego 46, 81 - 378 Gdynia, Poland

2006 - 2008 – **Associate Professor**

Employer: University of Gdańsk, The Faculty of Biology, Geography and Oceanology, al. Marszałka Piłsudskiego 46, 81 - 378 Gdynia, Poland

2004 - 2009 – **Associate Professor**

Employer: Institute of Oceanology, Polish Academy of Sciences, ul. Powstańców Warszawy 55, PL 81-712 Sopot, Poland

1997 - 2004 – **Senior Position**

Employer: Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland

1996 – **Research Consultant**

Employer: State Committee of Scientific Research (ul. Wspólna 1/3, PL 00-529 Warszawa, Poland) and Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland

1991-1995 – **Research Assistant**

Employer: Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland

1982-1990 – **Research Assistant**

Employer: Institute of Applied Physics, Soviet Academy of Sciences, 46 Ulyanov Street, 603600 Nizhni Novgorod, Russia

1980 - 1981 – **Junior Position After Graduation**

Employer: Institute of Applied Physics, Soviet Academy of Sciences, Nizhni Novgorod, Russia

Professional experience and qualifications:

◆ **Research experience**

1. Hydroacoustics:

(i) fisheries acoustics: analytical and numerical modelling of sound scattering and extinction by biological individuals and biological aggregated populations (fish and zooplankton)

(ii) fisheries acoustics: justification and improvement of acoustical algorithms of fish abundance estimation and species identification

(iii) environmental acoustics: acoustical monitoring of biological aggregations and sea bed habitats (measurements and data analysis)

(iv) environmental acoustics: development of acoustical techniques of benthic habitat classification

(v) sound scattering: analytical and numerical modelling of sound multiple scattering by marine inhomogeneities

(vi) non-linear acoustics: modelling of non-linear interaction of sound waves in underwater waveguides and parametrical arrays

2. Physical Oceanography:

modelling of sound multiple scattering of internal and surface waves by ocean inhomogeneities

◆ **Teaching experience**

- Courses of lectures: Basics of physics (Bachelor's study level), two courses of Marine acoustics (Bachelor's and Master's study levels) , two courses "Application of acoustical methods in studying of marine ecosystems", "Bioacoustics" (Doctoral and Master's study levels), training course in oceanographic measurements, University of Gdańsk, Gdańsk, Poland, 2006 - present.

- Fishery acoustics and acoustical monitoring of marine habitats – supervisor of M.Sc., BSc and PhD students, University of Gdańsk, Gdańsk, Poland, 2005 - present.

- Fishery acoustics – lectures for M.Sc. and Ph.D. students, Institute of Oceanology, Polish Academy of Sciences, Sopot, Poland, 2004 - 2006.
- Theory of low-frequency sound multiple scattering by irregularities of ocean waveguides, course of lectures, Gorky State University, Nizhni Novgorod, Russia, 1989 (graduate level).
- Supervisor of three PhD students, 2009 - present.
- Supervisor of seven MSc students successfully defended, 2006 - present.
- Supervisor of BSc student successfully defended, 2009.

◆ Professional service

- 2011 Polish Representative, BONUS Strategic Orientation Workshop. Dikli Manor, Latvia (15-17 March 2011).
- May, 2011 Coordination of the project *European Maritime Day at the University of Gdansk*.
- 2009 - present Coordination of the University Interfaculty Team for Realization of Marine Policy (coordinating board: Natalia Gorska and Adam Latała).
- 2009 - present Coordination of the project *National Baltic Research Center* (coordinating board: Natalia Gorska and Adam Latała).
- 2009 - 2011 Coordination of the project *Research vessel "Oceanographer" for the Baltic Sea interdisciplinary study*, on the stage of looking for funds (coordinating board: Natalia Gorska and Adam Latała) and development of the main principles. The project (nr 774/FNiTP/2011) was accepted for funding (36,000,000 PLN) in the framework of the Program of Support of Research Infrastructure of the Ministry of Science and Higher Education (Fund of Polish Science and Technology).
- 2009 Organization of InfoDay: The FP7 4th Call with the Emphasis on the Ocean of Tomorrow, 7th September, Gdynia, Polska.
- 2009 Reviewer for *Hydrobiologia*.
- 2008 Reviewer for *ICES Journal of Marine Science*.
- 2005 Convener of the session at 52 OSA Conference joined with Polish-Scandinavian Structured Conference on Acoustics, Poznań – Wągrowiec, Poland.
- 2005 Reviewer for *Archives of Acoustics*.
- 2004 Co-organiser of Workshop "Applications of Modern Signal Processing Techniques to Ocean Sensing", Gdańsk, Poland.
- 2003 Reviewer for *ICES Journal of Marine Science*.
- 2002 Co-convener of the session at 6 ICES Symposium on Acoustics in Fisheries and Ecology, Montpellier, France.

- 2002 Reviewer for ICES Journal of Marine Science.
- 1993 Reviewer for the Journal of the Acoustical Society of America.

◆ Research cruises

- 2010 Responsibility for the arrangement of the research survey *Interdisciplinary Study of the Baltic Sea* (r/v „Professor Shtokman”) organized in cooperation with the P.P. Shirshov Institute of Oceanology of the Russian Academy of Sciences (IO RAS)
- 2008 Leader of acoustic survey (monitoring of benthic habitats), Baltic Sea, Institute of Oceanology, PAS, Sopot, Poland
- 2002 Participation in mackerel abundance estimation acoustic survey, North Sea, Institute of Marine Research, Bergen, Norway
- 2001 – 2003 Leader of 4 acoustic cruises (monitoring of underwater meadows), Baltic Sea, Institute of Oceanology PAS, Sopot, Poland
- 2000 Participation in herring abundance estimation acoustic survey, Ofotfjord, Institute of Marine Research, Bergen, Norway
- 1997 – 1998 Leader of 4 acoustical monitoring cruises (monitoring of biological layers), Lake Wdzydze, Poland

◆ Society memberships

- Member of European Acoustical Association (EAA)
- Member of Polish Acoustical Society
- Member of ICES Working Group on Fisheries Acoustics Science and Technology (WG FAST)
- Member of ICES Working Group on Marine Habitat Mapping (WG MHM)

◆ Scientific stays

- 2002 Institute of Marine Research, Bergen, Norway, financial support of Norwegian Research Council (NRC Project „Absolute abundance estimation of fish”, contract no: 143249/140)
- 2001, 2002 Woods Hole Oceanographic Institution, USA, financial support of Office of Naval Research, USA
- 1993 „Advanced course on Acoustical Oceanography” Iraklion, Greece, financial support of the European Communities

◆ Research grants

- 2012 Participation in the research project, financed by University of Gdańsk (funds for young scientists and PhD students), nr 538-G210-1185-12, *Acoustic backscattering by individual and aggregated mussels *Mytilus edulis trossulus* (hydroacoustic data analysis)*.
- 2012 Participation in the research project, financed by University of Gdańsk (funds for young scientists and PhD students), nr 538-G210-1172-12, *Development of the advanced backscattering model for Southern Baltic clupeids (ICES subdivision 26)*.
- 2011–2015 Participation in the EU research project, FP7-OCEAN-2010; ECO2; 265847, *Sub-seabed CO₂ Storage: Impact on Marine Ecosystems (ECO2)*.
- 2011–2013 Supervisor of research project financed by the Polish Government, No. N306 773940, *Study of the impact of microalgae photosynthesis on the acoustical properties of the Baltic seabed sediments*.
- 2011 Participation in the research project, BW \ 538-G210-0442-1, *Study of the backscattering properties of Baltic clupeids (ICES subdivision 26)*.
- 2010 Supervisor of research project, BW \ G210 – 5 – 0499 -0, *Study of swimbladder morphometry of Baltic herring and sprat (development of measurement methodology)*.
- 2007– 2009 Supervisor of research project financed by the Polish Government (N306 2969 33) *Development of hydroacoustic techniques for study of benthic habitats of Southern Baltic Sea (study area: Rowy)*.
- 2007– 2008 Participation in the Polish - Norwegian Project, EOG/2005/049, *Ecosystem approach to marine spatial planning – Polish marine areas and the Natura 2000 network*.
- 2007 Supervisor of research project, BW\1330-5-0129-7, *Study of sound scattering by Baltic herring and sprat*.
- 2003 – 2005 Co-ordinator of the work package “Eastern Europe Networking” in EU project Centre of Excellence for Shelf Seas Science.
- 2001 – 2003 Supervisor of research project financed by the Polish Government, 6P04E 051 20, *Development of hydroacoustical technique for monitoring underwater meadows in*

Puck Bay.

- 1997 – 1999 Supervisor of research project financed by the Polish Government, 6P04E00112, *Acoustical Monitoring of Wdzydze Lake.*
- 1994 – 1996 Participation in research project financed by the Polish Government, 6P20202307, *Nonlinear scattering of sound by gas bubbles in sea experimental detection.*

◆ **Presentations**

- 2012 Anna Raczkowska, Natalia Gorska *Development of hydroacoustical techniques for the monitoring and classification of benthic habitats in Puck Bay: Modeling of acoustic waves scattering by seagrass*, (OS51A-1846), American Geophysical Union's 45th annual Fall Meeting, San Francisco, USA (3-7.12.2012), (poster).
- 2012 Natalia Gorska, Ewa Kowalska *Backscattering properties of *Mytilus edulis trossulus* (Southern Baltic Sea)*, Annual Meeting of ICES Working Group on Fisheries Acoustics, Science and Technology, Brest, France (24-27.04.2012).
- 2012 Gorska Natalia, Kowalska Ewa *Acoustic backscattering characteristics of *Mytilus edulis trossulus* (Southern Baltic Sea)*, XXIX Symposium on Hydroacoustics, Goluń, Poland (22-25.05.2012).
- 2011 Natalia Gorska, Jakub Idczak *On the acoustical estimation of Baltic herring biomass*. 2011 ICES Annual Science Conference, Gdańsk, Poland (poster).
- 2011 Jakub Idczak, Natalia Gorska, Bartłomiej Arciszewski *Study of swimbladder morphometry of Baltic herring and sprat (development of measurement methodology)*. 8th EAA International Symposium on Hydroacoustics - SHA 2011, Jurata, Poland.
- 2011 Jakub Idczak, Natalia Gorska, Bartłomiej Arciszewski *Scattering properties of Southern Baltic herring*. Annual Meeting of ICES Working Group on Fisheries Acoustics, Science and Technology, Reykjavík, Iceland.
- 2010 Natalia Gorska and Jakub Idczak *On the acoustic backscattering by Baltic herring and sprat*. XXVII Symposium on Hydroacoustics, Jurata, Poland.
- 2009 Horne J.K., Jech J.M., Chu D., Clay C.S., Francis D.T.I., Gorska N., Holliday D.V., Jones B.A., Lavery A.C., Reeder D.B., Sawada K., and Stanton T.K. *Comparing backscatter model predictions from fish and zooplankton*. Annual Meeting of ICES Working Group on Fisheries Acoustics, Science and Technology, Ancona, Italy.
- 2009 Jech J.M., Horne J.K., Chu D., Clay C.S., Francis D.T.I., Gorska N., Holliday D.V., Jones B.A., Lavery A.C., Reeder D.B., Sawada K., and Stanton T.K. *Comparison of acoustic models for standard shapes*. Annual Meeting of ICES Working Group on Fisheries Acoustics, Science and Technology, Ancona, Italy.

- 2009 Tęgowski, Jarosław, Natalia Gorska, Aleksandra Kruss, Jarosław Nowak, Piotr Błęński *Analysis of single beam, multibeam and sidescan sonar data for benthic habitat classification in the southern Baltic Sea*. 3rd International Conference and Exhibition on Underwater Acoustic Measurements: Technologies and Results, Nafplion, Peloponnese, Greece
- 2009 Natalia Gorska and Adam Latała *Baltic Research Center (BRC), the new initiative of Polish Oceanographers*. 8th ScanBalt Forum and 3rd Biomaterials Days, Kalmar, Sweden
- 2009 Adam Latała and Natalia Gorska *The Baltic Sea Research at the University of Gdańsk*. 8th ScanBalt Forum and 3rd Biomaterials Days, Kalmar, Sweden
- 2008 Natalia Gorska *Acoustic backscattering by Atlantic herring. Modal Series Based Deformed Cylinder Model and Distorted Wave Born Approximation approaches*. Acoustic Backscattering Workshop, Friday Harbor, USA
- 2008 Sascha M.M. Fässler and Natalia Gorska *On target strength of Baltic clupeids*. ICES Symposium on the Ecosystem Approach with Fisheries Acoustics and Complementary Technologies (SEAFACETS), Bergen, Norway
- 2008 Sascha M.M. Fässler and Natalia Gorska *Investigation of the target strength-to-length relationship of Baltic herring (*Clupea harengus*) for use in biomass estimation*. 3rd US/EU-Baltic International Symposium, Tallin, Estonia
- 2007 Natalia Gorska, Lucyna Cieślak, Tomas Didrikas, Sture Hansson *On acoustic backscattering by Baltic zooplankton*. 6th EAA International Symposium on Hydroacoustics joined with XXIV Symposium on Hydroacoustics, Łeba, Poland
- 2007 Jarosław Tęgowski, Natalia Gorska, Zygmunt Klusek, Aleksandra Kruss, Jean-Pierre Hermand *Parametrical analysis of acoustic echoes from sea-grass in the southern Baltic Sea*. 2-nd International Conference on "Underwater Acoustics Measurements: Technologies & Results", Heraklion, Crete, Greece
- 2007 Natalia Gorska *On target strength of Baltic herring*. 2007 ICES Annual Science Conference, Helsinki, Finland
- 2007 Sascha M.M. Fässler, Natalia Gorska and Egil Ona *Differences in swimbladder volume between Baltic and Norwegian spring spawning herring: possible consequences for mean target strength*. 2007 ICES Annual Science Conference, Helsinki, Finland
- 2006 Natalia Gorska *Insight in sound scattering by marine biological targets*. Meeting of Polish Acoustical Society, Gdańsk, Poland
- 2006 Natalia Gorska, Jarosław Tęgowski, Zygmunt Klusek, Aleksandra Kruss *Development of hydroacoustical techniques for monitoring of underwater meadows in Puck Bay (project financed by Polish Government)*. Meeting of ICES Working Group on Marine Habitat Mapping, Galway, Ireland

- 2006 Natalia Gorska *Modal based deformed cylinder modelling of Baltic herring backscatter*. Meeting of ICES Working Group on Fisheries Acoustics Science and Technology, Hobart, Tasmania
- 2006 Natalia Gorska, Jarosław Tęgowski, Zygmunt Klusek *The acoustical detection of underwater meadows in Puck Bay (southern Baltic Sea)*. USA/EU – Baltic International Symposium, Integrated Ocean Observation Systems (IOOS) for managing global and regional ecosystems using marine research, monitoring and technologies, Klaipeda, Lithuania
- 2006 Aleksandra Kruss, Jarosław Tęgowski, Józef Wiktor, Agnieszka Tatarek, Sergej Olenin, Darius Daunys, Natalia Gorska and Zygmunt Klusek *Acoustic characterisation of benthic habitats in Hornsund Fjord (the Svalbard Archipelago)*. 8th European Conference on Underwater Acoustics, ECUA 2006, Carvoeiro, Portugal
- 2005 **Invited paper:** Natalia Gorska *Mechanisms of acoustical scattering by marine biological objects*. 52 OSA Conference joined with Polish-Scandinavian Structured Conference on Acoustics, Poznań – Wągrowiec, Poland
- 2005 Natalia Gorska *Acoustics and marine life*. Meeting of Scientific Council of Atlantic Branch of P.P. Shirshov Institute of RAS Kaliningrad, Russia
- 2005 Natalia Gorska, Jarosław Tęgowski, Zygmunt Klusek and Dariush Faghani *The acoustical detection and characterization of underwater meadows in Gdańsk Bay (southern Baltic Sea)*. 5th Baltic Sea Science Congress – The Baltic Sea – a changing ecosystem. Sopot, Poland
- 2005 Natalia Gorska and Dezhang Chu *Influence of echo interference on the acoustic abundance estimation of densely aggregated fish and zooplankton*. Meeting of ICES Working Group on Fisheries Acoustics Science and Technology, Rome, Italy
- 2004 Natalia Gorska, Egil Ona and Rolf Korneliussen *On backscattering mechanism for fish without swimbladder*. 7th European Conference on Underwater Acoustics, ECUA 2004, Delft, The Netherlands
- 2004 Natalia Gorska and Dezhang Chu *Echo interference in acoustic backscattering by densely aggregated targets*. 7th European Conference on Underwater Acoustics, ECUA 2004, Delft, The Netherlands
- 2004 Dariush Faghani, Jarosław Tęgowski, Natalia Gorska and Zygmunt Klusek *Recognition of underwater vegetation species in the Baltic sea*. 7th European Conference on Underwater Acoustics, ECUA 2004, Delft, The Netherlands
- 2004 Natalia Gorska, Egil Ona and Rolf Korneliussen *On acoustic multi-frequency species*

- identification and separation of Atlantic mackerel, Norwegian spring spawn herring and Norway pout. 2004 Annual Science Conference Vigo, Spain
- 2004 Rolf Korneliussen, Egil Ona and Natalia Gorska *Verified acoustic identification of Atlantic mackerel*. ICES Fisheries Technology Committee, Meeting of ICES Working Group on Fisheries Acoustics Science and Technology, Gdynia, Poland
- 2004 Natalia Gorska, Rolf Korneliussen and Egil Ona *Acoustic backscattering by Atlantic mackerel, a representative for fish without swimbladder. Part 1: Theory*. 27th Scandinavian Symposium in Physical Acoustics, Ustaoset, Norway
- 2004 Rolf Korneliussen, Egil Ona and Natalia Gorska *Acoustic backscattering by Atlantic mackerel, a representative for fish without swimbladder. Part 2: Measurements and speculations*. 27th Scandinavian Symposium in Physical Acoustics, Ustaoset, Norway
- 2004 Natalia Gorska, Egil Ona, and Rolf Korneliussen *Numerical modelling for an improvement of algorithms of accurate fish biomass estimation and fish species identification*. Bioacoustics session of Gdańsk Workshop "Applications of Modern Signal Processing Techniques to Ocean Sensing"
- 2003 Natalia Gorska, Egil Ona and Rolf Korneliussen *Can we explain the frequency response of Atlantic mackerel through modelling of its backscattering?* Meeting of ICES Working Group on Fisheries Acoustics Science and Technology, Bergen, Norway
- 2003 Natalia Gorska and Egil Ona *Some aspects of sound backscattering by fish*. XXth Symposium on Hydroacoustics, Jurata, Poland
- 2003 Zygmunt Klusek, Natalia Gorska, Jarosław Tęgowski, Kazimierz Groza, Dariush Faghani, Leonard Gajewski, Jarosław Nowak, Lidia Kruk-Dowgiałło, Radosław Opióła *Acoustical techniques of underwater meadow monitoring in the Puck Bay (southern Baltic Sea)*. XXth Symposium on Hydroacoustics, Jurata, Poland
- 2002 Godlewska M., Gorska N., Klusek Z., Szczucka J., Świerzowski A., Tęgowski J. *Hydroacoustics as a tool for monitoring the quality of aquatic ecosystems*. Ecology and Ecotechnology, Vienna, Austria
- 2002 Zygmunt Klusek, Natalia Gorska, Jarosław Tęgowski, and Jarosław Nowak *Acoustic measurements of underwater meadows in eutrophic Puck Bay (southern Baltic Sea)*. 6th ICES Symposium on Acoustics in Fisheries and Ecology, Montpellier, France
- 2002 Natalia Gorska, Zygmunt Klusek, Jarosław Tęgowski, Kazimierz Groza, Dariush Faghani, Lidia Kruk-Dowgiałło, Radosław Opióła, and Jarosław Nowak *Acoustical techniques in the study of underwater meadows as an indicator of the state of the coastal ecosystem environment*. ECSA Symposium 34 - Estuaries and other brackish areas – pollution barriers or sources to the sea? Gdańsk, Poland

- 2001 **Invited paper:** Natalia Gorska and Dezhang Chu *On sound extinction by biological targets*. 3rd European Acoustic Association International Symposium on Hydroacoustics, Jurata Poland
- 2001 Natalia Gorska and Egil Ona *Modelling herring target strength pressure dependence in the frequency domain*. 2001 ICES Annual Science Conference, Oslo, Norway
- 2001 Natalia Gorska and Dezhang Chu *Sound extinction by zooplankton*. Seminar of Applied Ocean Physics and Engineering Department, Woods Hole Oceanographic Institution, Woods Hole, USA
- 2000 Natalia Gorska and Dezhang Chu *Some aspects of sound extinction by zooplankton*. 5th European Conference on Underwater Acoustics, ECUA, Lion, France
- 1999 Natalia Gorska *On sound extinction by zooplankton*. 2nd European Acoustic Association International Symposium on Hydroacoustics, Poland
- 1998 Natalia Gorska *Analytical modelling of dense zooplankton aggregation influence on the echosounder signal*. 4th European Conference on Underwater Acoustics, Rome, Italy
- 1998 Natalia Gorska, Joanna Szczucka and Krzysztof Poraziński *Scattering patterns of diurnal vertical migrations of fish and zooplankton in Lake Wdzydze (Northern Poland)*. 4th European Conference on Underwater Acoustics, Rome, Italy
- 1997 Natalia Gorska *Some aspects of krill acoustic sampling*. XIV International Symposium on Hydroacoustics and Ultrasonics. European Acoustics Association Symposium, Gdańsk, Poland
- 1996 Natalia Gorska *The role of the interference effects of waves scattered at individual targets in the plankton echosounding*. 3rd European Conference on Underwater Acoustics. Greece
- 1996 Natalia Gorska and Zygmunt Klusek *On sound scattering by krill aggregations*. XIII International Symposium on Hydroacoustics, Poland
- 1995 Natalia Gorska *Role of interference of waves scattered on particles in plankton acoustical investigation*. XII International Symposium on Hydroacoustics, Poland
- 1994 Natalia Gorska and Zygmunt Klusek *Possibilities of acoustic diagnostics of plankton space distribution*. XI International Symposium on Hydroacoustics. Poland
- 1993 Natalia Gorska and Zygmunt Klusek *Some results of numerical modelling of sound backscattering on different forms of biological target concentrations*. X International Symposium on Hydroacoustics, Poland
- 1987 Natalia Gorska and M.A. Raevsky. *Influence of anisotropic wind waves on statistical characteristics of low-frequency sound in ocean*. 3 Syezda Sovetskikh Okeanologov.

Rossiya

- 1983 Gorska, N.S., and M.A. Raevsky *Acoustical waves transformation on quasisinusoidal stochastic surface*. 4 Vsesoyuznoi Konferentsii "Problemy nauchnykh issledovaniy v oblasti izucheniya i osvoyeniya Mirovogo okeana". Rossiya

◆ **Additional conferences and workshops attended**

- 2012 EuroMarine General Assembly, Brussels, Belgium (10-11 December 2012)
- 2012 The International Conference VAIL Europe 2012 “Innovation and Challenges in the Area of Critical Infrastructure in a Time of Recovering Economy”, Wrocław, Poland (22-24 May 2012)
- 2011 Polish Representative, BONUS Strategic Orientation Workshop. Dikli Manor, Latvia (15-17 March 2011)
- 2010 Spotkanie Wspólna Polityka Rybołówstwa – Szanse i Perspektywy Rozwoju. Gdynia, Poland (20 September 2010)
- 2010 Konferencja Jubileuszowa - Polskie Drogi Polityki Morskiej – od Wizji do Działania. Polska Polityka Spójności w Kontekście Terytorializacji Morza Bałtyckiego. Gdańsk, Poland (15-16 September 2010)
- 2009 The International Conference INNO3city. Gdańsk, Poland (14-15 December 2009)
- 2009 The International Symposium on Science and Development. European Research on the Move. National vs International Aspects. Wrocław, Poland (4-5 September 2009)
- 2009 Workshop on hydroacoustics in coastal zone. AQUA-PNRF Assessment of Aquatic Ecosystems Quality Using Acoustics. Łeba, Poland (29-30 May 2009)
- 2007 Meeting of ICES Working Group on Fisheries Acoustics Science and Technology, Dublin, Ireland
- 2003 Lidia Kruk – Dowgiałło, Radosław Opióła, i Natalia Gorska *Badania łąk podwodnych przy pomocy metod hydroakustycznych*. XIX Zjazd Hydrobiologów Polskich, Polska (poster)
- 2003 ICES Symposium on Fish Behavior in Exploited Ecosystems, Bergen, Norway
- 2003 5th Symposium The Baltic Sea, a Common Heritage, a Shared Responsibility, onboard m/s “Ocean Monarch”, Gdynia

2002 Natalia Gorska, and Egil Ona *Modelling the acoustic effect of swimbladder compression in herring*. 6th ICES Symposium on Acoustics in Fisheries and Ecology, Montpellier, France (poster)

◆ PUBLICATIONS

Gorska Natalia, Kowalska Ewa, 2012. Acoustic backscattering characteristics of *Mytilus edulis trossulus* (Southern Baltic Sea), *Hydroacoustics*, 15: 49 – 56.

Jakub Idczak, Natalia Gorska, Bartłomiej Arciszewski, 2011. Study of swimbladder morphometry of Baltic herring and sprat (development of measurement methodology). *Hydroacoustics*, 14: pp. 61 – 68.

Gorska Natalia, Idczak Jakub, 2010. On the acoustic backscattering by Baltic herring and sprat. *Hydroacoustics*, 13: pp. 89 – 100.

Sascha M.M. Fässler and Natalia Gorska, 2009. On target strength of Baltic clupeids. *ICES Journal of Marine Science*, 66: pp. 1184 – 1190.

Tęgowski, Jarosław, Natalia Gorska, Aleksandra Kruss, Jarosław Nowak, Piotr Błoński, 2009. Analysis of single beam, multibeam and sidescan sonar data for benthic habitat classification in the southern Baltic Sea. Proceedings of 3rd International Conference and Exhibition on “Underwater Acoustic Measurements: Technologies and Results”, Nafplion, Peloponnese, Greece, 21-26 July, 2009, Edited by: John S. Papadakis & Leif Bjorno, Volume I, II & III, ISBN: 978-960-98883-0-1, 978-960-98883-1-8, 978-960-98883-2-5, 978-960-98883-3-2, pp. 131 – 138.

Sascha M.M. Fässler, Natalia Gorska, Egil Ona, Paul G. Fernandes, 2008. Differences in swimbladder volume between Baltic and Norwegian spring-spawning herring: Consequences for mean target strength. *Fisheries Research*, 92: pp. 314 – 321.

Gorska, Natalia, Rolf J. Korneliussen, and Egil Ona, 2007. Acoustic backscatter by schools of adult Atlantic mackerel. *ICES Journal of Marine Science*, 64: pp. 1145 – 1151.

Gorska, Natalia, Lucyna Cieślak, Tomas Didrikas, Sture Hansson, 2007. On acoustic backscattering by Baltic zooplankton. *Hydroacoustics*, 10: pp. 55 – 68.

Tęgowski, Jarosław, Natalia Gorska, Zygmunt Klusek, Aleksandra Kruss, Jean-Pierre Hermand, 2007. Parametrical analysis of acoustic echoes from sea-grass in the southern Baltic Sea. Proceedings of the 2nd International Conference on "Underwater Acoustics Measurements: Technologies and Results", Heraklion, Crete, Greece, 25 – 29 June, 2007, pp. 391 – 396.

Gorska, Natalia, 2007. On target strength of Baltic herring. Proceedings of 2007 ICES Annual Science Conference, Helsinki, Finland, 17 – 21 September, 2007, ICES CM 2007/H: 7 (CD-version).

Sascha M.M. Fässler, Natalia Gorska and Egil Ona Differences in swimbladder volume between Baltic and Norwegian spring spawning herring: possible consequences for mean target strength. Proceedings of 2007 ICES Annual Science Conference, Helsinki, Finland, 17 – 21, September, 2007, ICES CM 2007/H: 3 (CD-version).

Kruss, Aleksandra, Jarosław Tęgowski, Józef Wiktor, Agnieszka Tatarek, Sergej Olenin, Dariusz Daunys, Natalia Gorska and Zygmunt Klusek, 2006. Acoustic characterisation of benthic habitats in Hornsund Fjord (the Svalbard Archipelago). Proceedings of the 8th European Conference on Underwater Acoustics, ECUA 2006, Carvoeiro, Portugal, 12 – 15 June, 2006, pp. 311 – 316.

Gorska, Natalia, Egil Ona and Rolf Korneliussen, 2005. Acoustic backscattering by Atlantic mackerel, a representative of fish that lack a swimbladder. Part 1. Backscattering by individual fish. *ICES Journal of Marine Science*, 62: pp. 984 – 995.

Gorska, Natalia and Dezhang Chu, 2005. On the echo interference in sound backscattering by densely aggregated targets. *ICES Journal of Marine Science*, 62: pp. 771 – 778.

Gorska, Natalia, 2005. Mechanisms of acoustical scattering by marine biological objects. *Archives of Acoustics*, 30: pp. 71 – 78.

Gorska, Natalia, Egil Ona and Rolf Korneliussen, 2004. On backscattering mechanism for fish without swimbladder. Proceedings of the 7th European Conference on Underwater Acoustics, ECUA 2004, Delft, The Netherlands, 5 – 8 July, 2004, edited by Dick G. Simons, TNO Physics and Electronics Laboratory, The Hague, The Netherlands (ISBN: 90-5986-080-2), Vol. 1, pp. 367 – 372.

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