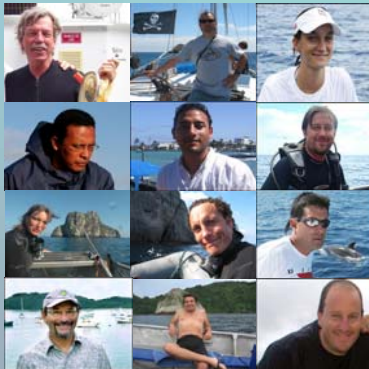




**Red regional de investigacion pelagica  
para el Pacifico Este Tropical**

### Investigadores e instituciones en Migramar



**Instituciones academicas/cientificas  
Parques Nacionales (gobierno)  
ONGs**



## Especies principales de investigacion



## Otras especies



Mantas (Isla de la Plata)



Tiburón toro (Costa Rica)



Silky (Malpelo, Cocos, Galapagos)



Solrayo (Malpelo)



Tintorerías (Galapagos)



Mola mola (Galapagos 2010)

Se trabaja para integrar red de tortugas



**MigraMar**  
HOME | OUR WORK | WHO WE ARE | WHY WE EXIST | RESULTS | IMPACT

**WHY WE EXIST**  
Knowledge by conservation

**WHO WE ARE**  
Partners and colleagues

**OUR WORK**  
Projects and funding

**RESULTS**  
Achievements to date

**IMPACT**  
Science to Action

**Projects**  
Our projects are carried out by research institutions based in the field, in partnership with National Park Agencies where appropriate, and with the technical support of leading universities.

**Shark Census**  
A baseline of shark distribution and abundance at dive sites in regional Marine Protected Areas, in a unique partnership with dive guides, who spend hours underwater each year and are keenly aware of changes in shark abundance.

**Migratory Patterns**  
Many pelagic species migrate throughout the region at different times of the year. A comprehensive regional management plan must include adequate protection for key species at particular sites times when they are most vulnerable.

**Site Fidelity and Hotspots**  
Many shark species appear to display a high degree of fidelity to

**Species Behaviour**  
In places where there is residency of species, we are interested in their

**PROJECTS**  
SHARK CENSUS  
MIGRATORY PATTERNS  
SITE FIDELITY AND HOTSPOTS  
SPECIES BEHAVIOUR

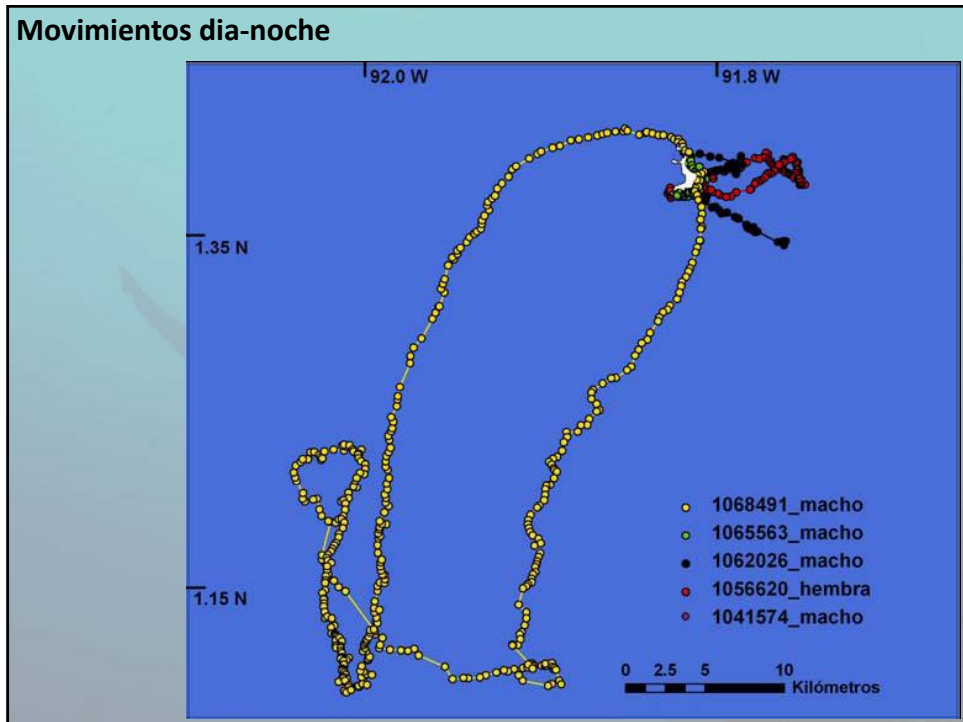
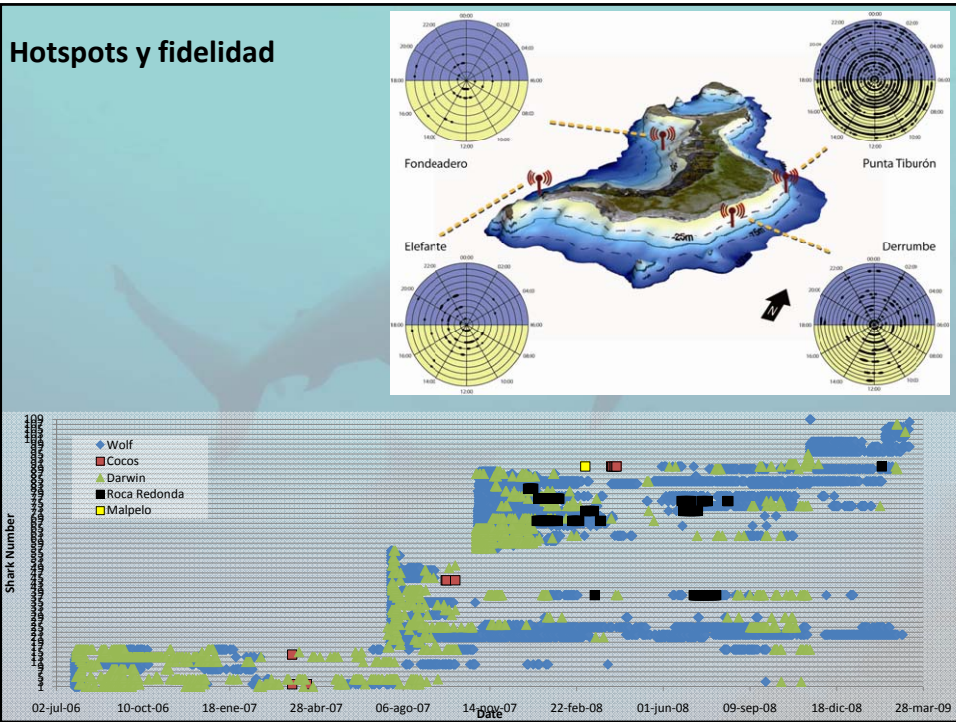
**MEETING MINUTES**  
26 May 2009  
3 March 2009

**NOTE TO COLLABORATORS**  
What it means to be part of the Network

**ADD AND ANALYZE DATA**  
Log in to access the secure area.  
Click here please.

## 4 temas de investigacion

- 1. Censos visuales**
- 2. Marcaje satelital (migraciones)**
- 3. Marcaje acustico (fidelidad a sitios)**
- 4. Marcaje continuo**



## Conectividad regional

- 3 martillos de Galapagos a Cocos (1 regresa tambien)
- 3 martillos de Malpelo a Cocos (1 sigue a Galapagos, donde reside ahora)
- 1 martillos de Galapagos a Malpelo



## Tracks satelitales



## Publicaciones

### Movements and migratory patterns of sharks in the Galapagos Islands using satellite telemetry

James T. Ketchum<sup>1</sup>, George Shillinger<sup>2</sup>, Alex Hearn<sup>1</sup>, and A. Peter Klimley<sup>1</sup>

<sup>1</sup>Biotelemetry Laboratory, Department of Wildlife, Fish, and Conservation Biology, University of California, Davis, CA, USA; <sup>2</sup>Higgins Marine Station, Stanford University, Pacific Grove, CA, USA; <sup>3</sup>Department of Marine Research and Conservation, Charles Darwin Foundation, Galapagos, Ecuador

**Introduction**

**Results**

**Methods**

**Conclusion**

**Acknowledgements**

### Hotspots within hotspots? Hammerhead shark movements around Wolf Island, Galapagos Marine Reserve

Alex Hearn<sup>1</sup>, James Ketchum<sup>1</sup>, A. Peter Klimley<sup>1</sup>, Eduardo Espinosa<sup>3</sup>, Cesar Polakover<sup>3</sup>

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**Abstract** Any pelagic species such as sharks and tuna distributed homogeneously or heterogeneously in the ocean? Large assemblages of these species have been observed at seamount and offshore islands in the eastern tropical Pacific, which are considered hotspots of pelagic biodiversity. Is the species distribution uniform at these hotspots or do species aggregate at a finer spatial scale at these sites? We employed three techniques to demonstrate that the aggregations of scalloped hammerhead sharks, *Sphyrna lewini*, and other pelagic species were confined to the southwestern corner of Wolf Island in the Galapagos Marine Reserve. Coded ultrasonic transmitters were placed on individuals at this site and at another aggregation site at

**Introduction**

Since the turn of the century, an increasing body of literature has pointed to the decline of shark populations worldwide (Baum et al. 2001; Baum and Myers 2004; Cramer and Myers 2001), which may lead to cascades of other species. The highest diversity and abundance of these species occurred in the southwestern corner of the island. Our results support the use of hammerhead sharks as indicator and umbrella species for pelagic hotspots on a fine scale.

## Siguientes pasos

- Desarrollar bases de datos compartidos online como puntos focales
- Integrar informacion con datos pesqueros
- Obtener fondos regionales para seguir con estudios
- Establecer lazos con otros grupos – aves marinas, atunes, picudos



HYDROPHONE DATA REPOSITORY

Home Research Partners Data News and Events

### Hydra - The Hydrophone Data Repository

Hydra has been recently upgraded! Now upload Vemco VR2, VR2W, and VR3 hydrophone receiver files! Also check out our new query and GIS tools for downloading and viewing tag detections. Watch for an outreach page coming soon. Highlighting our publicly available data.

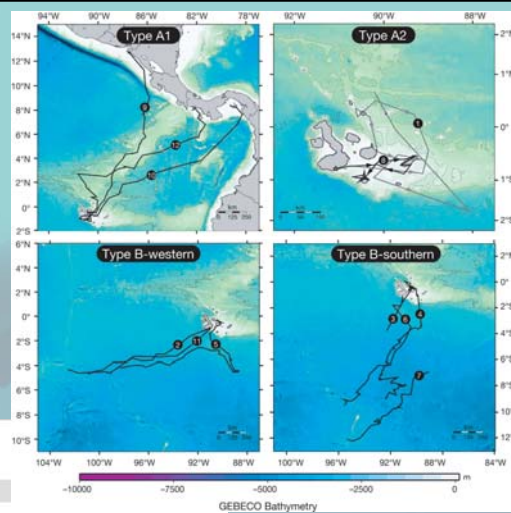
#### The Hydra story

Around the Pacific Northwest, researchers from a variety of federal and local agencies, universities, and tribes in aggregate are using several hundred hydrophones to conduct research studies on movement patterns of aquatic animals. Each program is characterized by numerous tagged animals that move and a relatively limited number of acoustic receivers that are located to address a significant question for individual programs. Importantly, these tagged animals move over larger domains than individual receiver arrays. These researchers have recognized the value of coordinating placement of hydrophones to improve their collective listening capability and ability to address emergent, larger scale management questions. Researchers needed the ability to efficiently share detections of each others tag codes to enable the larger research collaboration. Hydra was developed to facilitate data sharing and research coordination for these researchers.

If you would like to join Hydra please contact: [David@DataManagement.com](mailto:David@DataManagement.com), creators of Hydra.

#### Our data principles

- Hydra ensures data integrity as it joins hydrophone-generated data files with receiver deployments and animal/tag information via an automated protocol.
- Data ownership occurs via tag codes. Researchers can only see detections of tag codes they own or have been shared with them. Tag codes are by default private. Unless a tag owner chooses to share their data, they are solely able to access detections of their tag codes.



El siguiente paso: migración ontogenética?



Costa Rica?

Ecuador ?

Manglares?

