

ALEX R. HEARN
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SENESCYT ID: Investigador Auxiliar 2 - REG-INV-20-04723

EDUCATION

- 2001** Ph.D., Marine Biology, International Centre for Island Technology (ICIT), Heriot-Watt University, UK. Advisor: Prof. J. Side
Thesis: "The biology and fishery of the velvet swimming crab *Necora puber* (L.) in the Orkney Islands, UK."
(SENESCYT Ecuador register: 127214)
- 1997** Master of Science, Marine Resource Development and Protection, ICIT, Heriot-Watt University, UK. Advisor: Prof. J. Side
Thesis: "Growth and survival of *Pecten maximus* larvae under different antibiotic regimes in aquaculture conditions"
- 1995** BSc Hons. Oceanography with Marine Biology, Oceanography Dept., Southampton University, UK. Upper second class honours. Advisor: Prof. P. Tyler
Dissertation: "Geographical variation of fecundity and egg size in ophiuroids"
(SENESCYT Ecuador register: 89661)

PROFESSIONAL EXPERIENCE

Universidad San Francisco de Quito, Cumbaya, Quito, Ecuador (August 2015 – present)

Professor and Researcher in the Department of Biological Sciences (COCIBA)

- Undergraduate courses in General Biology, Biology for Engineers, Flora and Fauna of Ecuador, Invertebrate Zoology, Ichthyology
- Intensive course on Marine Monitoring Techniques at the Galapagos campus
- Tailor-made courses for Study Abroad Programs in Galapagos
- Research interests: oceanic islets and their role in the pelagic environment, marine protected areas and migratory species conservation, shark ecology, fisheries
- Development of Biotelemetry Laboratory and supervision of student dissertations

Turtle Island Restoration Network, Olema CA (March 2013 – July 2015)

Director of Conservation Science

- Develop and strengthen SPAWN program aimed at conservation of coho and steelhead smolt and spawning habitat in Lagunitas Creek watershed.
- Develop scientific research in partnership with PRETOMA (Costa Rica) aimed at conservation of sharks and turtles at Cocos Island and new marine management area
- Develop marine research and conservation links in the Eastern Tropical Pacific, with emphasis on existing research on migratory shark and turtles in Galapagos and Ecuador
- Supervise and develop intern and volunteer program

Biotelemetry Laboratory, UC Davis, California (October 2008-March 2013)

Project Scientist (since 01/11 – prior position: Postdoctoral Researcher). Research activities include:

- Shark movement studies in the Galapagos Marine Reserve and Eastern Tropical Pacific

- Coordination of regional pelagic research network in South America (Migramar)
- Fine scale movements of green sturgeon in a spawning site on the Sacramento River
- Salmonid smolt migration pathways through the Sacramento River system and San Francisco Bay
- Green sturgeon spawning migrations in the Sacramento River and impact of dams
- Juvenile green sturgeon habitat preference and movement patterns

Charles Darwin Foundation, Galapagos, Ecuador (April 2002 to August 2008)

Coordinator of Fisheries Research (2004-2008) – leading a team of 5 junior scientists plus volunteers and fisheries observers; and acting joint Head of Department of Marine Research and Conservation (January 2005–September 2007) – 13-15 scientists, 3-5 students and volunteers at any given time. Responsible for planning, budgets, personnel, grant writing for the Department, along with institutional planning and development of relations with other local, national and international partners, clients and donors.

Investigator Level II (2002-2004) at the Department of Marine Research. Responsible for research on the population dynamics of lobsters. Activities: Expanded and improved tagging program for growth studies; organized and led cruises with both scientists and members of the Fishing Sector around the islands for sampling, collecting and tagging lobsters. Extensive day- and night-diving experience. Sea cucumber research team in area of population dynamics. Involvement in the participatory management of the Galapagos Marine Reserve: Advice and assessment on marine resources.

Professional Volunteer (April 2002 to August 2002) at the Marine Department (Fisheries Monitoring Program), involved in fisheries assessment of spiny lobsters and sea cucumbers. Activities: Training of observers, design of monitoring strategies, data analysis, compilation of fishery reports, monitoring of landings.

Sea Fish Industry Authority, Edinburgh (February to April 2002)

Consultancy project on the transport and marketing of the velvet crab from various locations in the UK to Spain. Activities: Interviews with merchants, transporters, fishermen, importers and distributors; fieldwork both in Spain and the UK; production of a written report; presentation to stakeholders in the UK.

International Centre for Island Technology, Orkney (June 1999)

Research position for preparation of document regarding the state of the inshore fisheries of Orkney. Prepared for Orkney Islands Council.

Freelance Translator (Spanish – English and vice versa) (1998 to present)

Translation of texts of all kinds, including literary reviews, environmental impact analyses, marketing brochures and tourist information.

Suffolk University, Madrid Campus (October 1997 to May 1998)

Lecturer in Biology Laboratory and theory course for undergraduates. General biology (evolution, human anatomy, ecology and ecosystems).

PEER REVIEWED PUBLICATIONS

1. Forryan A, Naveira-Garabato AC, Vic C, Nuraer AJG & **AR Hearn** (2021) Galápagos upwelling driven by localized wind-front interactions. *Scientific Reports* 11:1277
2. Ulloa G, Vasconez VA, Benitez DS, Perez N & **A Hearn** (2020) Hammerhead shark detection using regions with convolutional neural networks. *2020 IEEE Andescon 2020*:1-6
3. Pena A, Perez N, Benitez DS & **A Hearn** (2020) Tracking hammerhead sharks with deep learning. *IEEE Colombian Conference on Applications of Computational Intelligence, ColCACI 2020*:1-6

4. Ketchum JT, Hoyos-Padilla M, Aldana-Moreno A, Ayres K, Galvan F, **Hearn A...** & AP Klimley (2020) Chapter One – Shark movement patterns in the Mexican Pacific: A conservation and management perspective. *Adv. Mar. Biol.* 85(1):1-37 <https://doi.org/10.1016/bs.amb.2020.03.002>
5. **Hearn A**, Steiner T & R Arauz (2020) A brief aggregation of pelagic swimming crabs *Euphylax dovii* (Decapoda: Portunidae) at Cocos Island, Costa Rica coincides with onset of El Niño Event. *Revista de Biología Tropical, Supp. Esp. Isla del Coco* 68(1): S289-S295
6. Páez-Rosas D, Galván-Magaña F, Baque-Menoscal J, Tripp-Valdes A, Fischer C & **A Hearn** (2020) Trophic preferences of three pelagic fish inhabiting the Galapagos Marine Reserve: ecological inferences using multiple analyses. *Environ Biol Fish* <https://doi.org/10.1007/s10641-020-00967-8>
7. Chavez EJ, Arauz R, **Hearn A**, Nalesso E & T Steiner (2020) Association of sharks with an offshore Marine Protected Area and first evidence of connectivity with the protected waters around Cocos Island, Costa Rica. *Revista de Biología Tropical, Supp. Esp. Isla del Coco* 68(1): S320-S329
8. Klimley AP, McDonald R, Thomas MJ, Chapman E & **A Hearn** (2020) Green sturgeon habitat suitability varies in response to drought-related flow regimes. *Environmental Biology of Fishes*, doi.org/10.1007/s10641-020-00946-z
9. Aldana-Moreno A, Hoyos-Padilla EM, González-Armas R, Galván-Magaña F, **Hearn A**, Klimley A P & Ketchum JT (2019). Residency and diel movement patterns of the endangered scalloped hammerhead *Sphyrna lewini* in the Revillagigedo National Park. *Journal of Fish Biology*. [doi:10.1111/jfb.14239](https://doi.org/10.1111/jfb.14239)
10. Queiroz and 100+ authors. (2019) Global spatial risk assessment of sharks under the footprint of fisheries. *Nature* 572: 461–466
11. Nalesso E, **Hearn A**, Sosa-Nishizaki O, Steiner T, Antoniou A, Reid A, Bessudo S, Soler G, Klimley AP, Lara F, Ketchum JT & R Arauz (2019) Movements of scalloped hammerhead sharks (*Sphyrna lewini*) at Cocos Island, Costa Rica and between oceanic islands in the Eastern Tropical Pacific. *PLOS One* 14(3):e0213741
12. Chapman, ED, Miller EA, Singer GP, **Hearn AR**, Brostoff WN, LaCivita PE & AP Klimley (2019) Spatiotemporal Occurrence of Green Sturgeon at Dredging and Placement Sites in the San Francisco Estuary. *Environmental Biology of Fishes*. doi.org/10.1007/s10641-018-0837-9
13. Peñaherrera-Palma C, Frusher S, Semmens J, van Putten I, **Hearn A**, Llerena-Martillo Y & Y Karpievich (2018) Evaluating abundance trends of iconic species using local ecological knowledge. *Biological Conservation* 225: 197–207
14. Guzman HM, Gomez CG, **Hearn A** & SA Eckert (2018) Longest trans-Pacific migration of a whale shark (*Rhincodon typus*). *Marine Biodiversity Records* 11:8
15. **Hearn A** & SJ Bucaram (2017) Ecuador’s sharks face threats from within. *Letters to Science* 358 (6366):1009-1009
16. Bucaram S, **A Hearn**, W Renteria, G Moran, R Bustamante & G Reck (2017) Assessing Fishing Effect Inside and Outside an MPA: The Impact of the Galapagos Marine Reserve on the Industrial Pelagic Tuna Fisheries during the First Decade of Operation. *Marine Policy* 87: 212-225
17. Norman BM, Holmberg JA, Arzoumanian Z, Reynolds S, Wilson RP, Gleiss AC, Rob D, Pierce SJ, de la Parra R, Galvan B, Ramirez-Macias D, Robinson D, Fox S, Graham R, Rowat D, Potenski M, Levine M, Mckinney JA, Hoffmayer E, Dove A, Hueter R, Ponzio A, Araujo G, Aca E, David D, Rees R, Duncan A, Rohner CA, **Hearn A**, Acuna D, Berumen ML, Vazquez A, Green J, Bach SS, Schmidt JV & Morgan DL. (2017). Understanding constellations: ‘citizen scientists’ elucidate the global biology of a threatened marine mega-vertebrate. *Bioscience* 67(12):1029-1043
18. Klimley AP, M Flagg, N Hammerschlag & **A Hearn** (2017) The value of using measurements of geomagnetic field in addition to irradiance and sea surface temperature to estimate geolocations of tagged aquatic animals. *Animal Biotelemetry* 5:19–31

19. Acuña-Marrero D, ANH Smith, N Hammerschlag, **A Hearn**, MJ Anderson, H Calich, MDM Pawley, C Fischer & P Salinas de León (2017) Residency and movement patterns of an apex predatory shark (*Galeocerdo cuvier*) at the Galápagos Marine Reserve. PLOS One 12(8): e0183669
20. Ryan JP, JR Green, E Espinoza & **AR Hearn** (2017) Association of whale sharks (*Rhincodon typus*) with thermo-biological frontal systems of the eastern tropical Pacific. PLOS One 12(8): e0182599
21. Wyman MT, MJ Thomas, RR McDonald, **AR Hearn**, RD Battleson, ED Chapman, P Kinzel, JT Minear, EA Mora, JM Nelson, MD Pagel & AP Klimley (2017) Fine-scale habitat preference of green sturgeon (*Acipenser medirostris*) within three spawning locations in the Sacramento River, California. Canadian Journal of Fisheries and Aquatic Science (accepted June 2017)
22. Thys T, **AR Hearn**, KC Weng, JP Ryan & C Peñaherrera-Palma (2017) Satellite tracking and site fidelity of short ocean sunfish *Mola ramsayi*, in the Galapagos Islands. Journal of Marine Biology doi: 10.1155/2017/7097965
23. **Hearn A**, J Green, MH Roman, D Acuña-Marrero, E Espinoza & AP Klimley (2016). Adult female whale sharks make long distance movements past Darwin Island (Galapagos, Ecuador) in the Eastern Tropical Pacific. Marine Biology 163: 213–224
24. Nasar J, J Ketchum, C Peñaherrera, R Arauz, S Bessudo, E Espinoza, G Soler, G Shillinger, F Vallejo, I Zanella, J Green, H Guzman, M Hoyos, S Henderson, AP Klimley, T Steiner & **A Hearn** (2016) Tracking Sharks and Marine Wildlife among UNESCO World Heritage Sites in the Eastern Tropical Pacific. UNESCO World Heritage Papers 45:57–65
25. Acuña-Marrero D, J Jimenez, F Smith, PF Doherty Jr, **A Hearn**, JR Green, J Paredes-Jarrin, P Salinas (2014). Whale shark (*Rhincodon typus*) seasonal presence, residence time, and habitat use at Darwin Island, Galapagos Marine Reserve. PLOS One 9(12): e115946
26. Chapman ED, **AR Hearn**, GP Singer, WN Brostoff, PE LaCivita & AP Klimley (2014) Movements of steelhead (*Oncorhynchus mykiss*) smolts migrating through the San Francisco Bay Estuary. Environmental Biology of Fishes DOI: 10.1007/s10641-014-0341-9
27. Steel A, JH Coates, **AR Hearn** & AP Klimley (2014) Performance of an ultrasonic telemetry positioning system under varied environmental conditions. Journal of Animal Biotelemetry 2:15
28. Ketchum JT, **A Hearn**, AP Klimley, C Peñaherrera, E Espinoza, S Bessudo, G Soler & R Arauz (2014) Interisland movements of scalloped hammerhead sharks (*Sphyrna lewini*) and seasonal connectivity in a marine protected area in the eastern tropical Pacific. Marine Biology doi: 10.1007/s00227-014-2393-y
29. Ketchum JT, **A Hearn**, AP Klimley, E Espinoza, Peñaherrera C & J Largier (2014). Seasonal changes in movements and habitat preferences of the scalloped hammerhead shark (*Sphyrna lewini*) while refuging near an oceanic island. Marine Biology doi: 10.1007/s00227-013-2375-5
30. **Hearn AR**, ED Chapman, GP Singer, WN Brostoff, PE LaCivita & AP Klimley (2013) Movements of out-migrating late-fall run Chinook salmon (*Oncorhynchus tshawytscha*) smolts through the San Francisco Bay Estuary. Environmental Biology of Fishes doi: 10.1007/s10641-013-0184-9
31. **Hearn AR**, JR Green, E Espinoza, C Peñaherrera, D Acuña, AP Klimley (2013) Simple criteria to determine detachment point of towed satellite tags provide first evidence of return migrations of whale sharks (*Rhincodon typus*) at the Galapagos Islands, Ecuador. Journal of Animal Biotelemetry 1:11
32. Acuña-Marrero D, J Zimmerhackel, J Mayora & **A Hearn** (2013) First record of three shark species, *Odontaspis ferox*, *Mustelus albipinnis* and *Centrophorus squamosus*, from the Galapagos Islands. Marine Biodiversity Records 6: e87 doi:10.1017/S1755267213000596
33. Bucaram S, **AR Hearn** (2013) Factors that influence entry-exit decision and intensity of participation for the Galapagos lobster fishery. Marine Policy doi: 10.1016/j.marpol.2013.05.005
34. Thys T, J Whitney, **A Hearn**, K Weng, C Peñaherrera, L Jawad, J Alfaro-Shigueto, JC Mangel & SA Karl (2013). First record of the southern ocean sunfish *Mola ramsayi*, in the Galapagos Marine Reserve. Marine Biodiversity Records 6: e70 doi:10.1017/S1755267213000377

35. Thomas MJ, ML Peterson, ED Chapman, **AR Hearn**, R Battleson, GP Singer, AP Klimley (2013) Behavior, habitat use and site fidelity of adult green sturgeon in the Upper Sacramento River. *Environmental Biology of Fishes* DOI 10.1007/s10641-013-0132-8.
36. GP Singer, **AR Hearn**, ED Chapman, ML Peterson, PE LaCivita, WN Brostoff, A Bremner, AP Klimley (2012) Interannual variation of reach specific migratory success for Sacramento River hatchery yearling late-fall run Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) *Environmental Biology of Fishes* DOI 10.1007/s10641-012-0037-y
37. Penaherrera C, **A Hearn** & A Kuhn (2012) Diel use of a saltwater creek by white-tip reef sharks *Triaenodon obesus* (Carcharhiniformes, Carcharhinidae) in Academy Bay, Galapagos Islands. *Revista de Biología Tropical* 60 (2): 735–743
38. ED Chapman, **AR Hearn**, CJ Michel, AJ. Ammann, ST Lindley, MJ Thomas, PT Sandstrom, GP Singer, ML Peterson, RB MacFarlane, AP Klimley (2012). Diel movements of outmigrating Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead trout (*Oncorhynchus mykiss*) smolts in the Sacramento/San Joaquin watershed. *Environmental Biology of Fishes* DOI 10.1007/s10641-012-0001-x
39. Bessudo S, G Soler, P Klimley, J Ketchum, A Arauz, **A Hearn**, A Guzman & B Calmettes (2011) Vertical and horizontal movements of the scalloped hammerhead shark (*Sphyrna lewini*) around Malpelo and Cocos Islands (Tropical Eastern Pacific) using satellite telemetry. *Boletín de Investigaciones Marinas y Costeras, Special supplement: Malpelo* 40: 91–106
40. Bessudo S, G Soler, P Klimley, J Ketchum, A Arauz, **A Hearn** (2011). Residency of the scalloped hammerhead shark (*Sphyrna lewini*) at Malpelo Island and evidence of migration to other islands in the Eastern Tropical Pacific. *Environmental Biology of Fishes* 91 (2): 165-176
41. **Hearn A**, Ketchum J, Klimley AP, Espinoza E & C Peñaherrera (2010). Hotspots within hotspots? Hammerhead shark movements around Wolf Island, Galapagos Marine Reserve. *Marine Biology* 157 (9): 1899-1915
42. Nance H & **A Hearn** (2008) Current research aimed at protecting the globally endangered scalloped hammerhead shark, *Sphyrna lewini*, in the Eastern Tropical Pacific. *Endangered Species Update* 2008 25 (1): 9-11 (published in 2010)
43. **Hearn A** (2008) The rocky path to sustainable fisheries and conservation in the Galapagos Marine Reserve. *Ocean & Coastal Management* 51: 567-574
44. **Hearn A** & JC Murillo (2008) Life history of the red spiny lobster *Panulirus penicillatus* (Olivier, 1791) (Decapoda: Palinuridae) in the Galapagos Marine Reserve, Ecuador. *Pacific Science* 62 (2): 191–204
45. **Hearn A** & MV Toral-Granda (2007) Reproductive biology of the red spiny lobster *Panulirus penicillatus* and the slipper lobster *Scyllarides astori* in the Galápagos Islands. *Crustaceana* 80 (3): 297–312
46. **Hearn A** & F Pinillos (2006) Baseline information on the warty sea cucumber *Stichopus horrens* in Santa Cruz, Galápagos, prior to the commencement of an illegal fishery. *Beche-de-Mer Bulletin* 24: 3–10
47. **Hearn A** (2006) Life history of the slipper lobster *Scyllarides astori* Holthuis 1960, in the Galápagos Islands, Ecuador. *Journal of Experimental Marine Biology and Ecology* 328 (1): 87-97
48. **Hearn A**, P Martínez, MV Toral-Granda, J Murillo, & J Polovina (2005) Population dynamics of the exploited sea cucumber *Isotichopus fuscus* in the Western Galapagos Islands, Ecuador. *Fisheries Oceanography* 14 (5): 377-385
49. **Hearn A** (2004) Reproductive biology of the velvet swimming crab *Necora puber* (L.) in the Orkney islands UK. *Sarsia: North Atlantic Marine Science*, 89 (5): 318–325

BOOK CHAPTERS

1. Hays, G. C., J. D.R. Houghton, T. M. Thys, D. H. Adams, A. E. Ahuir-Baraja, J. Alvarez, M. Baptista, H. Batista, N. Baylina, K. E. Bemis, W. E. Bemis, E. J. Caldera, G. Carnevale, C. D. Carson, J. Pedro Correia, P. Reis Costa, O. Daly, J. Davenport, J. Dutton, L. E. Eagling, C. Figueiredo, K. Forsgren, M. Freese, S. García-Barcelona, C. Harrod, **A. Hearn**, L. Hellenbrecht, E.J. Hilton, M. J. Howard, R.I Kelly, L. Kubicek, C. Lopes, T. Mowatt-Larsen, R. McBride, I. Nakamura, T. Nakatsubo, E. Nixon, M. Nyegaard, E. Ostalé-Valriberas, L. Pellegrino, N. D. Phillips, E. C. Pope, I. Potter, J. Raimundo, M. Riis, R. Rosa, J. P. Ryan, E. Sawai, G. Shinohara, D. W. Sims, L.L. Sousa, C. Taura, E. Tholke, K. Tsukamoto, J. C. Tyler, Y. Y. Watanabe, K. C. Weng, J. L. Whitney, Y. Yamanoue and K. S. Ydesen. (2020). Unresolved Questions About Ocean Sunfishes, Molidae: A Family Comprising Some of the World's Largest Teleosts. pp. 280-296. In: T.M. Thys, G.C. Hays and J.D.R. Houghton [eds.]. *The Ocean Sunfishes: Evolution, Biology and Conservation*, CRC Press. Boca Raton, FL, USA.
2. Langford S, Brown L, Jones J & A Hearn (2019) *Marti the Hammerhead Shark: A Galapagos Journey*. Galapagos Conservation Trust
3. Hearn I & **A Hearn** (2014) *Sharks*. Graded Readers. Pearson-Longman UK. Extensive Reading Foundation 2014 Finalist for Adolescent & Adult Elementary Category
4. **Hearn A**, D Acuña, JT Ketchum, C Peñaherrera, J Green, A Marshall, M Guerrero (2014) Elasmobranchs of the Galapagos Marine Reserve. In: J Denkinger & L Vinueza (eds) *The Galapagos Marine Reserve – A dynamic social-ecological system*. Springer Press. Pp 23-59.
5. J Sonnenholzner, M Brandt, V Francisco, **A Hearn**, M Luzuriaga, P Guarderas, J Navarro (2011). Echinoderms of Ecuador. In: *Echinoderm Research and Biodiversity in Latin America*. Springer-Verlag Press.
6. **Hearn A** (2009, updated 2016) Shark Migrations – Discovering the Golden Triangle. In: T. De Roy (ed.) *Galapagos – Preserving Darwin's Legacy*. Bateman Press Pp 90-97.
7. **Hearn A** (2009) Shark movement patterns. In: P Oxford & G Watkins. *Galapagos, both sides of the coin*. Pp 46-47
8. **Hearn A**, MV Toral-Granda, C Martinez & GK Reck (2007) Biology and fishery of the Galápagos slipper lobster. In: E Spanier & K Lavalli (eds.) *The biology and fisheries of the slipper lobster*. Crustacean Issues, vol 17. pp 287–308
9. Toral M, E Espinoza, **A Hearn** & C Martínez (2002) Spiny Lobsters. In: E Danulat & GJ Edgar, (eds.) *Reserva Marina de Galápagos. Línea Base de la Biodiversidad*. Fundación Charles Darwin & Servicio Parque Nacional Galápagos, Santa Cruz, Galápagos, Ecuador. pp 199-221 (In Spanish)
10. Murillo J, P Martínez, V Toral & **A Hearn** (2002) Sea Cucumbers. In: E Danulat & GJ Edgar (eds.) *Reserva Marina de Galápagos. Línea Base de la Biodiversidad*. Fundación Charles Darwin & Servicio Parque Nacional Galápagos, Santa Cruz, Galápagos, Ecuador. pp 176-198 (In Spanish)

GALAPAGOS REPORT CHAPTERS

1. Chiriboga Y, R Knab & **A Hearn** (2019) Shark Count Galapagos: monitoring marine megafauna through citizen science. In: *Galapagos Report 2017-18*. Galapagos Conservancy, USA.
2. **Hearn A**, E Espinoza, J Ketchum, J Green, C Peñaherrera, R Arauz, C Fischer, T Steiner, G Shillinger, S Henderson, S Bessudo, G Soler y AP Klimley. (2017). Una década de seguimiento de los movimientos de tiburones resalta la importancia ecológica de las islas del norte: Darwin y Wolf.

- Pp. 132-142. En: Informe Galápagos 2015-2016. DPNG, CGREG, FCD y GC. Puerto Ayora, Galápagos, Ecuador.
3. Peñaherrera-Palma C, E Espinosa, **AR Hearn**, J Ketchum, JM Semmens y P Klimley. (2017). Reporte del estado poblacional de los tiburones martillo en la Reserva Marina de Galápagos. Pp. 127-131. En: Informe Galápagos 2015- 2016. DPNG, CGREG, FCD y GC. Puerto Ayora, Galápagos, Ecuador.
 4. Peñaherrera C, Ketchum, J, Espinoza, E, **Hearn A** & AP Klimley (2010) Tiburones martillos de Galapagos: una mirada a su comportamiento y patron migratorio. In: Galapagos Report 2009-10. Charles Darwin Foundation-Galapagos National Park Service, pp 64-69 (Spanish version, also available in English)
 5. Peñaherrera C & **A Hearn** (2008) Towards an ecosystem approach to fisheries: a risk analysis. In: Galapagos Report 2007-8. Charles Darwin Foundation-Galapagos National Park Service, pp 115-120
 6. **Hearn A**, Murillo JC & H Reyes (2007) Declining profitability of fisheries in the Galapagos Marine Reserve. In: Galapagos Report 2006-7. Charles Darwin Foundation-Galapagos National Park Service, pp 12-18.
 7. Murillo JC, Reyes H & **A Hearn** (2007) Social aspects of fisheries in Galapagos. In: Galapagos Report 2006-7. Charles Darwin Foundation-Galapagos National Park Service, pp 12-18.
 8. **Hearn A** & JC Murillo (2007) Coastal fishery resources in the Marine Reserve are declining. In: Galapagos Report 2006-7. Charles Darwin Foundation-Galapagos National Park Service, pp 124-127.

SELECTED TECHNICAL REPORTS

Guerrero M & **A Hearn** (2017) Manta rayas gigantes (*Manta birostris*) como indicador de la salud del ecosistema marino en el Parque Nacional Machalilla, Ecuador. Conservación Internacional Ecuador, 53p

Toral-Granda V, **Hearn A**, Henderson S and Jones PJS. (2011) Galapagos Marine Reserve – governance analysis. Pages 97-104 in PJS Jones, W Qiu and EM De Santo (Eds) Governing Marine Protected Areas: getting the balance right – Volume 2. Technical Report to Marine & Coastal Ecosystems Branch, UNEP, Nairobi.

A. Hearn, E. Utreras & S. Henderson (eds.) 2010. Informe sobre el estado de los tiburones del Pacífico Este Tropical, Vol. 1, Conservación Internacional, Quito, Ecuador, 32 p.

Hearn AR, Chapman ED, Klimley AP, LaCivita PE, & WN Brostoff (2010) Salmonid smolt outmigration and distribution in the San Francisco Estuary 2010. Interim Draft Report, University of California Davis and US Army Corp of Engineers.

Chapman ED, **Hearn AR**, Buckhorn M, Klimley AP, Lacivita PE, Brostoff WN & AM Bremner (2009) Juvenile salmonid outmigration and green sturgeon distribution in the San Francisco Estuary: 2008-2009. University of California Davis and US Army Corp of Engineers. 90p

Klimley AP, Tu D, **Hearn A**, Brostoff W, LaCivita P, Bremner A (2009) Juvenile Salmonid Outmigration and Distribution in the San Francisco Estuary: 2006-2008 Report

Hearn A, J Ketchum & AP Klimley (2009) Vulnerability of top predators to climate change and adaptation options for their coastal and pelagic ecosystems: sharks case study. In: Hoffman J et al. (eds.) Cetaceans and Other Marine Biodiversity of the Eastern Tropical Pacific: Options for Adapting to Climate Change. Report from a workshop held February 9-11, 2009. MINAET/WWF/EcoAdapt/CI/IFAW/TNC/WDCS/IAI/PROMAR, San Jose, Costa Rica

Zárate P & **A Hearn** (2008) Conservation Status of Sharks in Nicaragua, Costa Rica, Panama, Colombia and Ecuador. Consultancy by the Charles Darwin Foundation for IUCN. Santa Cruz, Galápagos, Ecuador, 33p (In Spanish).

Hearn A, Mora J & J Moreno (2008). Evaluation of the sea cucumber *Stichopus horrens* in the Galápagos Marine Reserve. 2007 Report. Fundación Charles Darwin, Santa Cruz, Galapagos, Ecuador. 35p (In Spanish).

Hearn A, Ketchum J, Shillinger G, Klimley & E Espinoza (2008). Shark Research & Conservation in the Galapagos Marine Reserve. Annual Report 2006-7. Fundación Charles Darwin, Santa Cruz, Galapagos, Ecuador 114 pp (In Spanish).

Hearn A, Murillo JC, Nicolaidis F, Moreno J & H Reyes (2006). Stock evaluation of the lobster fishery (*Panulirus penicillatus* & *P. gracilis*) in the Galapagos Marine Reserve 2005. In: (A Hearn, ed.) Evaluación de las pesquerías en la Reserva Marina de Galapagos, Informe Compendio 2005. Fundación Charles Darwin, Santa Cruz, Galapagos, Ecuador. pp 46–116 (In Spanish)

Toral MV, Murillo JC, Piu M, Nicolaidis F, Moreno J, Reyes H, Castrejón M & **A Hearn** 2005. La pesquería de pepino de mar (*Isostichopus fuscus*) en la Reserva Marina de Galápagos en el año 2005. Fundación Charles Darwin/Parque Nacional Galápagos. Puerto Ayora, Santa Cruz. 41 pp

Hearn A (2004) Lobster mark-recapture studies in the Galapagos Marine Reserve 2002–2004. Final Report. Fundación Charles Darwin. 102 pp (In Spanish).

Hearn A, Toral MV, Castrejón M, Nicolaidis F, Moreno J, Reyes H, Altamirano M, Vega S (2004). Evaluation of the sea cucumber (*Isostichopus fuscus*) fishery in Galapagos. In: Evaluación de las pesquerías en la Reserva Marina de Galápagos. Informe Compendio 2004. Fundación Charles Darwin, Santa Cruz, Galapagos, Ecuador. pp 1–60 (In Spanish).

Murillo JC, Andrade R, Vizcaíno J, **Hearn A**, et al, 2002. Pesquería del Pepino de Mar *Stichopus Fuscus* en Galápagos durante el 2002. Análisis comparativo con las pesquerías 1999, 2000 y 2001. En: Evaluación de las pesquerías en Galápagos. pp 1 – 38. Fundación Charles Darwin y Servicio Parque Nacional Galápagos, Santa Cruz, Galápagos, Ecuador.

CONFERENCE ORAL AND POSTER PRESENTATIONS

July 2019 (Kruger, South Africa) A Hearn et al The Migramar network, scientific research to promote the Galapagos-Cocos Swimway. Pre-conference Workshop on transboundary marine solutions, Species on the Move

September 2017 (Konstanz, Germany) A Hearn et al. The Galapagos Marine Reserve as a regional hub for highly mobile sharks. The 6th International Biologging Symposium

September 2017 (La Serena, Chile) A Hearn et al. Ten years of tracking sharks highlight the ecological importance of the Galapagos Marine Reserve. IMPAC4 Conference on Marine Protected Areas

September 2017 (La Serena, Chile) A Hearn et al. Biological evidence for a migratory corridor between Galapagos and Cocos. Presentation and Panel Member for the Galapagos-Cocos Swimway Side Event, organized by MigraMar, PACIFICO and Galapagos National Park. IMPAC4 Conference on Marine Protected Areas

September 2017 (La Serena, Chile) Arauz et al. Migramar: Scientist network for the conservation of highly migratory species in the Eastern Pacific. IMPAC4 Conference on Marine Protected Areas.

May 2016 (Doha, Qatar) A Hearn et al. Association of adult female whale sharks with open ocean and coastal upwelling frontal systems in the Eastern Tropical Pacific. 4th International Whale Shark Conference. Abstract available here: <http://www.qscience.com/doi/abs/10.5339/qproc.2016.iwsc4.24>

October 2013 (Atlanta, GA) A Hearn et al. Movements of large female whale sharks through Darwin Island, Galapagos and the Eastern Tropical Pacific. 3rd International Whale Shark Conference.

December 2012 (Berkeley, CA) A Hearn & P Klimley. Marine Corridors – the Eastern Tropical Pacific Seascape Case Study. 3rd California Connectivity Forum.

September 2011 (Seattle, WA) A Hearn, J Ketchum, M. Hoyos, R. Arauz, C. Fischer & A.P. Klimley (2011) Sharks and Marine Protected Areas in the Eastern Tropical Pacific. American Fisheries Society Symposium, Seattle 5-11 Sept. 2011.

September 2011 (Seattle, WA) E Chapman, A Hearn, G Singer, AP Klimley (2011) Outmigration of salmonid smolts in the San Francisco Bay Estuary in relation to dredging activities. Oral Presentation, American Fisheries Society Symposium, Seattle 5-11 Sept. 2011.

September 2011 (Seattle, WA) M Peterson, M Thomas, E Chapman, A Hearn, G Singer, AP Klimley (2011). Behavior and Fine Scale Habitat Usage Patterns of Juvenile Green Sturgeon in the Sacramento-San Joaquin Delta Oral Presentation, American Fisheries Society Symposium, Seattle 5-11 Sept. 2011.

September 2011 (Seattle, WA) M Thomas, M Peterson, E Chapman, A Hearn, G Singer, AP Klimley (2011) Fine Scale Movement and Habitat Utilization of Adult Green Sturgeon in the Upper Sacramento River Oral Presentation, American Fisheries Society Symposium, Seattle 5-11 Sept. 2011.

April 2011 (Red Bluff, CA) A Hearn, M Peterson, G Singer, R Battleson (2011) Fine scale movements of green sturgeon at known aggregate sites. Annual Upper Sacramento River Monitoring Project Work Team Meeting, Red Bluff, April 28th 2011

September 2010 (Sacramento, CA) A Hearn, E Chapman, AP Klimley, WB Brostoff, PE LaCivita & AN Bremner (2010) Movement of outmigrating salmonid smolts in relation to dredging and dredged material placement sites in the San Francisco Bay Estuary. CALFED Biennial Bay-Delta Science Conference, Sacramento, September 2010

July 2010 (Providence, RI, USA) Ketchum JT, AR Hearn, E Espinoza, C Peñaherrera & AP Klimley. Diel and Seasonal Movements of Scalloped Hammerhead Sharks (*Sphyrna lewini*) in the Galapagos Marine Reserve. American Elasmobranch Society

June 2010 (Cairns, Australia) Peñaherrera-Palma C, **AR Hearn**, JT Ketchum, F Nicolaidis, E Espinoza, S Henderson, M Wolff & AP Klimley. Human-shark interactions in the Galapagos Islands. Oral Presentation, Sharks International Symposium.

May 2010 (Bodega Bay, CA, USA) Chapman ED, **AR Hearn**, AP Klimley, PE LaCivita, WN Brostoff & AM Bremner. The movements of late-fall Chinook and steelhead smolts relative to dredge removal and disposal sites in San Francisco Bay

July 2009 (Portland, OR, USA) **A Hearn**, J Ketchum, P Klimley, G Soler, S Bessudo, R Arauz, C Peñaherrera. Interisland Movement of Hammerhead sharks in the Galapagos Marine Reserve and Eastern Tropical Pacific. Oral Presentation, American Elasmobranch Society Symposium

July 2009 (Portland, OR, USA) **A Hearn**, J Ketchum, P Klimley, E Espinoza Hotspots within hotspots? Hammerhead shark movement around Wolf Island, Galapagos. Oral Presentation, American Elasmobranch Society Symposium

July 2009 (Portland, OR, USA). J Ketchum, G Shillinger, **A Hearn**, P Klimley, E Espinoza. Movements and Migratory patterns of sharks in the Galapagos Marine Reserve and Eastern Tropical Pacific. Poster Presentation, American Elasmobranch Society Symposium

July 2009 (Galapagos Islands, Ecuador) **A Hearn**, J Ketchum, P Klimley, E Espinoza. Hotspots within hotspots? Hammerhead shark movement around Wolf island, Galapagos, Poster Session. Galapagos International Science Symposium.

July 2009 (Galapagos Islands, Ecuador) J Ketchum, **A Hearn**, G Shillinger, P Klimley, E Espinoza, C Peñaherrera. Shark movements and the design of protected pelagic environments within and beyond the Galapagos Marine Reserve

April 2009 (Santa Rosa, CA, USA) **A Hearn**, J Ketchum, P Klimley, E Espinoza. Hotspots within hotspots? Hammerhead shark movement around Wolf island, Galapagos, Poster Session at CAL-NEVA AFS Symposium.

October 2007 (Barriloché, Argentina) **Hearn A**, Altamirano M, Toral V & F Nicolaidis (2007) Crónica de una muerte anunciada: la pesca de pepino de mar en la Reserva Marina de Galápagos. Latin American Marine Protected Areas Conference, Barriloché, Argentina, October 2007

February 2007 (San Francisco, CA, USA) Klimley P, Arauz R, Bessudo S, **Hearn A**, Henderson S, Guzman H, Ketchum J, Soler G & G Shillinger. Movements of sharks at seamounts and island, biotic “hot spots”, relative to marine protected areas in the eastern Pacific Ocean Corridor. AAAS (American Association for the Advancement of Science)

October 2005 (Geelong, Australia) The rocky path to sustainability in the Galapagos Marine Reserve. IMPAC-1 conference on Marine Protected Areas.

October 2001 (La Coruña, Spain) Growth of the velvet crab *Necora puber* in the Orkney Islands, UK. EDFAM Conference on crustacean biology and fisheries.

October 2000 (Oban, Scotland) The effectiveness of baiting and soaking practices on catches of the velvet swimming crab (*Necora puber* (L.)) in Orkney. First Prize for Best Presentation at Symposium SAMS 2000.

WORKSHOPS AND MEETINGS

June 2019 (San Cristobal, Galapagos) Hammerhead highways: how to protect our migratory species when they leave the reserve. Galapagos Symposium III

March 2019 (Loja, Ecuador) Biodiversity in high definition. Red Nacional de Investigación de Biodiversidad. Shark Count and Citizen Science

October 2017 (San Cristobal, Galapagos) Workshop to develop Swimway plans between Galapagos-Cocos and Coiba-Malpelo, organized by MigraMar and the Galapagos National Park Directorate representing the Eastern Tropical Pacific Marine Corridor Initiative.

August 2016 (Panama City, Panama) Second strategic planning workshop for regional MigraMar network of scientists studying the ecology of marine migratory species in the Eastern Pacific.

March 2016 (Quito, Ecuador) First strategic planning workshop for regional MigraMar network of scientists studying the ecology of marine migratory species in the Eastern Pacific.

December 2015 (Guayaquil, Ecuador) Workshop on the conservation status of the marine megafauna of Ecuador, organized by WWF-Ecuador. Presentation on the status and threats to whale sharks

November 2014 (Quito, Ecuador) COP-11 for the Convention of Highly Migratory Species (CMS), assisted as NGO Observer, participated on Expert Panel for Hammerhead Shark listing on Appendix II, organized by Ecuador Ministry of Environment, and gave presentation on whale shark research in Galapagos at Side Event.

October 2014 (Bogota, Colombia) Biotelemetry training workshop for members of the Eastern Tropical Pacific Marine Corridor Initiative. Provided 4-day training workshop remotely via video and skype conference together with colleague Dr. JT Ketchum.

June 2012 (Galapagos, Ecuador) Citizen Science for the conservation of the Galapagos Islands. Organized by the Galapagos Conservancy

September 2011 (Seattle, USA) Statistics and R for Fisheries Sciences. Workshop during AFS Conference.

May 2010 (Valparaiso, Chile) Workshop of the technical committee of the Permanent Commission for the South Pacific (CPPS) on advances in the Regional Shark Plan of Action. Representing Migramar.

May 2010 (Oakland, CA, USA). Meeting of the Long Term Management Strategy (LTMS) to present findings on the effects of dredging on key and threatened species in San Francisco Estuary. Presenter.

December 2009 (Oakland, CA, USA) Green sturgeon, longfin smelt and dredging operations in the San Francisco Estuary, presented information on green sturgeon movements and distribution in San Francisco Bay

October 2009 (Guayaquil, Ecuador) Workshop of the technical committee of the Permanent Commission for the South Pacific (CPPS) on advances in the Regional Shark Plan of Action. Representing Migramar.

February 2009 (San José, Costa Rica). Workshop on Climate Change and Adaptations for Cetaceans and other Marine Biodiversity of the Eastern Pacific.

July 2008 (Manta, Ecuador). Regional workshop on the conservation and management of shark populations in the Eastern Pacific.

November 2006 (Galapagos, Ecuador). Ecological Risk Assessment for Fisheries – application to Galapagos. Organized by PEW Fellows Rodrigo Bustamante and Tony Smith (CSIRO).

September 2005 (Panama City, Panama). Conservation International-WWF workshop on standardizing research priorities and methods across the Eastern Tropical Pacific Corridor, including participation from Cocos, Malpelo, Coiba and Galápagos Islands.

April 2005 (Puerto Madryn, Argentina). Chilean and Argentinean fisheries scientists to discuss and develop models and management of metapopulation fisheries. Organised by PEW Fellows Lobo Orensanz and Ana Parma.

December 2004 (Galapagos, Ecuador). Participation and organisation of workshop on the issue of fisheries in the Galapagos Marine Reserve, data collection, analysis, participatory management and conflicts. Organised by PEW Fellow Rodrigo Bustamante.

February 2003 (Galapagos, Ecuador). Postgraduate Diploma (45 hours) “Ecología de reclutamiento y pronóstico pesquero en stock marinos explotados. Langostas Espinosas (Ecology of recruitment and stock assessment of spiny lobsters)” Course given by Dr. Raul Cruz, University of La Habana, Cuba.

FILMS & TV

2018 Tiger shark Invasion, Shark Week, Discovery Channel

2017 Blue Planet II, BBC

2017 Galapagos, Atlantic Productions/BBC

2015 United Sharks of America, Nat Geo TV

2014 Water Brothers, 2 episodes on Cocos Island

- 2012** Galapagos 3-D, Atlantic Productions, Sky TV
2011 Whale Sharks, Dia a Dia (Ecuador)
2011 Realm of the Giants, Tom Lucas Productions
2010 Shark Men (Season 3), Fischer Productions, National Geographic TV
2008 Shark Superhighway, Tom Lucas Productions & Geographic Explorer (U.S.A.), National Geographic Channel (U.S.A.).
2006 Requins Sous Haute Surveillance, Cinémarine (France), Channel Three, Thallasa (France).

SELECTED GRANTS (PI unless stated otherwise)

- 2012 National Geographic-Waitt Grant (\$15,000) *PI: Prof. AP Klimley* Scalloped hammerhead migration in the Galapagos Islands: regional connectivity.
 2012 National Geographic CRE (\$26,360) *PI: Dr. Tierney Thys* Site fidelity and behavior patterns of the ocean sunfish in the Galapagos Marine Reserve
 2012 Galapagos Conservancy (\$57,887) *PI: Prof. AP Klimley* Whale shark research in the Galapagos Islands
 2014 Ocearch (in kind approx. \$600,000 boat time and satellite tags) – Shark tagging in the Galapagos Marine Reserve
 2014 New England Biolabs Foundation (\$5000) – Whale sharks in Peru and the Eastern Tropical Pacific
 2014 National Geographic-Waitt Foundation (\$15,000) – W307-13, The role of oceanic islets in protected open water species.
 2015 Galapagos Conservation Trust (\$33,675) – Whale shark research in the Galapagos Islands
 2015 Alucia (\$35,263 + vessel and submarine time) - Whale shark research in the Galapagos Islands.
 2015 Alucia (\$17,440) – Seamounts Marine Management Area and Cocos Island Marine Reserve
 2015 National Geographic CRE (\$19,900) *PI: Dr. Tierney Thys* Bali's First Underwater Acoustic Network to study Indonesian Marine Megafauna
 2016 Universidad San Francisco de Quito (\$10,000) - Sunfish spatial ecology in the Galapagos Islands
 2016 Galapagos Science Center Grant (\$10,000) - Shark research in the Galapagos Islands
 2016 Helmsley Foundation (\$148,000) – component of large grant to strengthen the Migramar network in the Eastern Tropical Pacific
 2016 WWF (\$68,000) Grant to Fundación Megafauna Marina del Ecuador to study whale shark and manta movements between a network of MPAs around coastal Ecuador (3 years)
 2017 MigraMar (\$28,000) – grant to study migratory behavior of hammerhead sharks at Cocos and Galapagos
 2017 MigraMar – via Global Partnership for Shark and Rays (\$25,000) – grant to study connectivity of sharks between Cocos Island and offshore Las Gemelas Seamounts
 2018 Galapagos Conservancy (\$9800) Shark Count – citizen science App for monitoring marine megafauna in the Galapagos Islands
 2018 Galapagos Conservation Trust (\$50,000) Whale shark and juvenile shark research in the Galapagos Islands.
 2019 Prince Albert Foundation (through Galapagos Conservation Trust) (\$140,000) Creating a protected swimway for the endangered sharks of Galapagos.
 2020 Conservation Food & Health Organization (\$20,000) Shark Conservation in Ecuador.

STUDENT COMMITTEE:

- Katie Ayres, PhD, CICIMAR, Mexico (in process)
- Angela Palomino, MS, Universitat de Barcelona (Completed in 2019)
- Lauren Goodman, MS, UNC Chapel Hill (Completed in 2020)

- Andrea Vera, B.Sc Universidad San Francisco de Quito (Completed in 2020)
- Viviana Paez, B.Sc Universidad San Francisco de Quito (Completed in 2020)
- Florencia Cordova, B.Sc Universidad San Francisco de Quito (Completed in 2020)
- Nicolás Davalos, B.Sc Universidad San Francisco de Quito (Completed in 2018)
- Yasuni Chiriboga, B.Sc Universidad San Francisco de Quito (Completed in 2018)
- Jackie Alvarez B.Sc Universidad San Francisco de Quito (Completed in 2018)
- Miguel Hernandez B.Sc Universidad San Francisco de Quito (Completed in 2017)
- Cesar Peñaherrera, Ph.D. University of Tasmania, Institute for Marine & Antarctic Studies (Completed in 2016)
- Elena Nalesso, M.Sc CICESE, Mexico (Completed in 2014)
- James Ketchum, Ph.D. University of California, Davis (completed in 2011)

REVIEWER FOR JOURNALS

Journal of Animal Biotelemetry (editor)
 Marine Biology
 PLOS One
 New Zealand Journal of Marine and Freshwater Research
 Journal of Experimental Marine Biology and Ecology
 Marine Biodiversity Records
 Conservation Biology
 Ciencias Marinas (in Spanish)
 PeerJ
 Fisheries Oceanography

LANGUAGES

English/Spanish - Bilingual
Catalan - Fluent
French - Intermediate
Polish - Intermediate

SYNERGISTIC ACTIVITIES

- Editor for Animal Biotelemetry (since 2019)
- Marine Stewardship Council certification as Fishery Team Member (March, 2018)
- Founding member of Migramar network of scientists in Eastern Tropical Pacific researching migratory movements of sharks and other large pelagics (www.migramar.org).
- Vice President of MigraMar Board of Directors (2017-2020)
- Board Member of Turtle Island Restoration Network (2015-2020)
- Mission Blue Hope Spot Champion for Galapagos (2020)
- Collaborating scientist with Oearch, three expeditions (one as PI)
- Member of the Science Working Group of the Eastern Tropical Pacific Seascape
- BSAC Sports Diver (1994) >1000 dives
- Nitrox (2007) SDI Computer Nitrox Diver # 211503
- US Dept. Of The Interior Motorboat Operator Certification Course, MOCC (November 2009)
- RSA Cambridge CTEFLA (1996) Five years of experience teaching English as a second language.