Nicole Danaher-Garcia
Curriculum Vitae as of 5 January, 2021

CONTACT INFORMATION

MGH Institute of Health Professions
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EDUCATION

Ph. D., Integrative Biology – University of Massachusetts Dartmouth, North Dartmouth, Massachusetts (2020)

B.S., Biology; Concentration: Marine Biology; Minor: Environmental Science – Duke University, Durham, NC (2011)

EMPLOYMENT

MGH Institute of Health Professions
Part-Time Lecturer   October 2020 – Present

Florida International University
Postdoctoral Associate   January 2021 – Present

University of Massachusetts Dartmouth
Teaching Assistant   September 2016 – May 2020

RESEARCH

Dolphin Communication Project
Research Assistant   June 2012 – present
Research/Teaching Assistant   Summers 2014, 2015, 2016, 2017, 2018, 2019

TEACHING

Courses taught as Teaching Assistant

MGH Institute of Health Professions
- Responsible statistics in R for behavioral and health data (HE-902) with Professor Anshul Kumar; spring 2021

University of Massachusetts Dartmouth
- Anatomy and Physiology I (BIO-223) with Professor Diana Barrett; fall 2016, fall 2017, fall 2019
- Anatomy and Physiology II (BIO-224) with Professor Diana Barrett; spring 2020
- Biology of Populations (BIO-211) with Professor Tara Rajaniemi; spring 2017, spring 2018

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PUBLICATIONS

Danaher-Garcia, N.A. (2020) Social Bonds Among Atlantic Spotted Dolphins (*Stenella frontalis*) Around Bimini, The Bahamas. *PhD Dissertation.* Committee: Richard Connor, Gavin Fay, Tara Rajaniemi, Kathleen Dudzinski

> Social systems are characterized by the pattern of sex-specific relationships which are, in turn, determined by the pattern of interactions between individuals over time. Long-term underwater behavioral studies offer the opportunity to investigate association (i.e., presence in the same group) and affiliative interaction (e.g., tactile exchanges) between individuals. A population of Atlantic spotted dolphins (Stenella frontalis) off Bimini, The Bahamas, has been studied by the Dolphin Communication Project since 2003. A 16-year archive (2003 – 2018) of systematically collected underwater video of these dolphins was used to quantify association among these spotted dolphins, as well as to document body contact between individuals. These dolphins exhibit nonrandom associations, showing a preference for same-sex associates of similar age. In particular, a subgroup of five male dolphins of similar age maintained the highest association overall throughout the study period. Similarly, these spotted dolphins exchanged the most contact with others of similar age and same sex, and juvenile dolphins initiated the most contact of any age class. In addition to association and interaction between dolphins, the arrival in 2013 of a novel group of spotted dolphins, confirmed as a subset of a population from the northern Bahamas, is described. This new group was composed mostly of subadult and adult males and females and was observed to assimilate peacefully into the resident population. High coefficients of association were recorded between members of both groups, especially between males. Additionally, affiliative contact exchanges between resident and new dolphins were documented and no aggression was observed. Finally, a comparative social network analysis was conducted to compare the network metrics and individual position in an association network versus one composed of behavioral exchanges. Due to the iv difficulty of directly observing marine mammal interactions underwater, it is common for delphinid association networks, in which association in the same group is used as a proxy for interaction (i.e., "gambit of the group"), to be compared directly to networks describing terrestrial animal interactions (e.g., grooming). Using the same individuals, this study compared the metrics of an association network with an interaction network (i.e., number of documented pectoral fin contacts). The results of this analysis show that individuals hold different positions depending on the measure used to construct the network. This study presents the first comprehensive account of associations and tactile exchanges for any dolphin population, as well as the first detailed account of the merger of two previously separate social networks coming together peacefully and exchanging affiliative behaviors. Additionally, this study is one of the first to test the "gambit of the group" for wild cetaceans.

Danaher-Garcia, N.A., Melillo Sweeting, K., Dudzinski, K.M. (2020) Social Structure of Atlantic spotted dolphins (*Stenella frontalis*) off Bimini, The Bahamas (2003-2016): Alternate reasons for preferential association in delphinids. *acta ethologica 23*(1). 9-21.

Dudzinski, K. M., Danaher-Garcia, N. A. & Gregg, J. D. (2012) Pectoral Fin Contact Between Dolphin Dyads at Zoo Duisburg, with Comparison to Other Dolphin Study Populations. *Aquatic Mammals 39*(4). 335-343.

TRAINING, CERTIFICATIONS & MEMBERSHIPS

• Member, Society for Marine Mammalogy, 2016 – present
• Member, American Cetacean Society, 2016 – present
• Member, Animal Behavior Society, 2020 – present
• SCUBA (PADI)

ADDITIONAL SKILLS AND TRAINING

Data and Computer Skills
- Proficient in analysis and data manipulation in R
- Familiar with analysis in MatLab and Python
- Relevant coursework: Biostatistics (using R; including linear regression, ANOVA), Advanced Quantitative Methods for Biology Graduate Students (using R, including OLS regression, logistic regression), Inferential statistics, Bayesian statistics

Other graduate-level coursework: Molecular biology, Biology of marine mammals, Conservation biology, Biology of fishes, Comparative vertebrate anatomy, Professional communications