CONSERVATION STATUS AND HABITAT USE OF SEA TURTLES IN THE EASTERN PACIFIC OCEAN

7th Meeting of the IATTC Bycatch Working Group, 5-6 May 2017

Dr. Jeffrey Seminoff, IAC Scientific Committee
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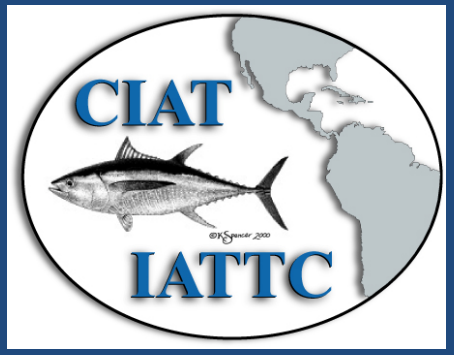
MEMORANDUM OF UNDERSTANDING IATTC – IAC (2011)

OBJECTIVE

To facilitate cooperation between the IATTC and the IAC in order to enhance the conservation of sea turtles in the Eastern Pacific Ocean and reduce incidental by-catch of sea turtle species for IATTC vessels.

MOU Text at:
www.iacseaturtle.org



AREAS OF COOPERATION

IAC and IATTC may maintain consultation and carry out joint cooperative activities:

A) Collecting /analyzing data, exchange information related to incidental by-catch of sea turtles in the IATTC Convention Area

B) Exchange of information regarding management approaches relevant to the conservation of sea turtles

C) Education and awareness programs for fishermen operating in areas where sea turtles may be encountered

D) Research on sea turtle by-catch mitigation measures relevant to fishing operations in the IATTC Convention Area

E) Training programs on conservation techniques and measures to mitigate threats affecting sea turtles

F) Exchange of expertise, techniques and knowledge relevant to the conservation of sea turtles in the IATTC Convention Area

G) Participation in relevant meetings of each organization

"CONSERVATION STATUS AND HABITAT USE OF SEA TURTLES IN THE EASTERN PACIFIC OCEAN"
CIT-CC8-2011-Tec.1
First version 2012, revised 2017

IAC RESOLUTION CIT-COP7-2015-R2

Conservation of the Eastern Pacific Leatherback Turtle (*Dermochelys coriacea*)

STRATEGIC ACTIONS

1. Reduce bycatch of adult and sub adult leatherback turtles in fisheries
2. Identify areas of high interaction with fisheries of more importance for the leatherback survival.
3. Define and protect important areas for the leatherback turtle survival in different life stages.
4. Eliminate any consumption and illegal use of the leatherback turtle, including parts and derivatives, as well as all kinds of capture, transportation and trade.
5. Nesting sites protection.

CONSERVATION STATUS AND HABITAT USE OF SEA TURTLES IN THE EASTERN PACIFIC OCEAN

(CIT-CC8-2011-Tec.1.updated)

INTER-AMERICAN CONVENTION FOR THE PROTECTION AND CONSERVATION OF SEA TURTLES

5 species of sea turtles in the eastern Pacific

Leatherback

Olive Ridley

Loggerhead

Hawksbill

EP green turtle

a.k.a. black turtle

WP green turtle

a.k.a. yellow turtle

Conservation status listings of sea turtles in the eastern Pacific

Common Name	*ESA*	*IUCN*
Olive ridley turtle	Threatened	Vulnerable
Loggerhead turtle	Endangered*	Vulnerable
Green turtle	Threatened**	Endangered
Hawksbill turtle	Endangered	Critically Endangered
Leatherback turtle	Endangered	Critically Endangered

CONSERVATION STATUS AND HABITAT USE OF SEA TURTLES IN THE EASTERN PACIFIC OCEAN

Nesting biology & distribution

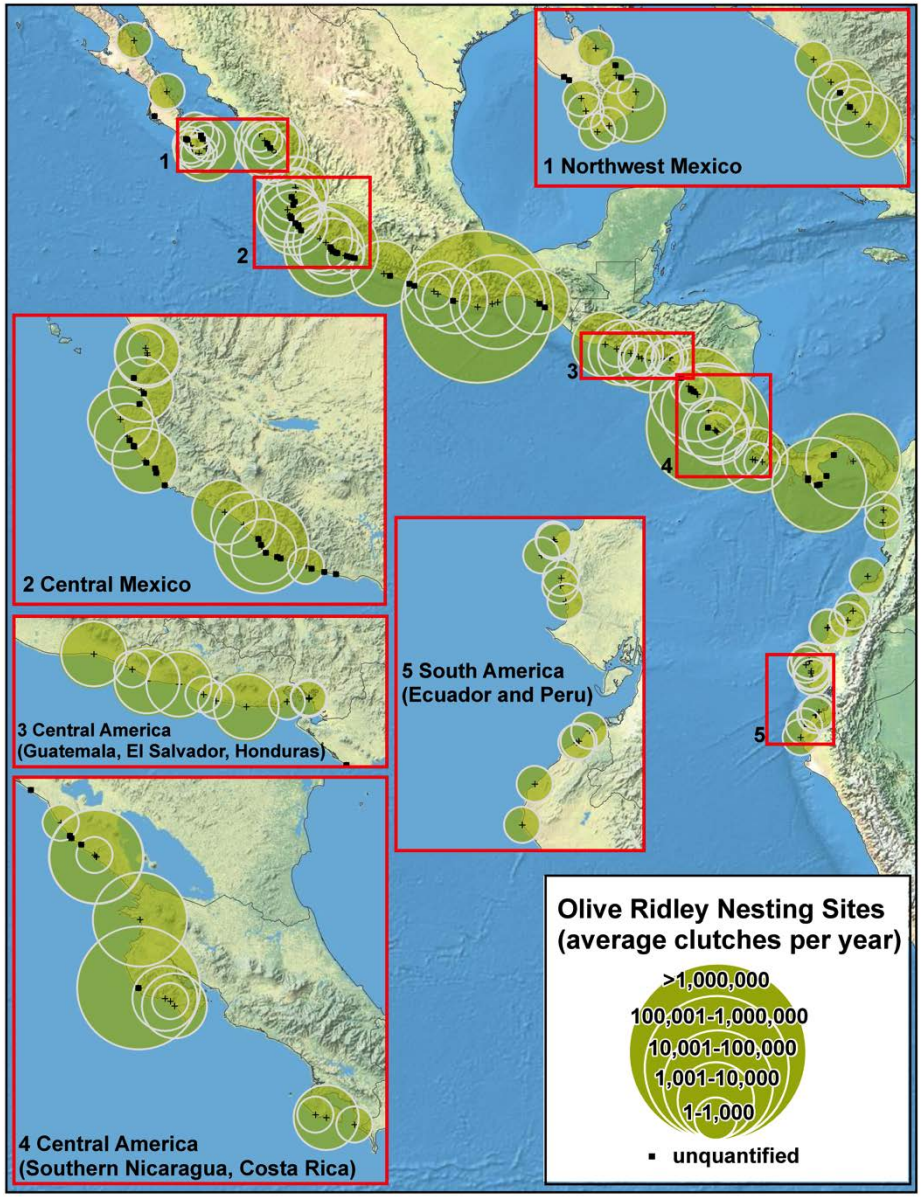
In-water biology & distribution

Abundance and trends

Conservation status

Olive ridley, golfina / Lepidochelys olivacea

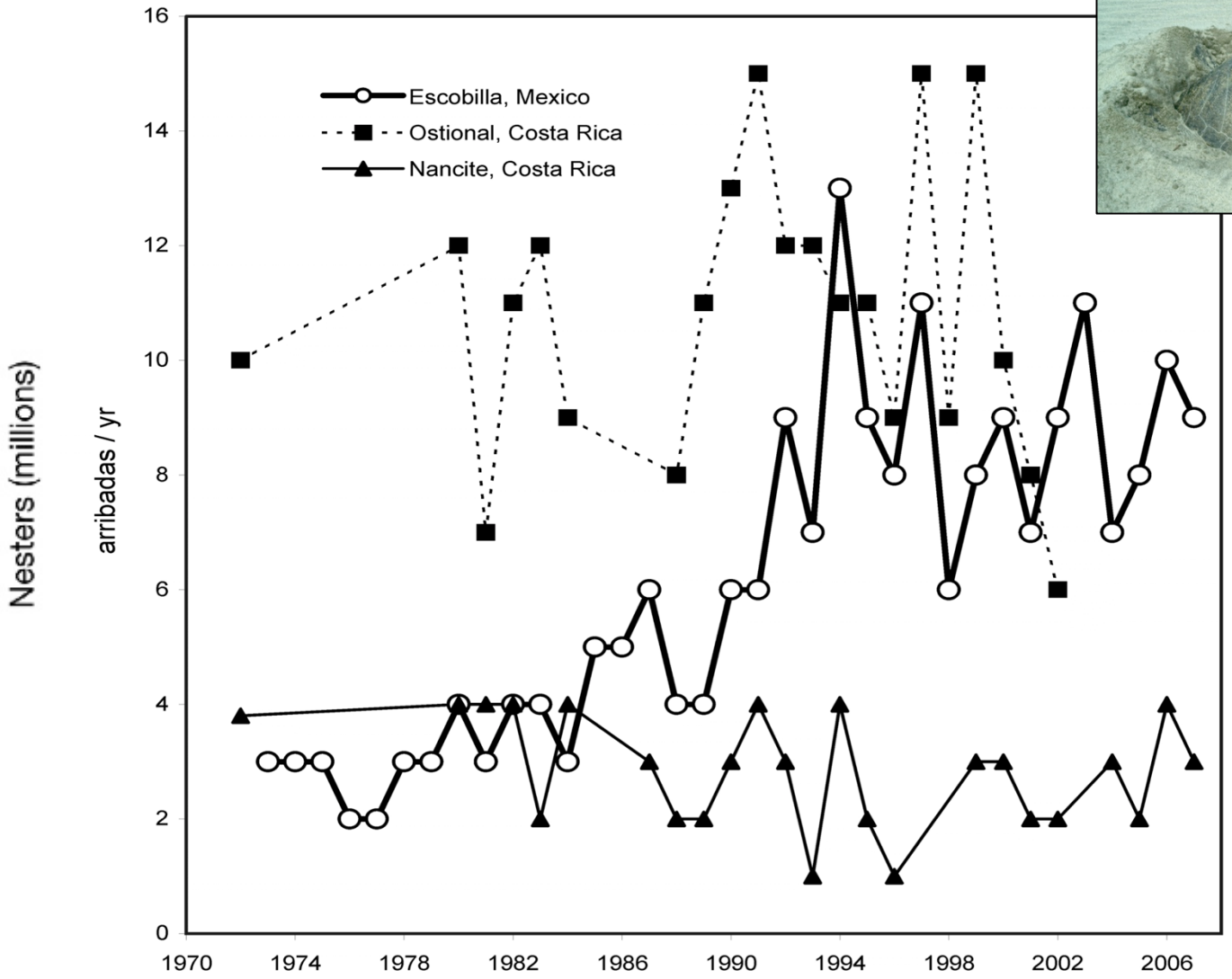
- Long-term monitoring at many sites
- Solitary nesters and arribada nesters
- Mexico / Costa Rica host two largest arribada sites. Others in Panama
- Stable to increasing trends ongoing throughout range, some sites decreasing
- IUCN: **Vulnerable** (global)
- ESA: **Threatened** (global)



At-sea sightings

Sightings of olive ridley turtles in the eastern Pacific from 1993-2015. (IATTC Observer) database, Hall and Roman, pers. comm.)

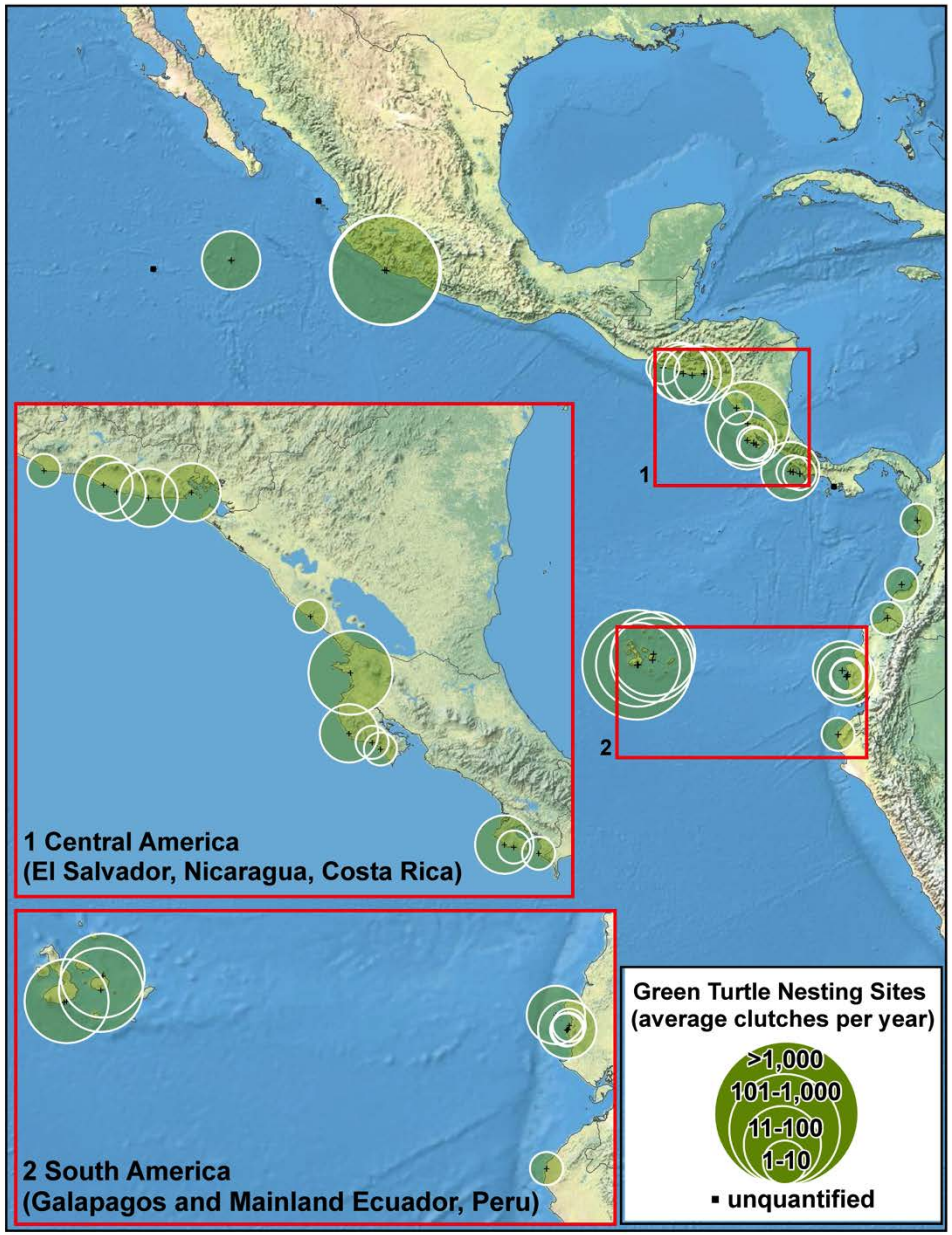
Nesting trends



Change in nesting arribada abundance for olive ridley turtles at three major arribada sites in the eastern estimated nesting abundance of two major olive ridley nesting populations from the eastern Pacific (Plotkin et al. 2012)

Green, black turtle, prieta / Chelonia mydas

- Long-term monitoring at sites in Michoacán, Mexico, and Galapagos Islands (4 sites)
- Increasing trend in Michoacán
- IUCN: **Endangered** (global)
- ESA: **Threatened** (Eastern Pacific)
- Action: ESA Assessment in 2015



At-sea sightings

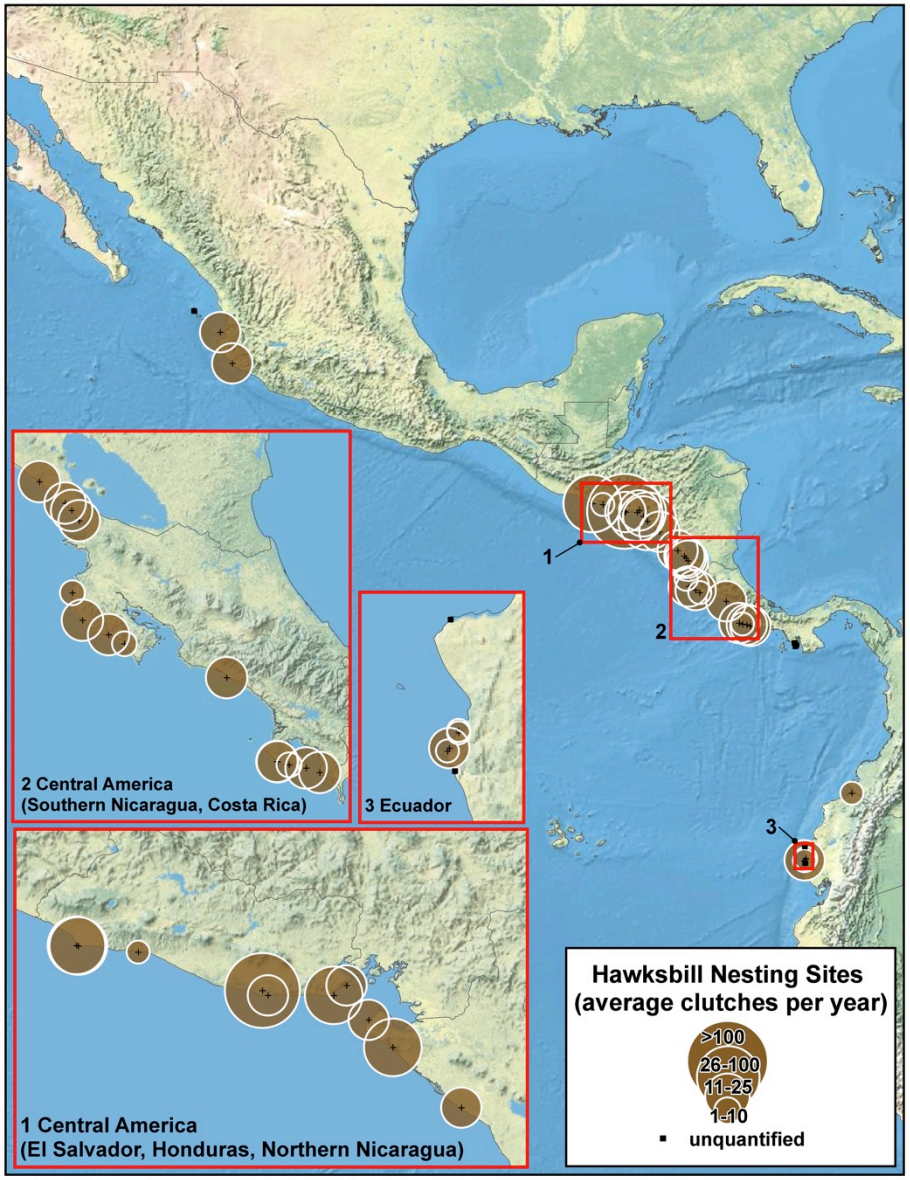
Sightings of green / black turtles in the eastern Pacific from 1993-2015. (IATTC Observer) database, Hall and Roman, pers. comm.)

Nesting trends

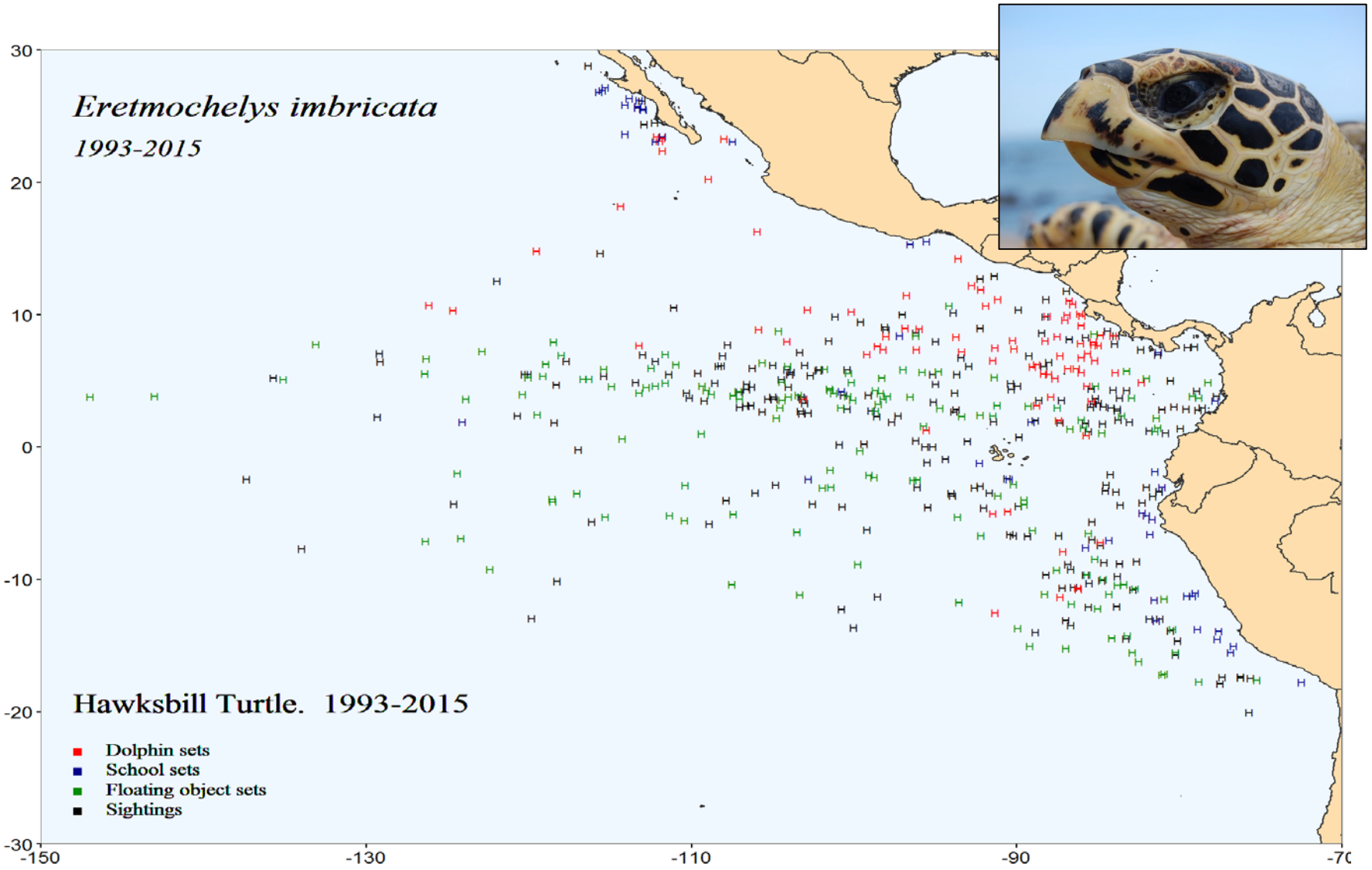
Playa Colola, Michoacán, México

Hawksbill, carey / Eretmochelys imbricata

- No long-term nesting data
- Largest rookeries in →
  El Salvador (~300 nests/year)
  Nicaragua (~250 nests/year)
- IUCN: **Critically Endangered** (global)
- ESA: **Endangered** (global)
- Action: IAC resolution, new projects throughout region



At-sea sightings



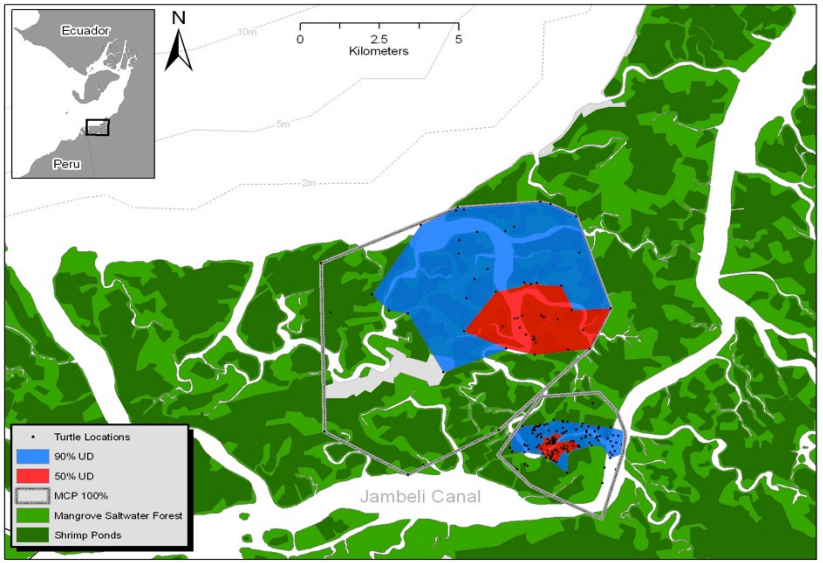
Sightings of hawksbill turtles in the eastern Pacific from 1993-2015. (IATTC Observer) database, Hall and Roman, pers. comm.)

Gaos et al. 2011

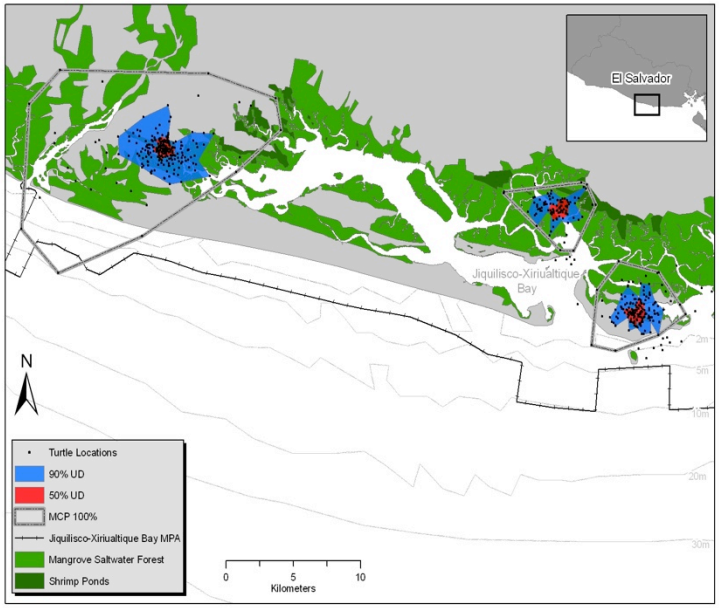
Unique habitat use

Foraging in mangrove estuaries

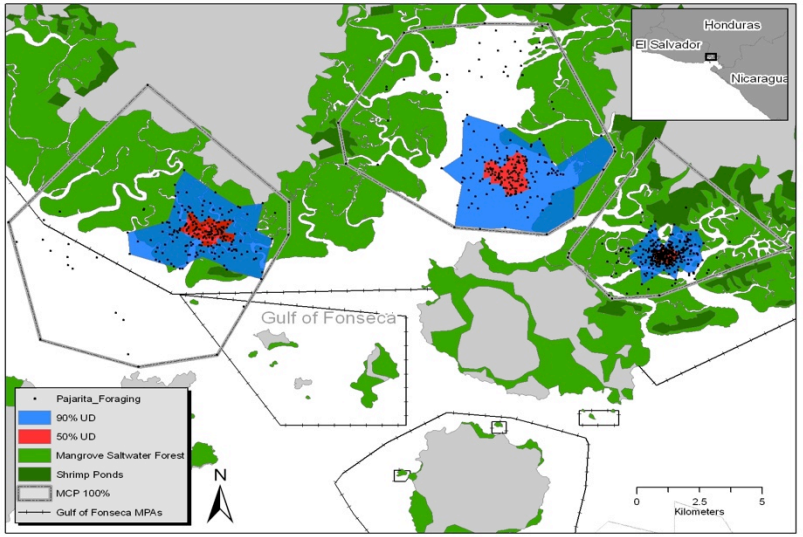
Gulf of Guayaquil, Ecuador



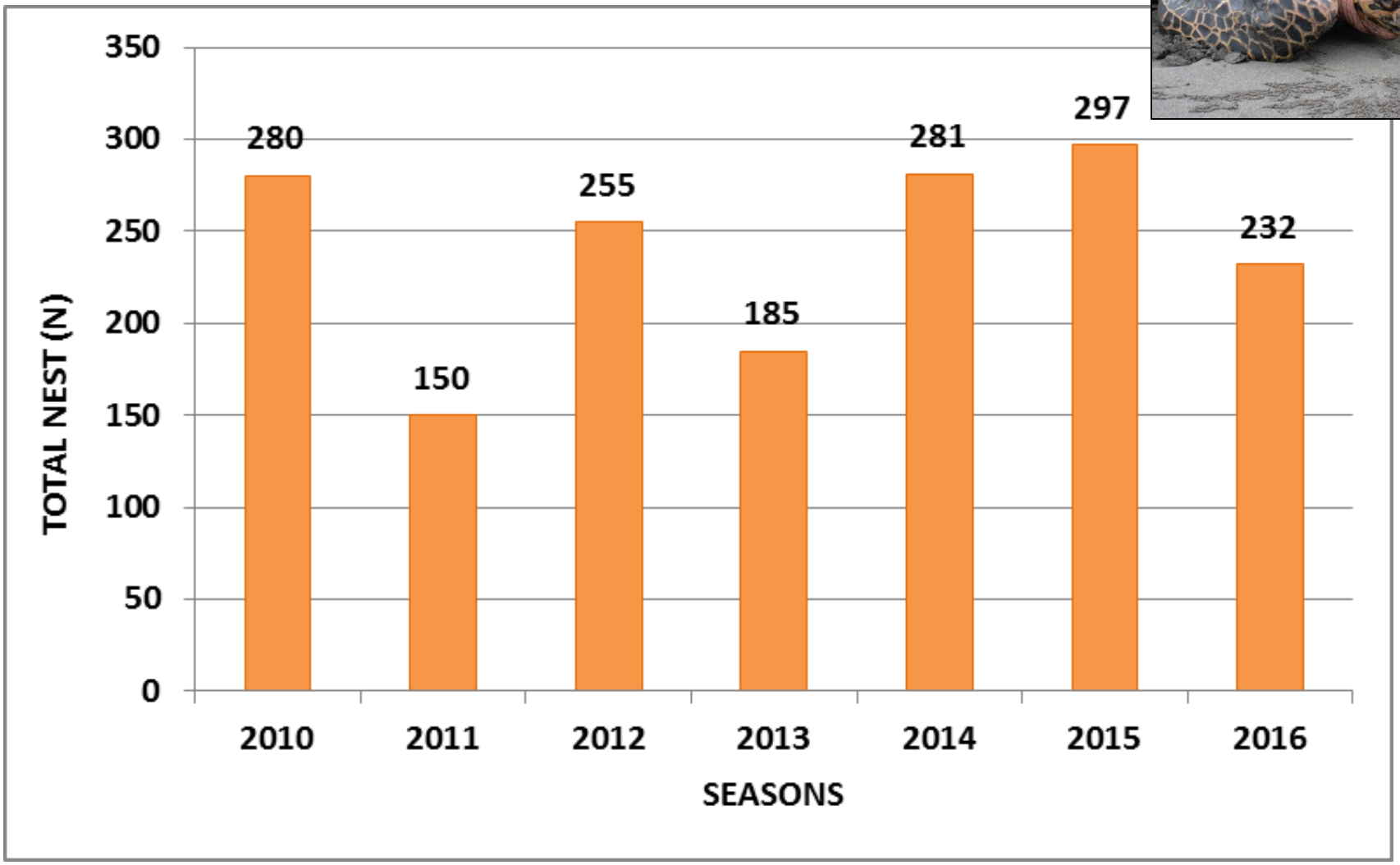
Jiquilisco Bay, El Salvador



Gulf of Fonseca, Honduras

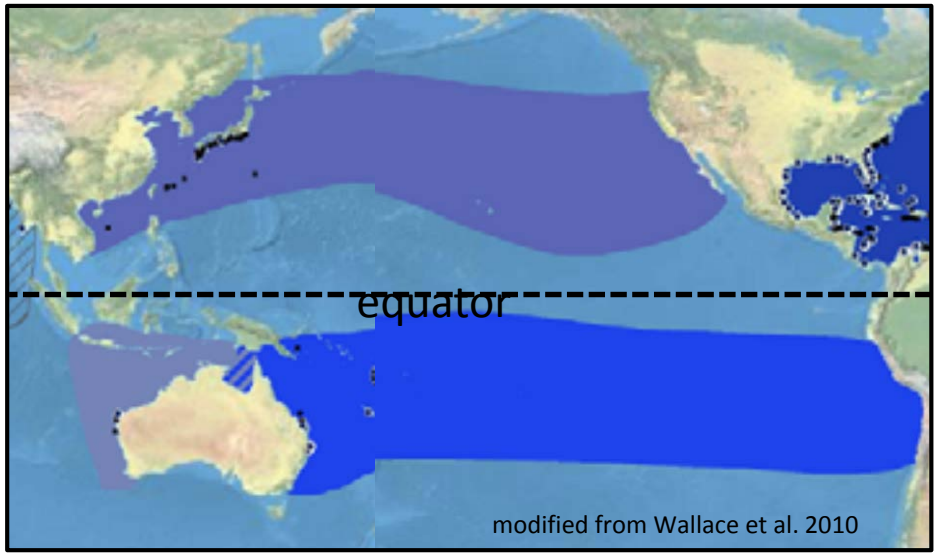


Nesting trends



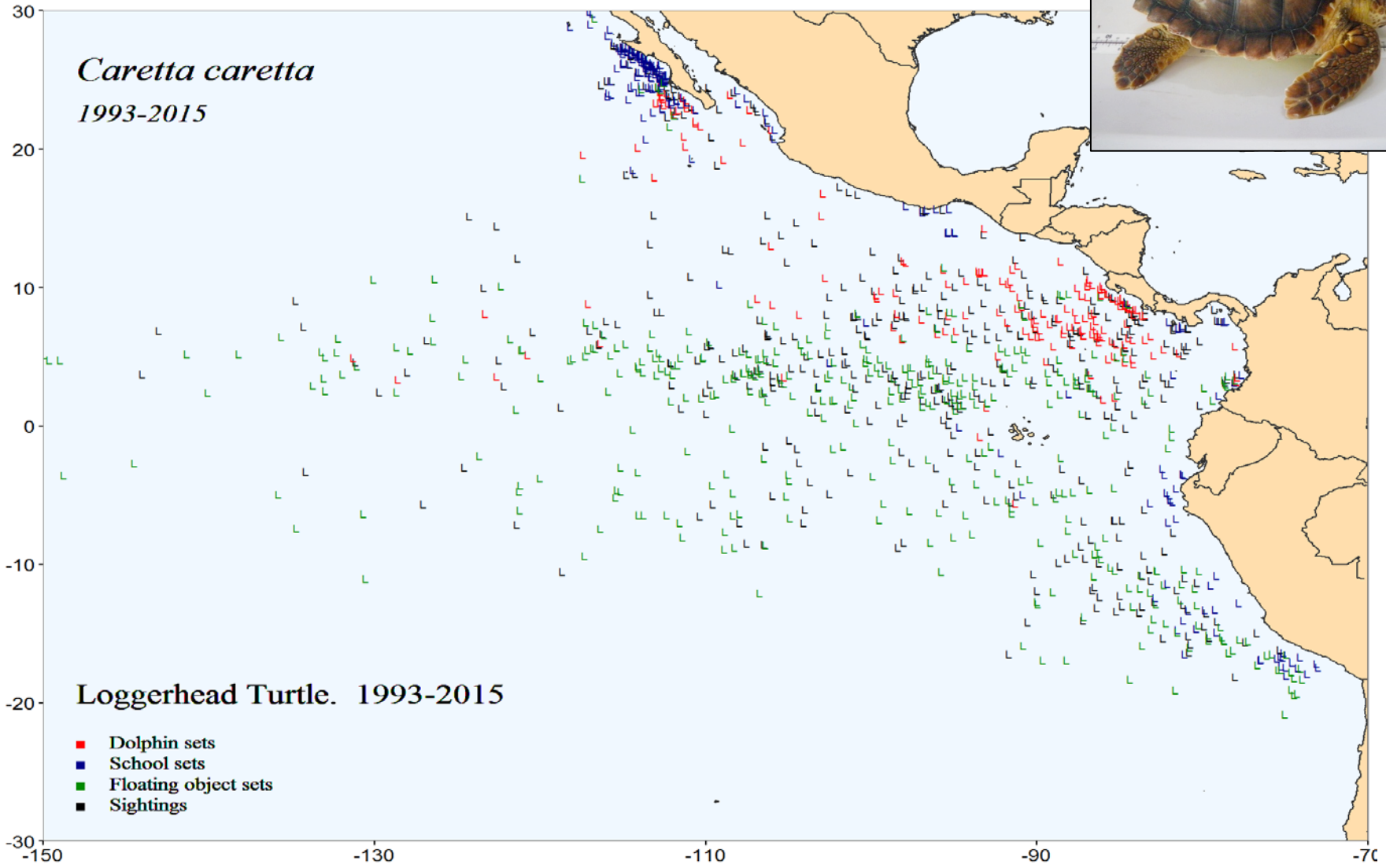
Annual hawksbill nests deposited along the Pacific coast of **Nicaragua** since 2010 at Estero Padre Ramos y Estero Aserradores, (data from Velkiss Gadea, FFI-Nicaragua).

Loggerhead, amarilla, cabezona / Caretta caretta



- Long-term monitoring at multiple sites in Japan and Australia
- Depleted nesting populations in both countries relative to historic levels
- Short-term increase in Japan
- IUCN: **Vulnerable** (global); **Least Concern** (N Pac); **Critically Endangered** (S Pac)
- ESA: **Endangered** (N Pac & S Pac)

At-sea sightings



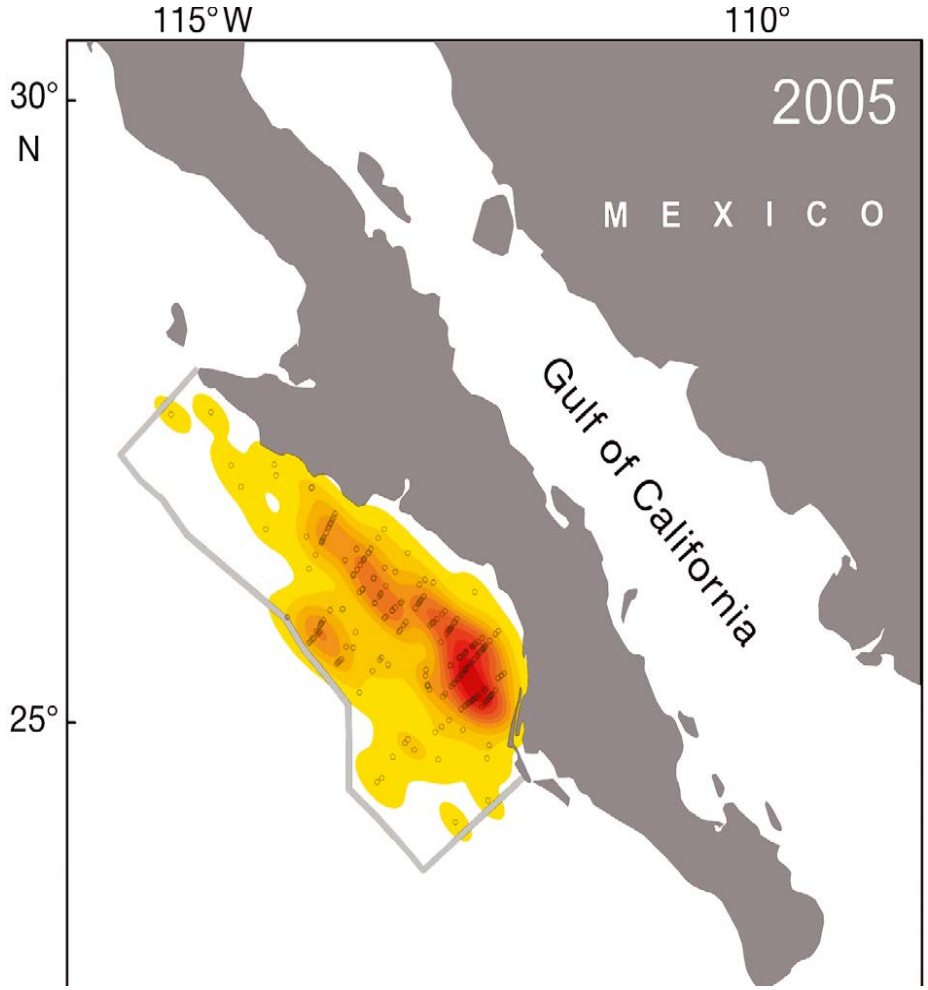
Apparent sightings of loggerhead turtles in the eastern Pacific from 1993-2015. (IATTC Observer) database, Hall and Roman, pers. comm.)

At-sea sightings

Apparent sightings of loggerhead turtles in the eastern Pacific from 1993-2015. (IATTC Observer) database, Hall and Roman, pers. comm.)

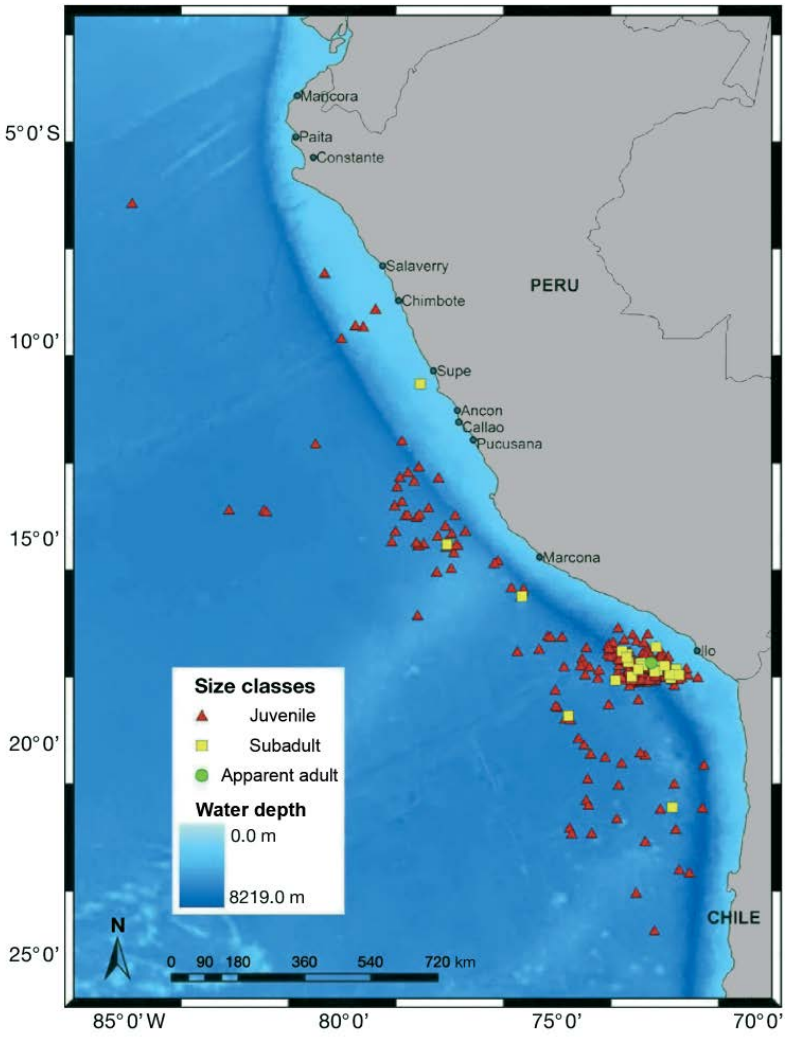
Loggerhead hotspots in the Eeastern Pacific

Hotspot in NE Pacific
based on aerial surveys



Seminoff et al. (2014) ESR

Hotspot in SE Pacific
based on fisheries interactions

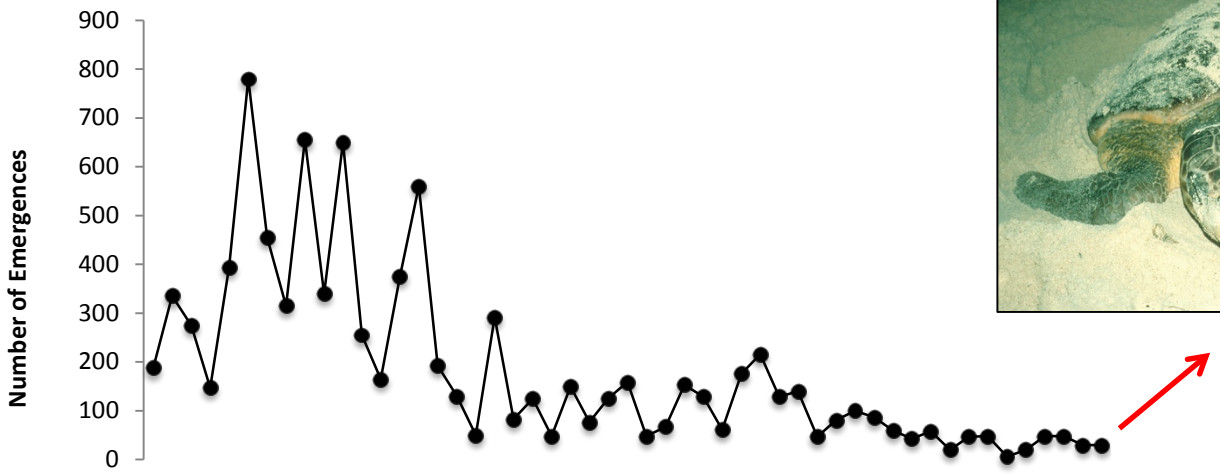


Alfaro-Shigueto et al. (2007) ESR

Nesting trends

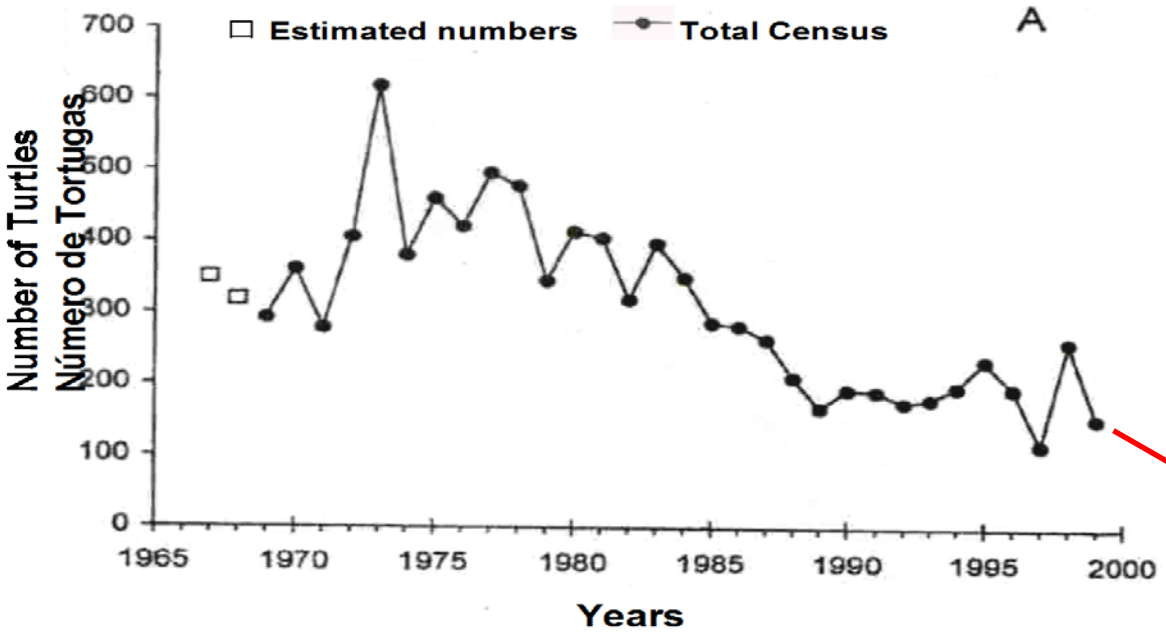
Kamouda Beach

(Japan)



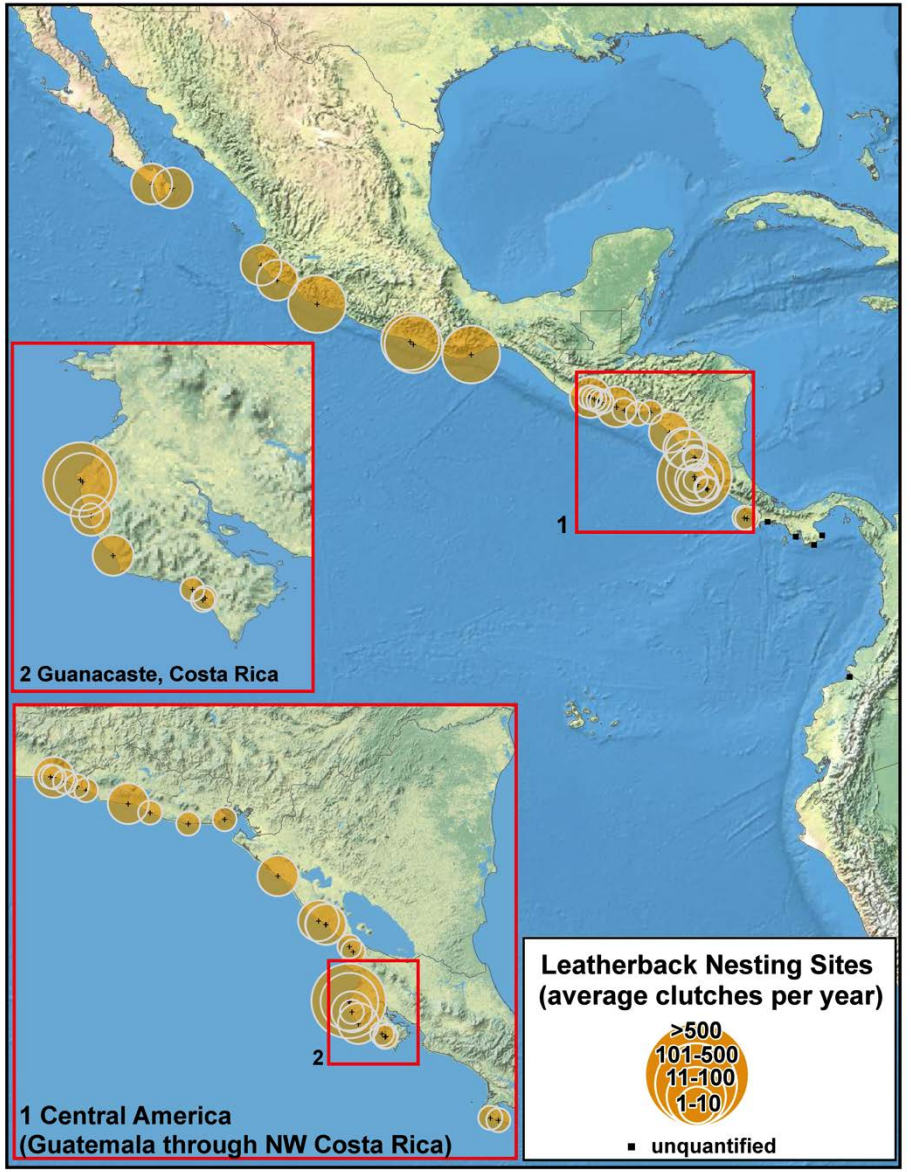
Bundaberg Beach

(Australia)



Leatherback, laúd, baula / Dermochelys coriacea

- Long-term monitoring at 4 primary sites in Mexico, and at Playa Grande, CR
- Population crash at all EP sites
- IUCN: **Vulnerable** (global), **Critically Endangered** (Pacific Ocean)
- ESA: **Endangered** (global)
- Action: IAC resolution, US critical habitat



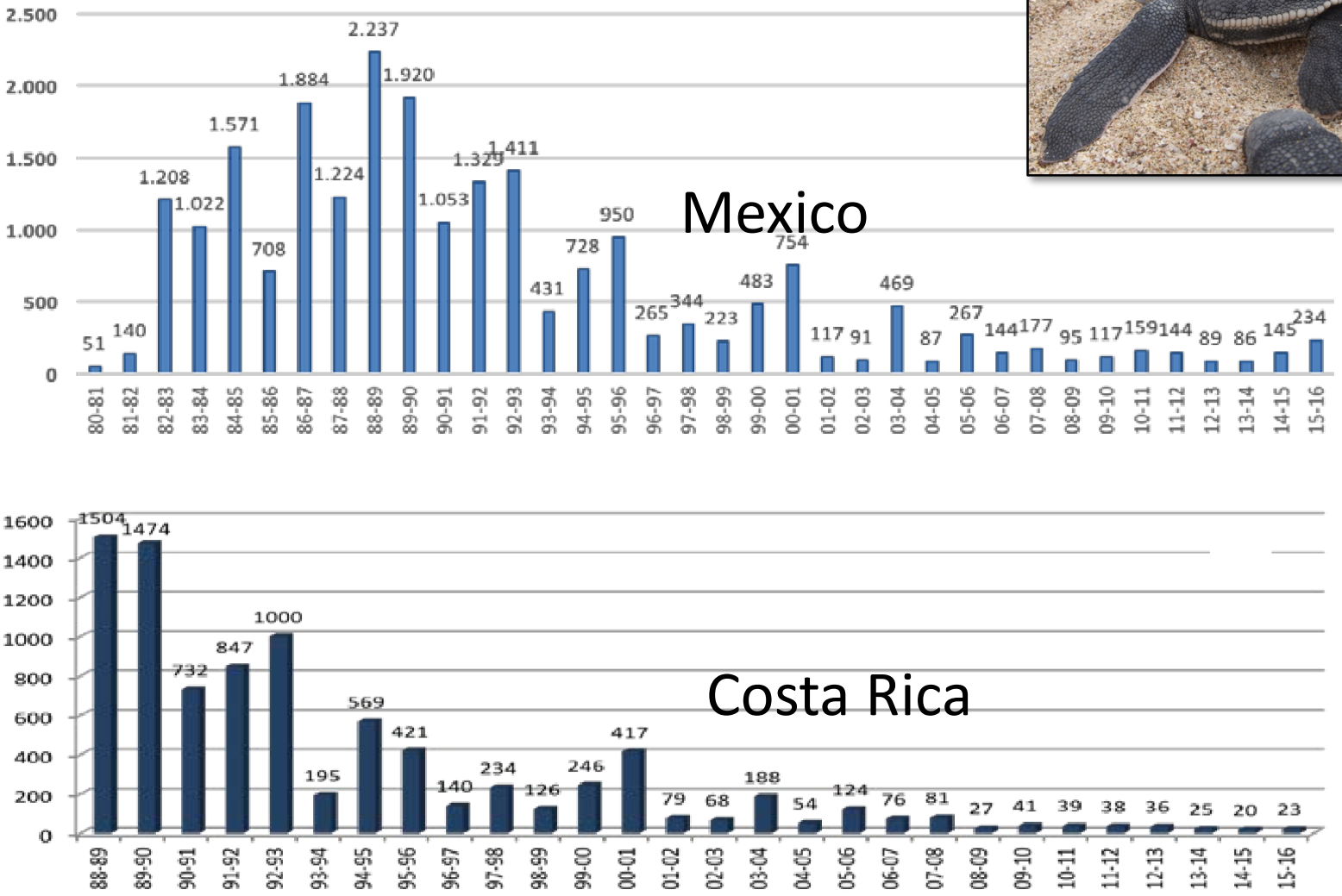
Long-distance migrations

Satellite-tracked movements of 135 leatherback turtles in the Pacific Ocean.
Figure from Bailey et al. 2012 and includes tracks from Scott Benson and colleagues

At-sea sightings

Sightings of leatherback turtles in the eastern Pacific from 1993-2015. (IATTC Observer) database, Hall and Roman, pers. comm.)

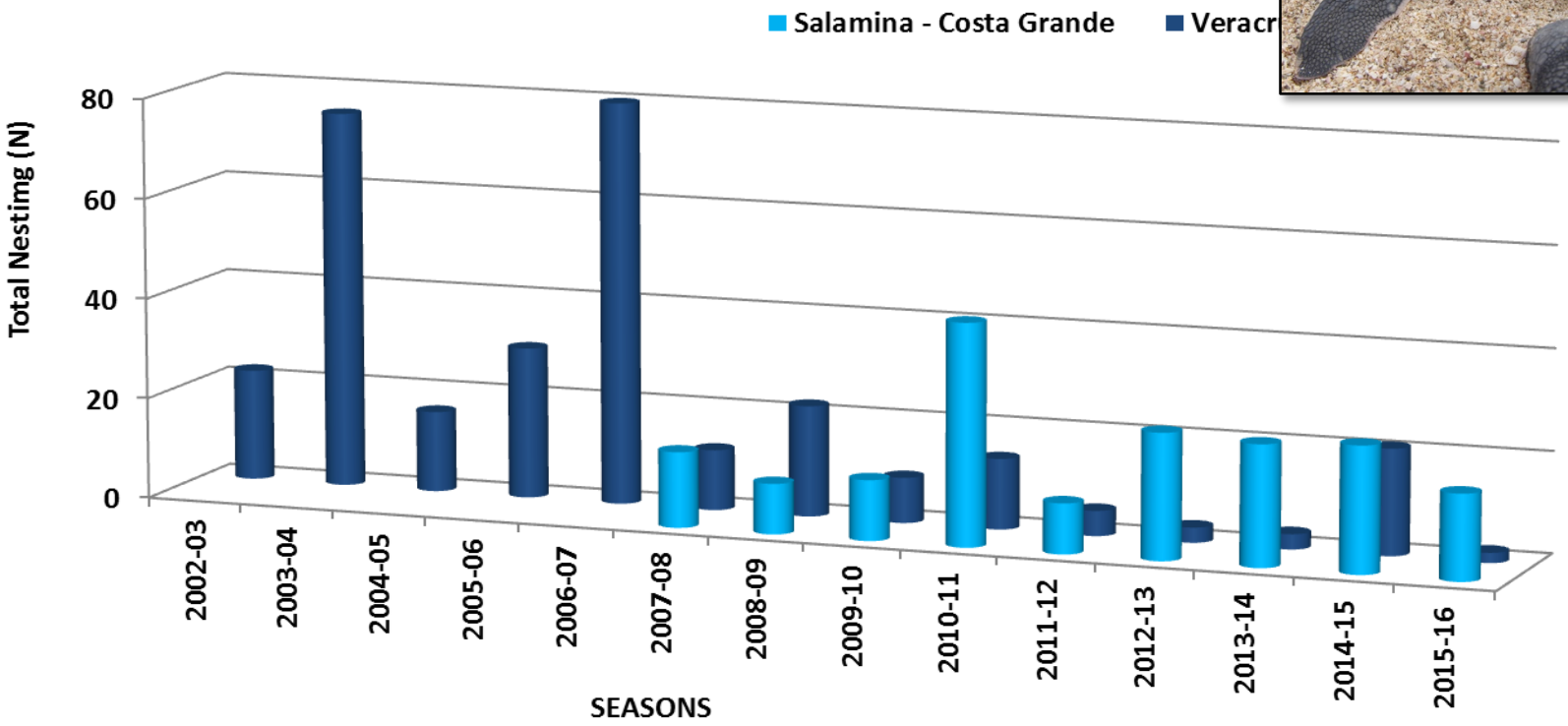
Nesting trends



Total number of females per season. **Top:** 4 index beaches in Mexico (data from CONANP / Kutzari); **Bottom**: Las Baulas National Park, CR (data from TLT, KUEMAR, SINAC).

Nesting trends

Nicaragua



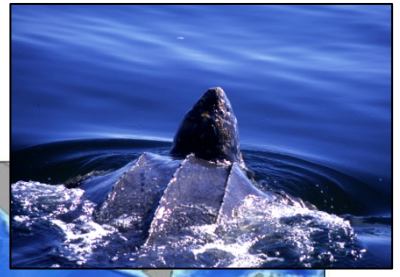
	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Salamina - Costa Grande						15	10	12	44	10	25	24	25	17
Veracruz de Acayo	22	75	16	30	80	12	22	9	14	5	3	3	21	2

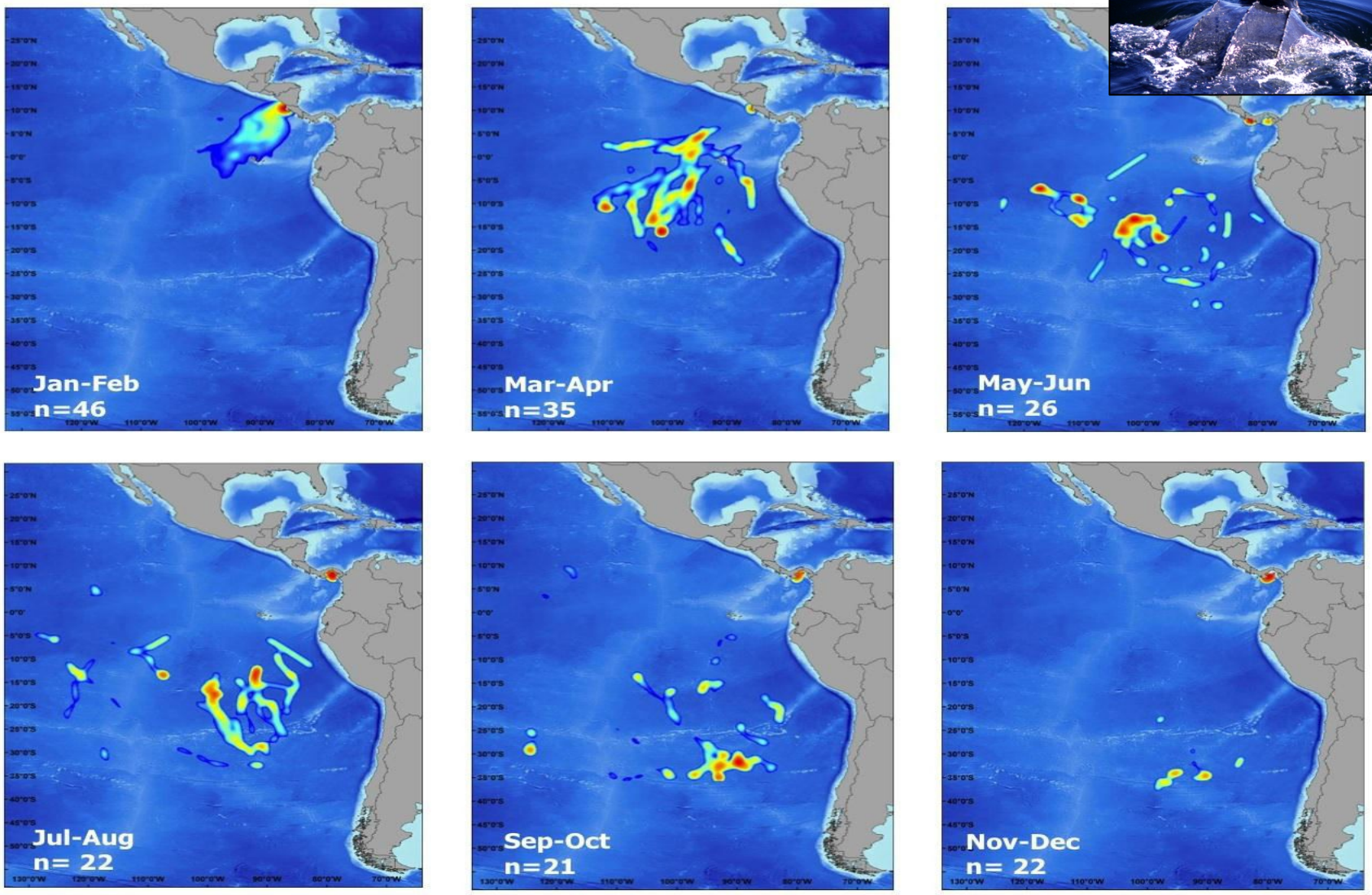
Total number of leatherback nests along the Pacific coast of Nicaragua since the 2002-03 at Veracruz de Acayo and Salamina-Costa Grande beaches (data from Velkiss Gadea, FFI)

Inter-nesting movements

Internesting area for leatherbacks nesting at Parque Nacional Marino Las Baulas (PNMB), Costa Rica. Map from Shillinger et al. (2010).

High use areas by month





High use areas by month for leatherback sea turtles nesting at Playa Grande, Costa Rica (Shillinger et al. 2008, Shillinger unpubl. data).

RECOMMENDATIONS

1. Establish a permanent bycatch working group comprised of members of the IATTC Scientific Advisory Committee, the IAC Scientific Committee, and relevant experts. The duties of this working group should include (but not be limited to): regularly assess patterns of sea turtle bycatch; identify areas of overlaps between fishing activities and marine turtle habitats, and; provide feasible recommendations for future bycatch reduction strategies.

2. Enhance on-board observer coverage of longline and purse-seine fishing effort to collect additional data on sea turtle bycatch.

3. Develop a pilot study that tests the efficacy and cost-effectiveness of electronic monitoring on longline vessels as tools for monitoring potential bycatch of marine turtles and other species of conservation concern. Expand the program based on results of the pilot.

4. Test bycatch reduction mitigation measures, including testing mitigation actions in passive nets (e.g. light sticks/net illumination, reducing net soak time, lowering the net buoy line and using best practices for setting and retrieving nets), and implement appropriate mitigation methods that will be used by appropriate type of fleet and gear with emphasis in the areas with the most probability of interaction with sea turtles.

RECOMMENDATIONS

5. Consider marine areas beyond national jurisdiction in marine turtle conservation planning. This requires establishing marine spatial management tools including large-scale marine protected areas in areas beyond the Member States national jurisdiction.

6. Near coastal areas that have been identified as inter-nesting habitat for sea turtles, especially leatherbacks, promote alternative livelihoods other than gill netting for the months during which sea turtles nest in the area.

7. Implement inexpensive gear modification and measures to reduce entanglement of sea turtles in fisheries that use floating lines made from polyester or polypropylene fibers.

8. Take measures necessary to ensure that longline vessels carry on board the necessary equipment (e.g. de-hookers, line cutters and scoop nets) for appropriate release of incidentally caught sea turtles.

9. Fortify national training programs to instruct fishermen on how to reduce sea turtle bycatch and provide training on safe handling and release of incidentally caught turtles to improve their probability of post-capture survival.

10. Prepare booklets, videos, and other outreach material about best practices that could help increase post-capture survival of sea turtles incidentally caught. Circulate these materials among the fisheries sector to facilitate their implementation.

RECOMMENDATIONS

11. At national and regional scales, determine the feasibility and effectiveness of replacing J-hooks with large circle hooks with whole-fin fish bait a measure to reduce sea turtle bycatch.

12. In collaboration with IAC, organize technical workshops in the range countries of the EP Leatherback to prioritize specific monitoring and mitigation measures addressing the threats of EP Leatherbacks. It is suggested that for each technical meeting relevant government agencies, academic institutions, and civil society be invited in order to identify and agree upon potential actions. During these national workshops, the convenience to establish temporal/spatial management measures in the high priority areas identified by the EP Leatherback Action Plan and the IAC Leatherback Task Force should be discussed in order to reduce bycatch threats to the population while considering, social, economic, and political implications.

11. Maintain and support monitoring of primary nesting beaches for all species that nest along the Pacific coast of the Americas, as described above.

11. Increase the awareness that mangrove estuaries are important in both fisheries production and also serve as vital habitats for sea turtles, especially hawksbills in the eastern Pacific. Therefore, it is recommended that conservation efforts of mangrove estuaries be improved.

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