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Ecology of Sharks
and Human Attitudes Towards Shark Conservation
in the Galapagos Marine Reserve

A thesis presented in partial fulfilment
of the requirements for the degree of

Doctor of Philosophy

in

Ecology

At Massey University, Albany, New Zealand.

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2018

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Abstract

In this thesis, I used a multi-disciplinary approach to study both the spatial ecology of coastal sharks and human attitudes towards sharks at the Galapagos Marine Reserve (GMR). Benthic and pelagic baited remote underwater stereo-video systems recorded coastal shark assemblages that displayed high spatial variation, with the relative importance of environmental and biological drivers differing among shark species according to their mobility. Telemetry data (both acoustic and satellite) from tagged tiger sharks (*Galeocerdo cuvier*) showed a high degree of philopatry, with movements of adult tiger sharks concentrating at the most important nesting areas for sea turtles at the GMR. Using diver-operated stereo-video systems (DOVs) I demonstrated that non-instantaneous surveys yield estimates of shark densities that can almost double the ones obtained from instantaneous surveys. Furthermore, I proposed a new methodological approach to study attitudes towards sharks that proved to be reliable and informative, showing that attitudes were shaped by a range of psychological factors, such as aesthetics, and also by the socio-economic context of individual respondents. Strong correlations were found between attitudes and behavioural responses, such as tolerance or support for shark protection.

In conclusion, I demonstrated that sharks at the GMR have species-specific and size-specific spatial requirements for particular habitats and food resources. Indeed, the presence of a predictable source of prey and suitable habitats at the GMR might reduce the spatial extent of the potential areas used by large and highly mobile shark species, such as tiger sharks, thereby enhancing the potential effectiveness of the GMR for their protection. I also propose the use of non-instantaneous DOV surveys to provide more accurate estimates of shark densities than underwater visual techniques. In addition, the multivariate methods used here for the first time to study human perspectives on sharks

allowed me to identify specific attitudes and associated factors having the greatest influence on human behaviours towards shark conservation. In summary, with mounting anthropogenic pressures on shark populations, this thesis provides timely and critical information for the global objective of identifying effective strategies for the management and conservation of sharks to ensure their long-term survival.

Acknowledgments

I want to express my gratitude to those persons that made this thesis possible. Special mention to Professor Marti Anderson, my first supervisor, and Dr Adam Smith and Dr Pelayo Salinas de León, two of my co-supervisors. Thank you, Marti, for being such a wonderful mentor, not only from an academic point of view but also personal. Thank you, Adam and Pelayo, for your total support, friendship and for trusting me and pushing this since its very beginning. And if this was not enough, I could also enjoy the advice, guidance and support of Professor Euan Harvey, Dr Matthew Pawley and Dr Raquel de La Cruz Modino, in my co-supervisors' team. Special thanks to Dr de La Cruz Modino for having the patience to lead me into the amazing and complex world of social sciences and Dr Luis Ortiz for his friendship and for encouraging me to do this PhD.

I acknowledge the institutional and financial support of the Charles Darwin Foundation (CDF), where I was based when collecting the field data in the first year of the thesis, and the New Zealand Institute of Advanced Studies (NZIAS) at Massey University, which provided me a scholarship and a home during the stages of data analysis and thesis writing. Numerous donors have provided the necessary funding to conduct the fieldwork, including the Save Our Seas Foundation, Lindblad Expeditions, National Geographic, Helmsley Charitable Trust and IWC-Schaffhausen.

An incredible group of people provided me with various forms of support and advice, including Dr Alex Hearn, Frida Lara, Daniela Vilema, María Isabel Moreno Benito, Ainoa Nieto Clarín, Carolina García Parra, Dr Heather Marshal, Dr Ian Jonsen, Natalie Tellwright, Dr David Aguirre, Dr Libby Liggins, Nelson Ibarra, the crews of M/V OCEARCH, M/V Valeska and M/V Queen Mabel, and all the staff and volunteers of the Charles Darwin Research Station. I also must recognize the support of the

Galapagos National Park Directorate with the provision of the necessary research permits to conduct this thesis and the collaboration and dedication of its park rangers.

On a personal note, all my gratitude to my beloved family for their unconditional love and support and for being so close to me, despite the distance and time that have separated us these years. A huge final thanks to María, my partner, for her love, support and infinite patience.

Table of contents

Chapter 1. General introduction.....	16
1.1 Sharks - Vulnerable top predators	16
1.2 Spatial ecology of sharks	17
1.2.1 Patterns of distribution and abundance.....	17
1.2.2 Movement patterns – a case-study of the tiger shark <i>Galeocerdo cuvier</i>	19
1.3 Estimating densities of sharks and their implications in conservation	20
1.4 Human attitudes towards sharks	22
1.5 The study system – the Galapagos Marine Reserve	24
1.6 Aims.....	27
Chapter 2. Spatial and temporal distributions of coastal shark populations at the Galapagos Marine Reserve	32
2.1 Abstract.....	32
2.3 Materials and methods	36
2.4 Results.....	48
2.5 Discussion.....	64
Chapter 3. Residency and movement patterns of an apex predatory shark (<i>Galeocerdo cuvier</i>) at the Galapagos Marine Reserve	74
3.1 Abstract.....	74
3.2 Introduction.....	75
3.3 Materials and methods	79
3.4 Results.....	89
3.5 Discussion.....	98
Chapter 4. Improving the accuracy of density estimations for mobile marine predators using instantaneous records from diver-operated stereo-video	103
4.1 Abstract.....	103
4.2 Introduction.....	104
4.3 Materials and methods	108
4.5 Discussion.....	114
Chapter 5. Understanding human attitudes towards sharks to promote sustainable coexistence	118

5.1. Abstract.....	118
5.2 Introduction.....	118
5.3 Materials and methods.....	122
5.4 Results.....	126
Chapter 6. General discussion.....	136
6.1 Overview of research contributions.....	136
6.1.1 Patterns of distribution and abundance of coastal sharks at the GMR (Chapter 2).....	137
6.1.2 Movement patterns – a case-study of the tiger shark <i>Galeocerdo cuvier</i> (Chapter 3).....	139
6.1.3 Estimating densities of sharks with Diver-Operated Video (Chapter 4)	141
6.1.4 Human attitudes towards sharks (Chapter 5).....	142
6.2 Assessing the performance of the GMR in shark conservation.....	143
6.2.1 Main threats for shark populations at the GMR.....	143
6.2.2 Effects of the GMR on the populations and assemblage structure of coastal sharks.....	150
6.2.3 Human dimension of shark conservation at the GMR.....	156
6.3 Final conclusion.....	159
Literature cited.....	161
Appendix A Supplementary Material for Chapter 2.....	192
Appendix B Supplementary Material for Chapter 3.....	198
Appendix C Supplementary Material for Chapter 5.....	202
Appendix D Statement of contribution to doctoral thesis containing publications ...	204

List of Tables

Table 2-1. Environmental and biological predictor variables included in models of shark relative abundances, using distance-based redundancy analysis (DISTLM, dbRDA) and boosted regression trees (BRTs).

Table 2-2. Summary of shark sightings, abundance and mean size recorded by the stereo-BRUVs at the GMR.

Table 2-3. PERMANOVA partitioning using Type III SS based on adjusted Bray-Curtis dissimilarities of spatial variation in the structure of the shark assemblages (using square-root-transformed values of *cMaxN*) in response to the full 5-factor experimental design; p-values were obtained using 9,999 permutations of residuals under a reduced model. Bold numbers indicate statistical significance ($P < 0.05$).

Table 2-4. Results of the distance-based redundancy analysis (dbRDA) showing the selected environmental and biological predictors that best explain variation in shark assemblages (using the multivariate analogue of AICc) based on the adjusted Bray-Curtis resemblances calculated from square-root-transformed *cMaxN* values.

Table 3-1. Summary of acoustic and satellite tag deployments on tiger sharks at the three tagging locations within the Galapagos Marine Reserve in 2014-15.

Table 3-2. Collective activity space (95 % PVC) and core range (50 % PVC) areas (pooled across individual satellite-tagged tiger sharks) within the Galapagos Marine Reserve.

Table 4-1. Summary of long-length surveys ('supertransects') conducted using DOVs at Darwin and Wolf islands from 23-26 August 2015.

Table 5-1. Variables (emotions and beliefs) involved in the construction of the attitude towards sharks.

Table 5-2. Results of the PERMANOVA analysis indicating the degrees of freedom (df), mean sum of squares (MS) and p-values (P) based on 9,999 permutations for each evaluated factor.

Table 5-3. Relationships between PC1 (principal component 1, i.e., overall attitude) and individuals levels of each qualitative factor.

Table A-1. Performance of the boosted regression tree (BRT) models using the environmental and biological variables (Table 1) to predict total log-abundance and diversity of sharks, and occurrences of individual shark species (oc.), using proportion of the deviance explained assessed by cross-validation (CVDE) and area under the receiver operative characteristic curve (AUC) scores.

Table B-1. Total number of sharks recorded in the study.

List of Figures

Figure 1-1. Map showing the zoning scheme implemented at 2016 at the Galapagos National Park (GNP) and Galapagos Marine Reserve (GMR). The black line indicates the boundary of the GMR and the green polygons are dedicated conservation areas, where all commercial fishing activities are prohibited. Grey dashed lines show bathymetry (100 m isobaths).

Figure 2-1. Maps showing (a) the location of the Galapagos Archipelago in the Eastern Tropical Pacific and (b) the distribution and abundance of coastal sharks recorded by stereo-BRUVs within the Galapagos Marine Reserve (GMR). Black dashed lines in panel (a) indicate the boundaries of the MPAs located at oceanic archipelagos. In panel (b), bold names in grey indicate bioregions with strata delimited by continuous lines in grey scale at the 20 m isobaths of each island and the stratum composed of islets is highlighted by a red-dotted-line square). Black dots show the location of the study sites and grey dashed lines indicate the 100 m isobaths (the 1,000 m isobath is highlighted with thicker grey dashed lines). Presence and relative abundance of coastal sharks is indicated using segmented bubble plots where each shark species is represented by a circle segment corresponding to a given colour (upper right legend) whose size is proportional to its average relative abundance per stratum (# sharks per 90 min, lower left legend).

Figure 2-2. Maps showing the distribution and relative abundances of different sizes and sex categories of the most common coastal shark species (a: *Carcharhinus galapagensis*, b: *Sphyrna lewini*, c: *Carcharhinus limbatus*, d: *Galeocerdo cuvier*, e: *Triaenodon obesus*, f: *Triakis maculata* and *Mustelus albipinnis*) recorded by stereo-BRUVs at the Galapagos Marine Reserve. Black dots show the locations of the study sites and grey dashed lines indicate the 100 m isobaths (1,000 m isobath shown with thicker grey dashed lines). Segmented bubble plots show segments whose sizes are directly proportional to the average relative abundance per stratum (# sharks per 90 min, see the individual legends with a separate scale provided on each map) for each of the different size/sex categories (as different colours).

Figure 2-3. Size distribution of the eight most common shark species recorded by the stereo-BRUVs at the Galapagos Marine Reserve. Y-axes indicate the number of recorded individual sharks per species. Dashed lines indicate the smallest size of the published range of lengths for sexual maturity for each shark species (in the case of *T. maculata* and *M. albipinnis* the size for sexual maturity was obtained from similar species in their respective genus).

Figure 2-4. Non-metric MDS ordination plot of shark assemblages at the GMR, based on a zero-adjusted Bray-Curtis similarity matrix (Clarke et al. 2006) produced from square-root-transformed relative abundances of shark species, averaged by stratum and BRUV type. Labels indicate the different strata (Fig. 2-1b).

Figure 2-5. Non-metric MDS plot showing the inter-specific associations among shark species based on the index of association calculated from square-root transformed relative abundances of shark species ($cMaxN$). Levels of similarity from a hierarchical agglomerative cluster analysis are indicated by a green line (20% similarity) and a blue dashed line (40% similarity). Species belonging to different families are shown by different symbols.

Figure 2-6. Partial dependence plots (following Elith and Leathwick 2016) showing the four most influential variables in the prediction of total shark abundance and diversity and the occurrence of *Carcharhinus galapagensis*, *Galeocerdo cuvier*, *Sphyrna lewini* and *Triaenodon obesus*. Individual plots show the fitted value of the response variable on the Y-axis versus each of the potential predictor variables, integrated across all other variables in the model (see Table 1). Diversity_S and Diversity_evenness refer to the richness and evenness (respectively) of the associated assemblage of non-shark species.

Figure 2-7. Partial dependence plots (following Elith and Leathwick 2016) showing the four most influential variables in the prediction of the occurrence of the two Triakidae species (*Triakis maculata* and *Mustelus albigipinnis*), *Heterodontus quoyi* and adult and juveniles of *Carcharhinus galapagensis* and *Sphyrna lewini*. Individual plots show the fitted value of the response variable on the Y-axis versus each of the potential predictor variables, integrated across all other variables in the model (see Table 1). Diversity_S, Diversity_evenness and Abundance refer to the richness, evenness and total log-abundance ($\text{Log}(MaxN+1)$) (respectively) of the associated assemblage of non-shark species.

Figure 2-8. Canonical analysis of principal coordinates (CAP) ordination plot showing the relationship between (i) the richness (S) and total log-abundance ($\text{log}(cMaxN+1)$) of sharks (averaged by stratum) and (ii) the Bray-Curtis dissimilarity matrix of fourth-root-transformed relative abundances ($\text{log}(MaxN+1)$) of non-shark species. The number of PCO axes used for the CAP analysis (i.e., that minimised the leave-one-out residual sum-of-squares) was $m = 3$. Symbols indicate the bioregions. Vectors in blue indicate species in the (non-shark) assemblages having strong associations with the first 2 CAP axes (i.e., correlations > 0.75).

Figure 3-1. Patterns of residency behaviour of satellite tagged tiger sharks. Resident (red circles), transient (yellow circles) and undetermined (orange circles) behaviours associated with each 12-hour estimated position provided by the switching state-space model. Top panel (a) displays the complete tracks of TS2 and TS4 (pink and green dashed lines, respectively) overlaid with the exclusive economic zones (grey line) and

marine protected areas (grey dashed line) of Eastern Tropical Pacific countries. Lower panel (b) shows the estimated positions of all tracked sharks within the Galapagos Marine Reserve (black dashed line, top panel), indicating the study sites, the most important turtle-nesting beaches (sea turtle icons) and the 100 m isobaths (blue dashed lines).

Figure 3-2. Kernel density estimates of satellite-tagged tiger shark positions. Sharks are pooled by size classes: (a) large (> 300 cm TL, $n = 3$), (b) medium (200-300 cm TL, $n = 12$) and (c) small (< 200 cm TL, $n = 1$); or by season: (d) sea turtle-nesting season ($n = 11$) and (e) non-nesting season ($n = 7$). Red indicates core range areas (50 % percent-volume contour, PVC), yellow represents activity space areas (95 % PVC) and orange indicates the intermediate 75 % PVC. Underlined names of study sites (Isabela-South = I-S, Cerro-Ballena = C-B, Bachas-Salinas = B-S) indicate those locations where sharks were tagged in each case. White sea turtle icons show the turtle-nesting areas and local bathymetry is displayed by 100 m isobaths (blue dashed lines).

Figure 3-3. 12-hourly estimated positions provided by SSM by shark size. Colours indicate three size classes of tiger sharks (large = red, medium = orange, small = white). Black dashed lines indicate the 5 and 10 km buffer areas around the study sites (I-S = Isabela-South, C-B = Cerro Ballena, B-S = Bachas-Salinas) and sea turtle nesting beaches (white sea turtle icon). Local bathymetry is displayed by 100 m isobaths (blue dashed lines). Right panels show zoomed areas of the study sites of I-S (upper) and B-S (lower).

Figure 3-4. Patterns of residency and diel occurrence of acoustic-tagged tiger sharks. Left panels refer to Bachas-Salinas and right panels to Cerro-Ballena. The top panel (a, b) shows residency index (RI, the total number of days a shark was detected divided by the number of days that the shark was monitored by the receivers) for the total monitored time (Total) and per season (Non-nesting and Nesting); the middle panel (c, d) shows Fast Fourier Transformations (FFT) of the number of hourly detections, with peaks indicating periods of dominant cycles; and the lower panel (e, f) shows daily detections of tiger sharks; the circle represents a period of 24 hours and the length of each wedge indicates the number of detections within each hour.

Figure 3-5. Relative abundance of tiger sharks at the three study sites. Number of individual tiger sharks per hour by sex recorded by the stereo-BRUVs in the nesting or the non-nesting season for turtles. The number of camera deployments at each site is reported in parentheses. The average TL \pm SE (cm) of the sharks recorded at each site is given at the top of each bar.

Figure 3-6. Total length (TL) of tiger sharks tagged and observed by stereo-BRUVs. Total length is shown as raw data values and as means (black circles) with 95% confidence intervals for males (blue) vs females (red) in either the nesting season (circles) or the non-nesting season (triangles), and at each of the three study locations.

Figure 4-1. Schematic diagram of the methodology that can be implemented using DOVs in order to differentiate between instantaneous vs non-instantaneous records of sharks. Each shark recorded is categorised as an instantaneous record (*IN*) if it was inside the transect limits (5 m × 5 m) at the time that it was first sighted, or as a non-instantaneous record (*OUT*) if it was outside of the transect limits when first sighted, but then later moved into the transect limits. An instantaneous survey would include only instantaneous records, while a non-instantaneous survey would include both instantaneous and non-instantaneous records. The grey halo shown around each shark indicates where it was when it was first sighted, while dotted lines and arrows show the direction of their movements of sharks over the period of time of the survey.

Figure 4-2. Maps showing the long-length surveys conducted using DOVs ('supertransects') at (a) Darwin and (b) Wolf islands, with (c) inset map showing the locations of these islands at the Galapagos Marine Reserve. The supertransects (conducted along the 20-m isobath perimeters of each island) are each represented by a band (width is not to scale), with the relative density of sharks (count km⁻²) indicated by a blue colour scale (see legend). A number is assigned to each supertransect for their identification in Table 4-1. Grey dashed lines represent the 10 m isobaths in (a) and (b) and the 100 m isobaths in (c).

Figure 5-1. Diagram showing the conceptual framework used in this study relating attitudes (produced after an evaluating process involving beliefs and emotions) and behaviours (reflected in the tolerance to coexistence situations with wildlife, support for its protection and willingness to increase knowledge about it). Lighter-gray area delimited by dashed line refers to the local social and ecological context.

Figure 5-2. Vectors showing the degree of correlation (i.e., proximity of the arrow heads representing each variable to the unit circle) of the 14 selected factors to the first two principal components (PCs) of the PCA, which together explain 39.3 % of the variation. The first principal component (PC1) is interpreted as an index of overall attitudes towards sharks, based on its loadings. Embedded table shows the loadings for each of the 14 selected factors for the first and second principal components (PC1 and PC2, respectively).

Figure 5-3. Classification and rating of the people experiences with sharks in the wild (frequencies in parentheses) by respondents.

Figure 5-4. Partial dependence plots (following Elith and Leathwick (2016)) showing the eight most influential variables in the prediction of tolerance (a) and support for shark protection (b) from Boosted Regression Trees (BRTs). Individual plots show the fitted value of the response variable (i.e., tolerance in (a) and support for shark protection in (b)) on the Y-axis versus each of the potential predictor variables, integrated across all other variables in the model. Prediction performance was assessed

using the area under the curve (AUC; Hosmer and Lemeshow 2000) with the BRT models providing acceptable (AUC = 0.78) and excellent (AUC = 0.85) model predictions, respectively.

Figure A-1. Multivariate pseudo standard error (*MultSE*; Anderson & Santana-Garcon 2015) as a function of the number of replicates (sample size) of a zero-adjusted Bray-Curtis (Clarke et al. 2006) dissimilarities calculated on shark abundance data from the pilot study from (a) benthic and (b) pelagic stereo-BRUVs for four different soak times (upper right legend), with permutation-based means and bias-adjusted bootstrap-based error bars (10,000 resamples).

Figure A-2. Benthic stereo-BRUV design used in the study. The camera frame remains floating at *ca* 1 m over the seabed.

Figure A-3. Video frames showing the shark species recorded by stereo-BRUVs at the Galapagos Marine Reserve (a: *Carcharhinus altimus*, b: *Carcharhinus falciformis*, c: *Carcharhinus galapagensis*, d: *Carcharhinus limbatus*, e: *Galeocerdo cuvier*, f: *Sphyrna lewini*, g: *Triaenodon obesus*, h: *Heterodontus quoyi*, i: *Mustelus albipinnis*, j: *Triakis maculata*).

Figure A-4. Distance-based redundancy analysis (dbRDA) ordinations for the fitted model of the (a) full, (b) semipelagic and (c) benthic shark assemblages based on a zero-adjusted Bray-Curtis similarity matrix (Clarke et al. 2006) produced from square-root-transformed relative abundances of shark species (*cMaxN*) averaged by site and position in the water column (benthic *vs* pelagic). Corresponding bioregions are indicated by coloured icons (upper right legend). Overlying vectors in blue show the environmental and biological predictors fitted by the model.

Figure B-1. Map showing the study sites of (a) Bachas-Salinas, and (b) Isabela-South and Cerro-Ballena. White sea turtle icons indicate the most important nesting beaches for green sea turtles in the area, according to Zárte and Dutton (2002) and Zárte et al. (2009). Black crosses show the locations of SBRUV deployments, and black rectangles show the locations of acoustic receivers.

Figure B-2. Frequency distribution of the time interval (in days) between subsequent detections of satellite locations obtained for tagged sharks.

Figure B-3. Chronology of acoustic detections for each of the acoustic-tagged sharks (TS1-TS20) by site (colour coded).

Figure C-1. Questionnaire for evaluating the attitude towards sharks in residents and visitors to the Galapagos Islands.