

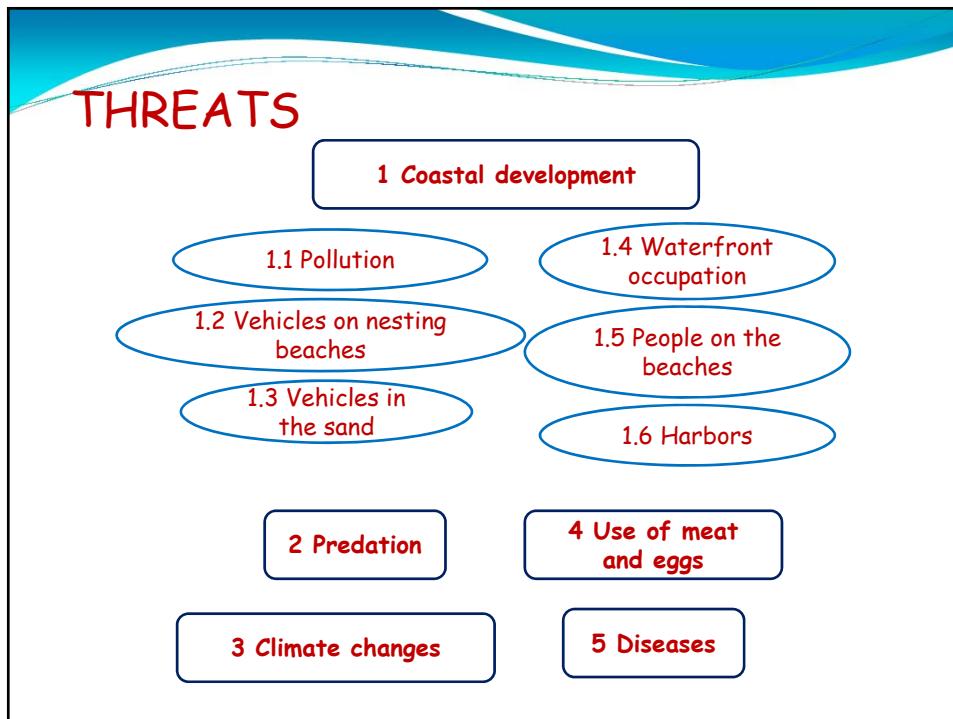
Praia do Leão (Fernando de Noronha/PE)



Atol das Rocas/RN



Foto: Eliana R. Matushima



FIBROPAPILLOMATOSIS (FP):
one of the most important threats against green sea turtles



Multifactorial and complex etiology

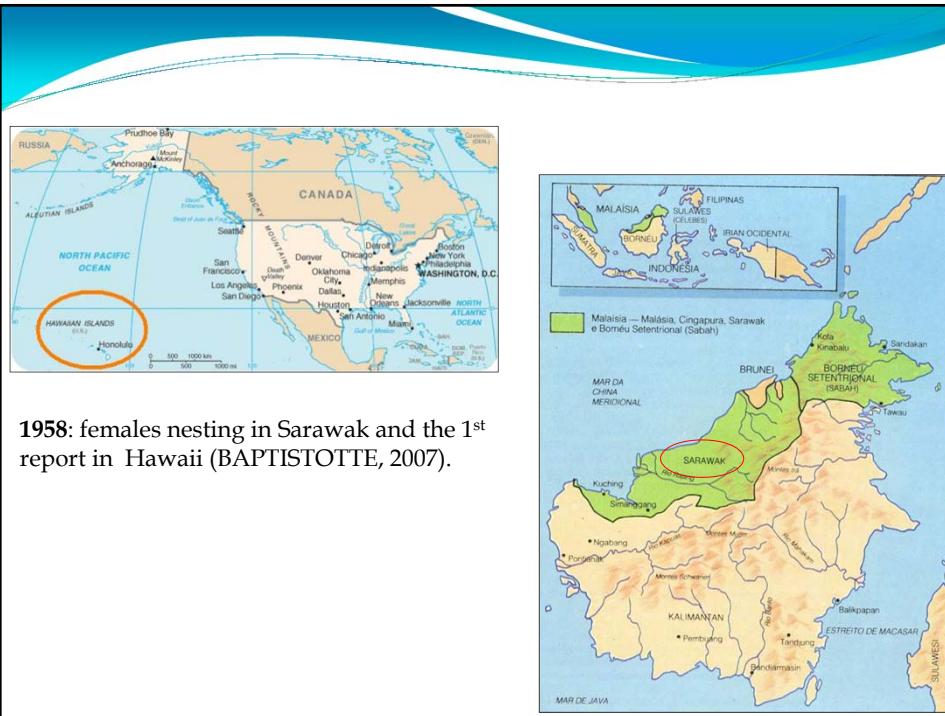
- Chelonid Fibropapilloma-associated Herpesvirus,
- Genetic factors,
- Environmental factors : organochlorine compounds and heavy metals.

REPORTS

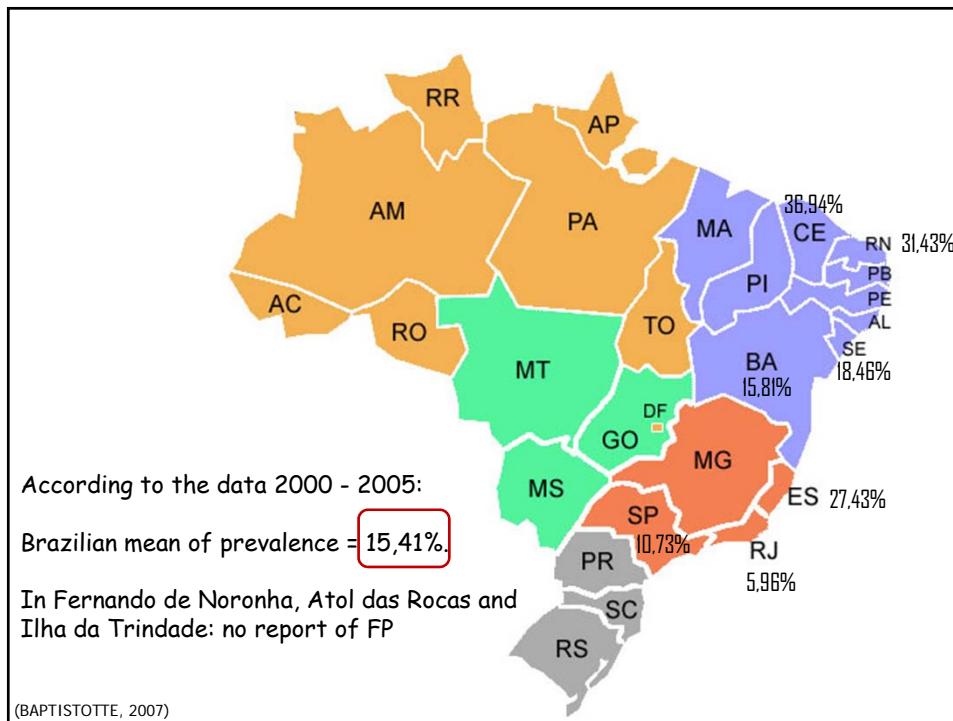
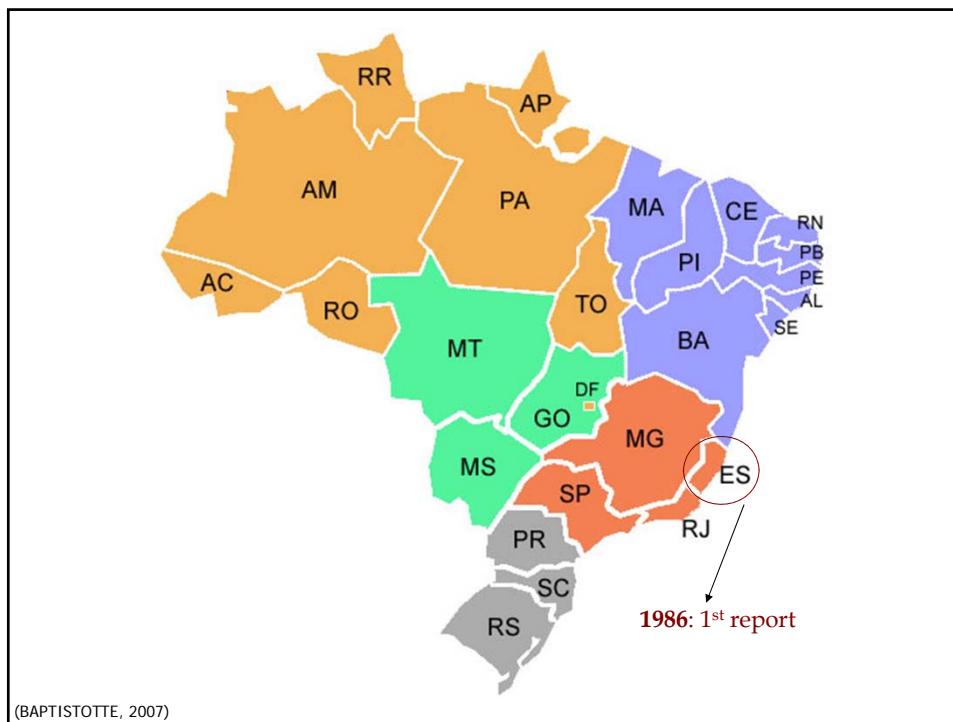
1936: 1st report (Aquarium of New York)

1938: 1st report in Key West

(BAPTISTOTTE, 2007)



1958: females nesting in Sarawak and the 1st report in Hawaii (BAPTISTOTTE, 2007).



Body Condition Index (BCI)

BCI: an accurate indicator for body condition that can be used appropriately as a part of routine green sea turtle health evaluation.

➤ Biometric data:

- ✓ Curved Carapace Length (CCL),
- ✓ Curved Carapace Width (CCW),
- ✓ Body Mass (BM),
- ❖ Straight Carapace Length (SCL) was extrapolated from CCL.

$$\text{BCI} = \text{BM} / \text{SCL}^3$$

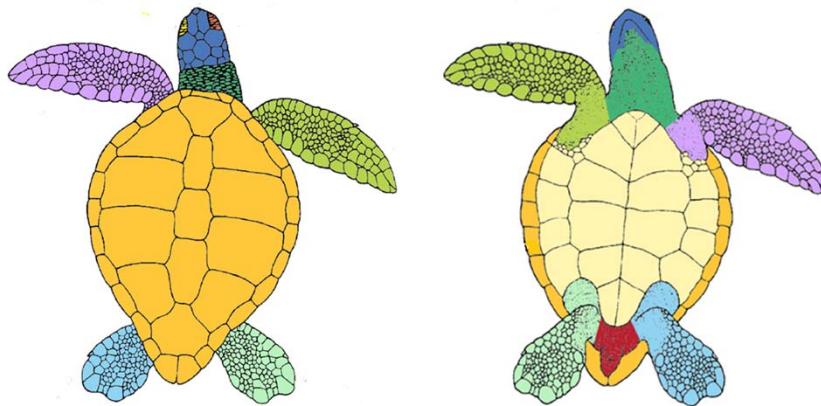
JEMINOFF et al. (2003)

Proposal to objectively classify
FP severity in sea turtles
considering number and size of
tumors

Categories	Size
A	< 1 cm
B	1 cm ≤ tumor ≤ 4 cm
C	4 cm < tumor ≤ 10 cm
D	> 10 cm

Work & Balazs (J. Wildl. Dis. 35:804-807, 1999)

Anatomic regions:



FPI and Score

The number of tumors in each size category has been used to calculate a new fibropapillomatosis index (FPI) for each individual:

$$\text{FPI} = (1 \times \text{FP}_A) + (2 \times \text{FP}_B) + (4 \times \text{FP}_C) + (8 \times \text{FP}_D)$$

FP_x = number of tumors of the x size category

FPI	Score	Severity
< 50	1	mild
50 ≤ FPI < 100	2	moderate
$\text{FPI} \geq 100$	3	severe

Antomic regions	Categories of size			
	A	B	C	D
Righ eye				
Left eye				
Head				
Cervical				
Carapace				
Plastron				
Right anterior flipper		4		1
Left anterior flipper	1	5		1
Right posterior flipper	2	1		
Left posterior flipper	1	1		
Inguinal				
T39	$\text{FPI} = (1 \times \text{FP}_A) + (2 \times \text{FP}_B) + (4 \times \text{FP}_C) + (8 \times \text{FP}_D)$			
CCL = 57,5 cm	$\text{FPI} = (1 \times 4) + (2 \times 11) + (4 \times 0) + (8 \times 2)$			
CCW = 52,5 cm	$\text{FPI} = 42$			
BM = 12,6 Kg	Score 1 (mild)			



IN BRAZIL	
REGION	% OF TUMORS
anterior flippers	44.12%
posterior flippers	29.36%
cervical	11.51%
plastron	4.97%
near/in the eyes	4.16%
inguinal and tail	3.22%
carapace	1.79%
head	0.88%

AIMS

to elucidate the relations between *C. mydas* population and the role of population structure, CFPHV and environmental pollutants in the development of disease.

- ✓ to assess the leukocytes activity by flow cytometry;
- ✓ to monitor the polychlorinated biphenyls (PCBs) presence in blood samples by gas chromatograph;
- ✓ to establish correlations between cell activity and PCBs concentrations;
- ✓ to monitor the organochlorines pesticides (Ocs) in liver and fat by gas chromatograph;
- ✓ to investigate presence of heavy metals and how they interfere in the health of turtles and the development of the disease;
- ✓ to determine the structure of *C. mydas* populations from feeding areas and associate with CFPHV, heavy metals and development of the disease;
- ✓ to detect and characterize the herpesvirus genic sequence associated with FP (CFPHV) by molecular methods and classic methods of virologic and histopathologic diagnosis.

1 STUDY AREA



Edited by Ralph E. T. Vanstreels.

2 CATCHS



Cast net: Vitória/ES



In Florianópolis/SC: floating sieve.

In Ubatuba/SP:

1. Network gillnet,
2. Floating,
3. Stranded,
4. Dive,
5. Hook,
6. Floating sieve.



Incidental capture: "currall" in
Almofala/CE

2 CATCHS



Photos: Angélica M. S. Sarmiento



Dive: Fernando de Noronha/PE

3 BIOMETRIC DATA



Photos: Angélica M. Sarmiento

4 SAMPLE COLLECTION



Photos: Angélica M. S. Sarmiento and Silmara Rossi

ACKNOWLEDGEMENTS



Universidade de São Paulo



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GPA

Grupo de Pesquisa em Química Verde e Ambiental

