

TABLE OF CONTENTS

SUMMARY	1
RESUMEN	3
RESUM.....	6
GENERAL INTRODUCTION.....	10
1. The chondrichthyans	11
2. Reproductive biology.....	16
3. Use of reproductive technologies in chondrichthyans.....	23
4. Artificial insemination	25
5. Sperm management	26
6. Projects, grants and companies involved in this Thesis.	29
OBJECTIVES.....	31
CHAPTER 1: Reproductive Anatomy of Chondrichthyans: Notes on Specimen Handling and Sperm Extraction. I. Rays and Skates	34
1. Introduction.....	37
2. Materials and Methods	38
3. Results and Discussions.....	43
4. Conclusions.....	54
CHAPTER 2: Reproductive Anatomy of Chondrichthyans: Notes on Specimen Handling and Sperm Extraction. II. Sharks and Chimaeras	56
1. Introduction.....	58
2. Materials and Methods	60
3. Results and Discussion.....	66
4. Conclusions.....	83
CHAPTER 3: Development of sperm cryopreservation protocols for sharks and rays: new tools for elasmobranch conservation.	86
1. Introduction.....	88

2. Materials and methods	91
3. Results	98
4. Discussion	105
CHAPTER 4: The ancient and chiral architecture of Elasmobranchii's spermatozoa enables sperm penetration in viscous environments.	110
1. Introduction.....	115
2. Experimental Model	119
3. Results	120
4. Discussion	132
5. Conclusions.....	140
GENERAL DISCUSSION	142
1. Reproductive Anatomy: notes on sperm extraction	1433
2. Development of sperm preservation protocols	1444
3. Viscosity, morphology, and its importance	149
4. Future perspectives	152
CONCLUSIONS.....	154
REFERENCES.....	158