



# **Sea Turtle Conservation in Ubatuba, Southeastern Brazil**



**José Henrique Becker**

**Fundação Pró-Tamar, Ubatuba, SP**

**WIDECAST Annual Meeting, March 2019**

# Ubatuba, São Paulo, Brazil



# Ubatuba, São Paulo, Brazil



# "Not everything caught by the fishing net is fish"

- Tamar started its activities in Ubatuba in 1991;
- Bycatch awareness campaigns with fishing communities;
- Bycatch incidents are always registered;



As tartarugas marinhas podem morrer afogadas nas redes de pesca. Você pode ajudar a salvá-las!



VENHAM CÁ, PEIXINHO!!!



MINHA NOGA!!! UMA TARTARUGA!!!

COFF!!! ARREGG!!! COFF!!!

ATENÇÃO!

Se ela estiver se mexendo, solte-a. A natureza agradece. Se ela estiver mole ou aparentemente morta, você pode salvá-la:

- Coloque a tartaruga na sombra com a cabeça mais baixa que o resto do corpo.
- Se possível, coloque um pano úmido sobre o casco.
- A tartaruga pode demorar muitas horas para se recuperar.
- Quando ela estiver se mexendo libere-a ao mar.

Apenas após 24 h sem se mexer a tartaruga pode ser considerada morta.

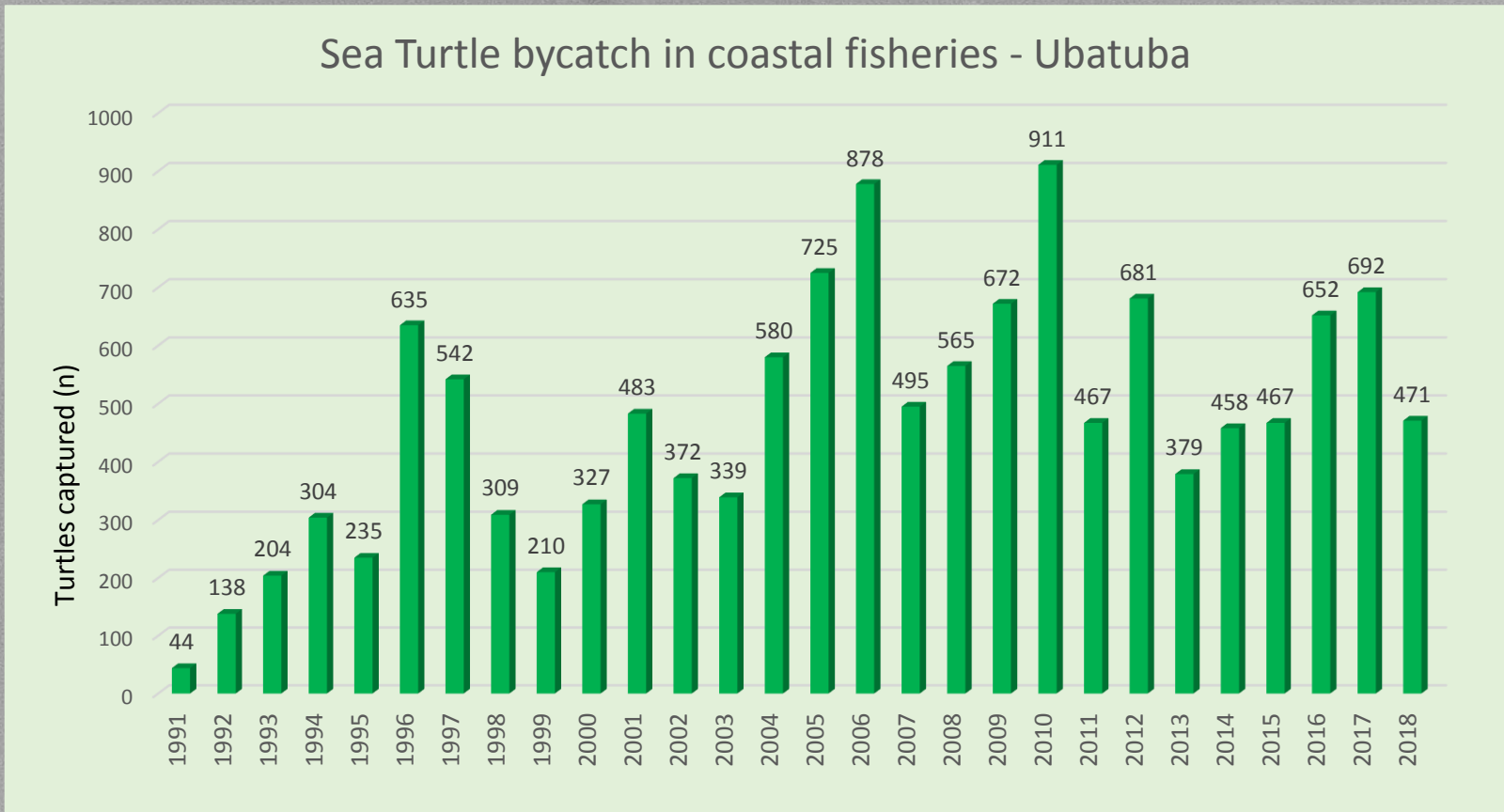
ME PERDOE, NINHA!  
VÓU FALAR COM MEUS AMIGOS PRA BUSCARMOS OUTRAS FORMAS DE PESCA LEGAL.  
NEM TUDO QUE CAI NA REDE É PEIXE.

PROJETO TAMAR 35 ANOS

Patrocinio oficial:



“Not everything caught by the fishing net is fish”  
Ubatuba/SP



13,235 sea turtles were incidentally captured in artisanal fisheries in Ubatuba, from 1991 to 2018.

# Sea turtle species caught in artisanal coastal fisheries, in Ubatuba

*Chelonia Conservation and Biology*, 2006, 5(1): 93-101  
© 2006 Chelonia Research Foundation

Sea Turtle Conservation in Ubatuba, Southeastern Brazil,  
a Feeding Area with Incidental Capture in Coastal Fisheries

BERENICE M.G. GALLO<sup>1</sup>, SUAMI MACEDO<sup>2</sup>, BRUNO DE B. GIFFONI<sup>1</sup>,  
JOSÉ HENRIQUE BECKER<sup>1</sup>, AND PAULO C.R. BARATA<sup>3</sup>



*Chelonia mydas*



*Caretta caretta*



*Eretmochelys imbricata*



*Lepidochelys olivacea*

# Artisanal fisheries in Ubatuba “Uncoverde Pound nets” or “set nets”



# Artisanal fisheries in Ubatuba – “gillnets”





# Artisanal fisheries in Ubatuba “shrimp trawlers”



# Mortality rates of *Chelonia mydas* in artisanal coastal fisheries, in Ubatuba

POUND NETS	Total Captures (n)	Dead turtles (n)	Mortality rate (%)	references
1991 to 1998	1976	63	3,18	Gallo et al, 2006
1995 to 2016	3639	74	2,03	Silva et al, 2017

GILL NETS	Total Captures (n)	Dead turtles (n)	Mortality rate (%)	references
1991 to 1998	182	23	3,18	Gallo et al, 2006

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journal homepage: [www.elsevier.com/locate/ecolind](http://www.elsevier.com/locate/ecolind)

ELSEVIER

Long-term trends in abundance of green sea turtles (*Chelonia mydas*) assessed by non-lethal capture rates in a coastal fishery

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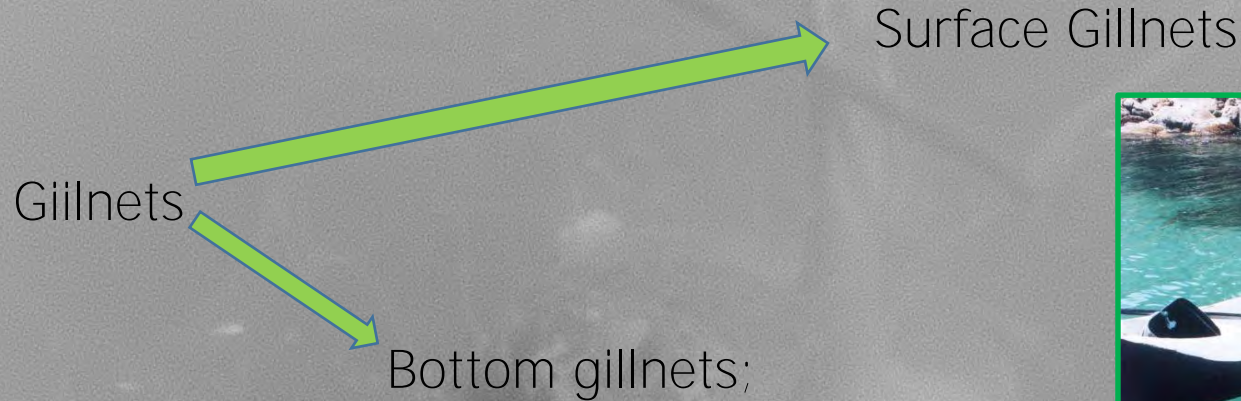
*Chelonian Conservation and Biology*, 2006, 5(1): 93–101  
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**Sea Turtle Conservation in Ubatuba, Southeastern Brazil, a Feeding Area with Incidental Capture in Coastal Fisheries**

**BERENICE M.G. GALLO<sup>1</sup>, SUAMI MACEDO<sup>2</sup>, BRUNO DE B. GIFFONI<sup>1</sup>, JOSÉ HENRIQUE BECKER<sup>1</sup>, AND PAULO C.R. BARATA<sup>3</sup>**

# Bycatch of green turtles (*C.mydas*) in gillnets

- Since 2000, bycatch turtles in gillnets were registered separately:



Fisheries	Green turtles bycatch	Dead turtles	Mortality rates (%)
Surface gillnets	847	212	25,03
Bottom gillnets	169	61	36,09

**\* data from 2002 to 2008;**

GOMES, B.M.;ALVARENGA, F.S.; OTTONI, G.; FERNANDES, J.S.; GIFFONI, B.B.; FONSECA, V.; ALMEIDA, B.A.D.L.; BECKER, J.H. 2010. Caracterização da pesca de emalhe e interação com as tartarugas marinhas em Ubatuba/SP. In: Congresso Brasileiro de Oceanografia, 3, 2010. Rio Grande do Sul. Resumos... (S.l:s.n.)

# Characterizing gillnets

1. “Evaluate fishing activities, which pose risks to sea turtles through incidental capture”.
2. “Promote research to qualify and quantify sea turtle fishery-related mortality.”

Marcovaldi et al, 2002

Different tipos of gillnets	Target species	Number of nets	Net's mesh size (cm)	Net's high (m)	depth where the nets are used (m)
Surface gillnets	<i>Scomberomorus brasiliensis</i> , <i>Cynoscion virescens</i> , <i>Mugil liza</i>	90	10 to 14	3 to 13	6 to 45
Bottom gillnets	<i>Litopenaeus Schmitti</i>	39	6 to 7	1,5 to 3	1,5 to 30
Bottom gillnets	<i>Micropogonias furnieri</i>	120	8 to 16	1,5 to 10	1,5 to 50
Bottom gillnets	<i>Rhinobatos spp</i>	14	18 to 25	1,5 to 4,5	6 to 45

GOMES, B.M.; ALVARENGA, F.S.; OTTONI, G.; FERNANDES, J.S.; GIFFONI, B.B.; FONSECA, V.; ALMEIDA, B.A.D.L.; BECKER, J.H. 2010. Caracterização da pesca de emalhe e interação com as tartarugas marinhas em Ubatuba/SP. In: Congresso Brasileiro de Oceanografia, 3, 2010. Rio Grande do Sul. Resumos... (S.l:s.n.)





# METHODOLOGY



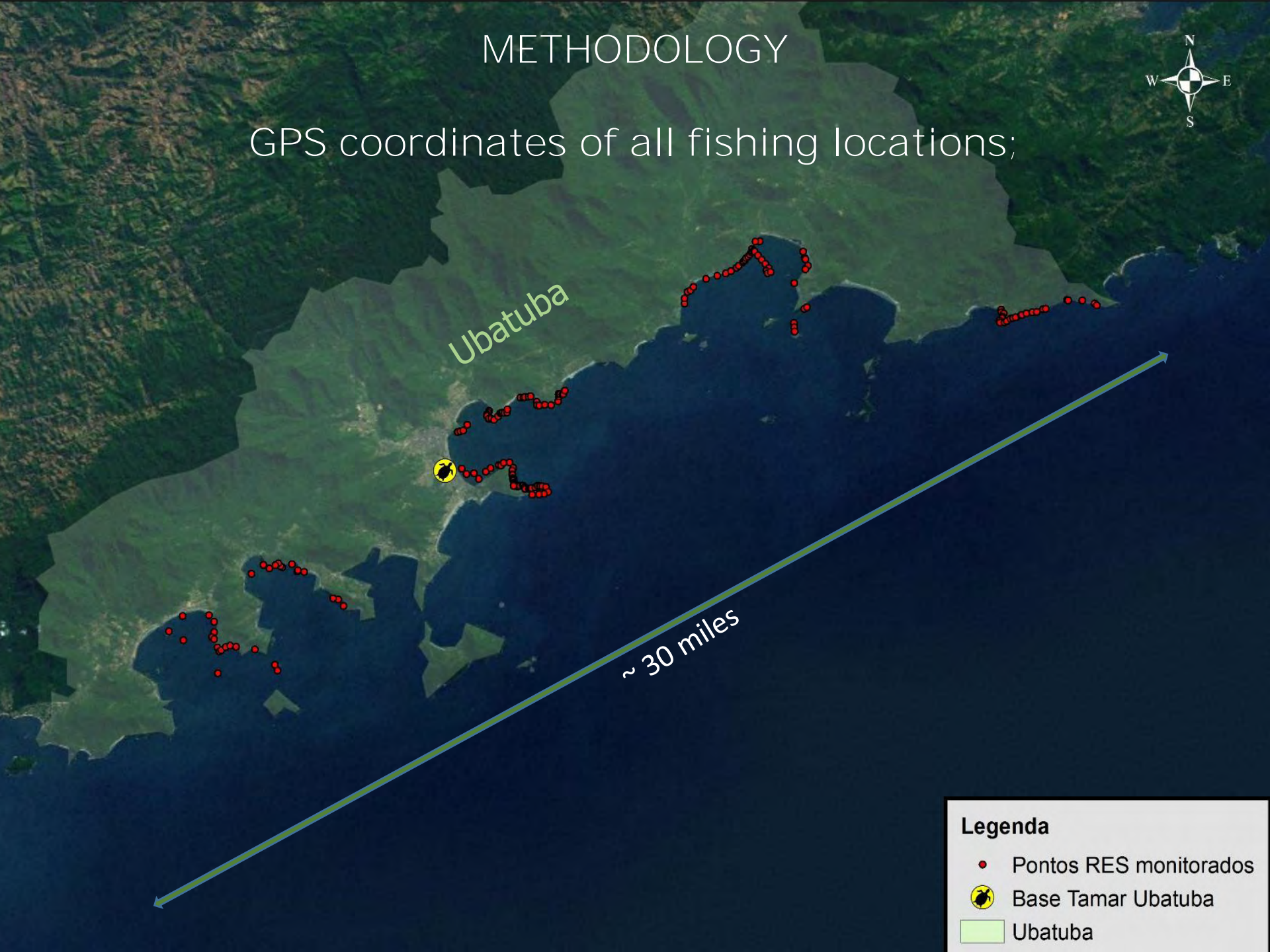
GPS coordinates of all fishing locations;

Ubatuba

~ 30 miles

**Legenda**

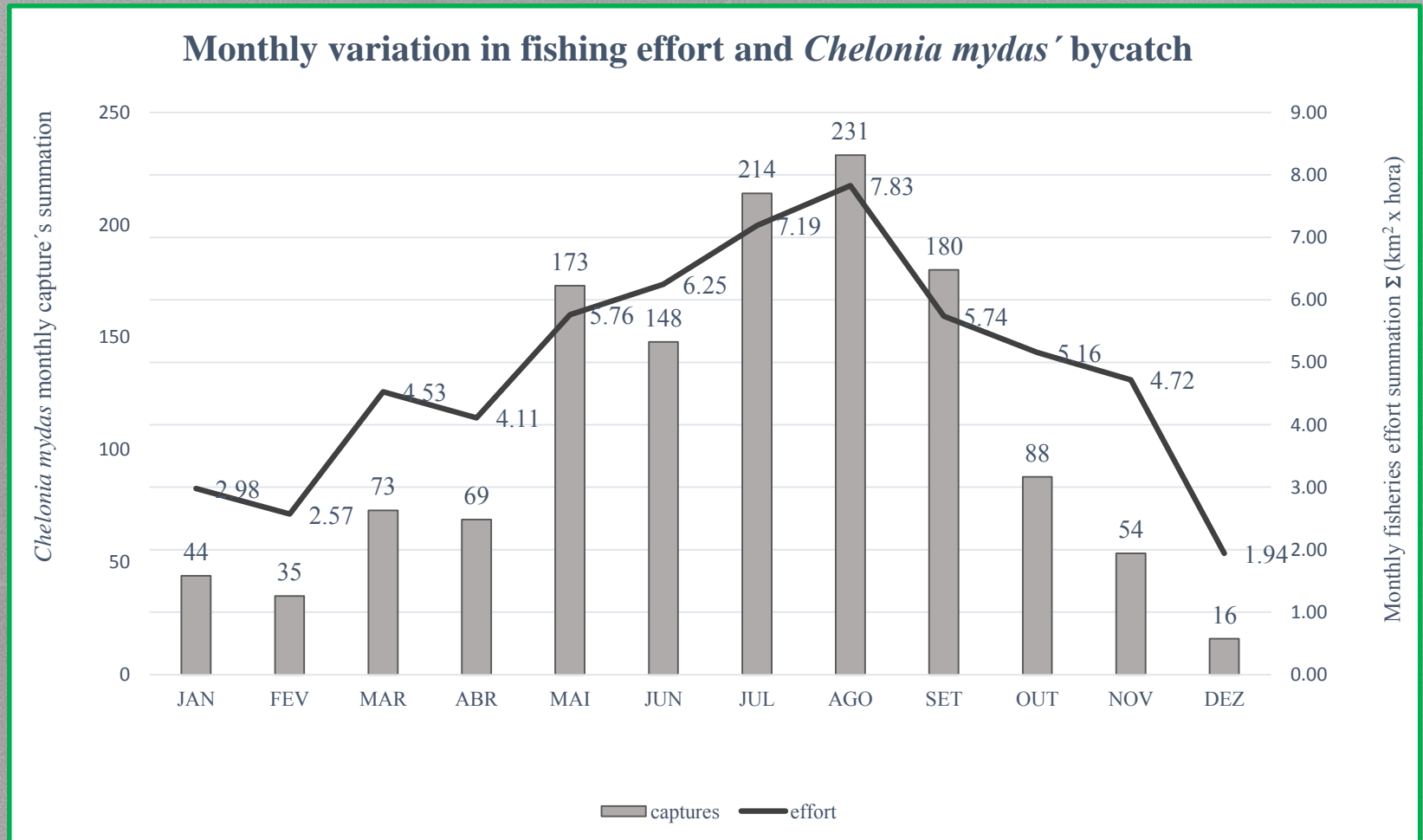
- Pontos RES monitorados
- 📍 Base Tamar Ubatuba
- ▭ Ubatuba



# RESULTS

Period	2010 to 2017
Monitored Fishermen (Maximum monitored by year)	27
<i>Chelonia mydas</i> captures (n)	1328
Monitored nets settings	3959
CPUE (turtles/settings)	0,33
Mortality rates	19,1%

# RESULTS



The gillnet fishing efforts tend to increase during cold months (austral winter), when oceanic juveniles recruit to nearshore areas in Ubatuba.



# Gillnet 'census' data

## Number of fishermen using gillnets

Fishermen (n)	Using 'surface gillnets'
135	105



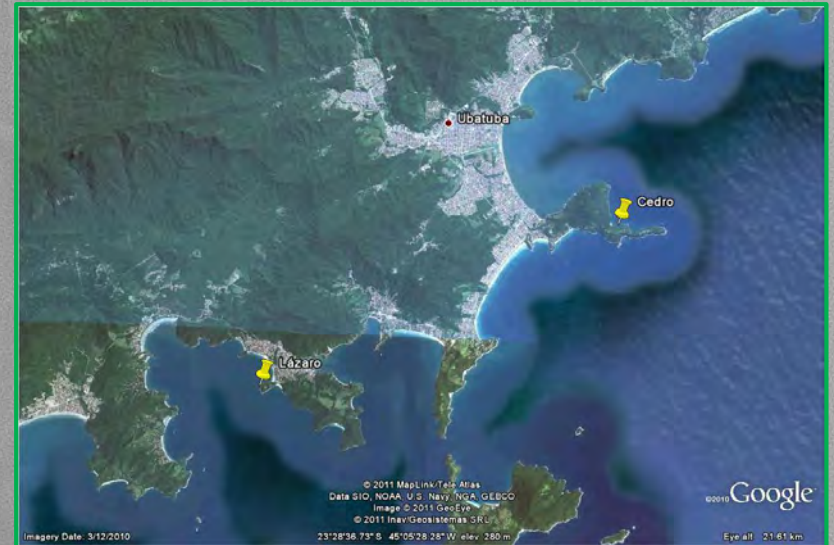
# Testing mitigation proposal Methodology

Research realized between 2009 and 2012



# Testing mitigation proposal Methodology

- Tests were run in two different fishing sites;
- **Fishermen's own gillnets were tested;**
- Respecting the traditional fishing sites and fisheries practices;
- Gillnet setting at 12:00am;
- Regular visits every four hours;
- Setting finished after 24h.



# Testing mitigation proposal Results



# Sharing results with fishermen

- Meetings;



# Sharing results with fishermen

- Individual approach;



- Documentary film;

Pesquisa colaborativa para redução das capturas de tartarugas verdes por redes de emalhe em Ubatuba, Brasil

A captura incidental em redes de pesca é uma das maiores ameaças às populações de tartarugas em todo o mundo. Em Ubatuba, litoral norte de SP, ao longo de 25 anos de atuação, o Projeto Tamar registrou mais de 11.000 destas capturas com a colaboração voluntária de pescadores.

Partindo do compartilhamento de informações, foi elaborada e testada uma proposta de ajuste nos horários de pescaria com redes de emalhe costeiras como forma de minimizar a mortalidade de tartarugas com pouco prejuízo a produção pesqueira.

Este vídeo apresenta o estudo deste caso, de somatória de esforços na busca de solução para um problema em comum para os pescadores, pesquisadores e tartarugas marinhas.

Coordenação do Projeto: Berenice M. G. da Silva e José Henrique Becker  
Pesquisadores: Berenice M. G. da Silva, Dinno de Barros Giffoni, Fernando S. Alvarenga, Geraldo de F. G. Netto, José Henrique Becker, Lucas Oliveira Dorsatto  
Imagens e direção geral: Lucas Contrabandi  
Roteiro: José Henrique Becker, Dinno Giffoni e Fernando Alvarenga  
Edição: Lucas Contrabandi  
Arte e animação: Fernando H. C. de S. Marques  
Imagens adicionais: Banco de Imagens Projeto Tamar; Dinno Amir Dacir Lobato de Almeida, Glauce Capelossa Vieira (Eronco)  
Agradecimentos: Thiago Mariano, Rafael Tavares  
Produção: Projeto Tamar | 2016

35 ANOS

Pesquisas colaborativas para redução das capturas de tartarugas verdes por redes de emalhe em Ubatuba, Brasil

35 ANOS

35 ANOS

Petrobras

Petrobras

The image shows the cover of a documentary film. It features a large photograph of a sea turtle caught in a fishing net. The title at the top is 'Pesquisa colaborativa para redução das capturas de tartarugas verdes por redes de emalhe em Ubatuba, Brasil'. Below the title, there is a smaller photo of people on a beach near a turtle. The cover includes text about the project, credits for the coordinators, researchers, and production team, and logos for 'Projeto Tamar 35 Anos', 'Petrobras', and 'Petrobras'.

# Mitigation measure evaluation

- Started in 2018;
- Regular field trips, early in the morning, to monitor surface gillnets;



- Pound net / low mortality rates (Gallo *et al*, 2006)



(Thalassia Conservation and Biology, 2006, 3(1): 93-101)  
© 2006, Thalassia Research Foundation

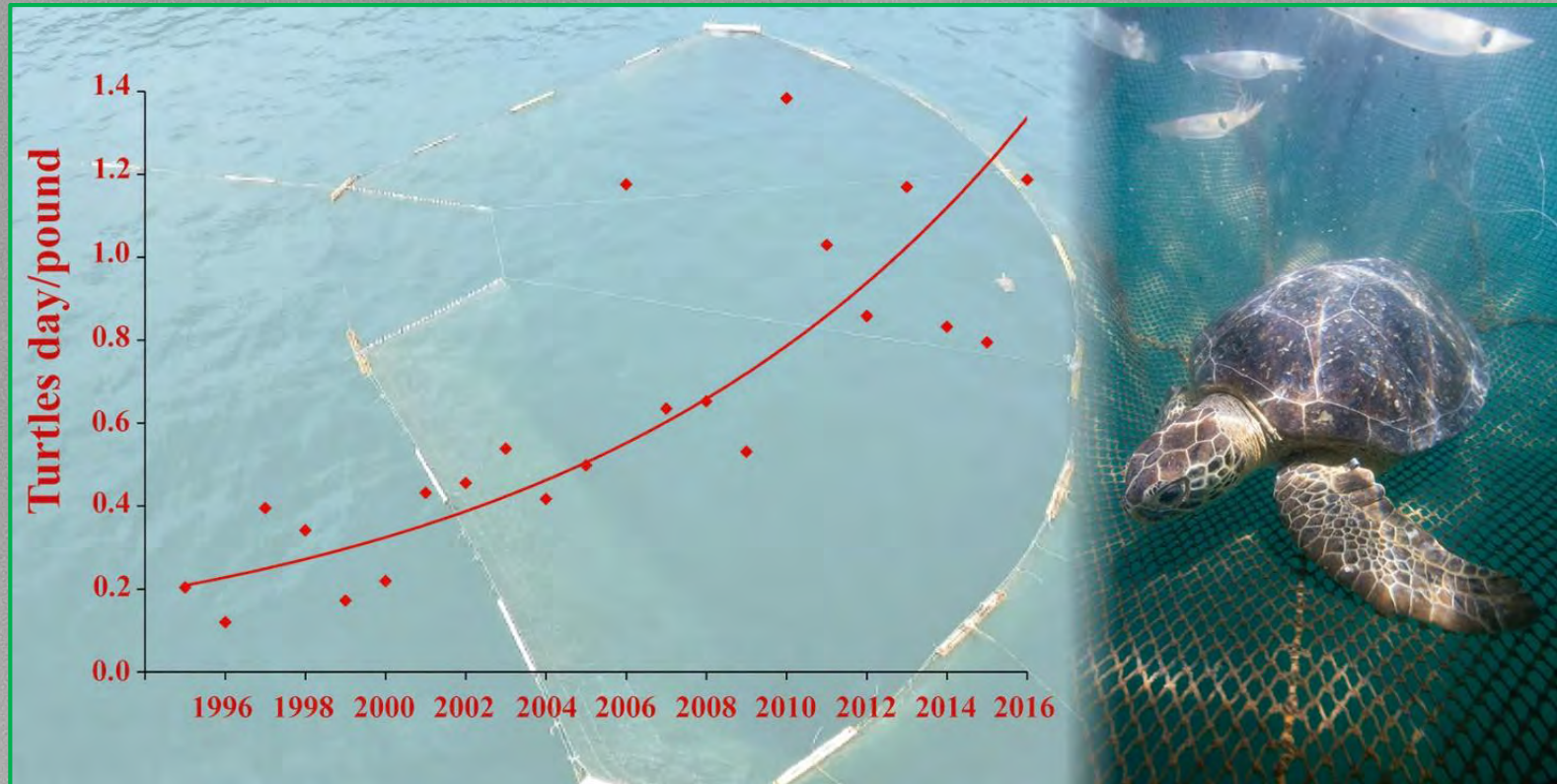
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# Population trends

Increase in catch rates (CPUE) of approximately 9% per year for *Chelonia mydas*



# Environmental education and social inclusion

*Environment, Development and Sustainability*

December 2016, Volume 18, Issue 6, pp 1541–1558 | [Cite as](#)

## Adaptive threat management framework: integrating people and turtles

Authors

Authors and affiliations

Valéria R. F. da Silva [✉](#), Sylvia F. Mitraud, Maria L. C. P. Ferraz, Eduardo H. S. M. Lima, Maria Thereza D. Melo, Armando J. B. Santos, Augusto César C. D. da Silva, Jaqueline C. de Castilhos, Jamyle A. F. Batista, Gustave G. Lopez, Frederico Tognin, João Carlos Thomé, Cecília Baptistotte, Berenice M. Gomes da Silva, José Henrique Becker, Juçara Wanderline, Fernanda de Vasconcellos Pegas, Gonzalo Róstan, Guy Guagni dei Marcovaldi, Maria Ângela G. dei Marcovaldi, [show less](#)



# Environmental education and social inclusion

## Productive groups



# Support to traditional cultural practices



# Music and culture festivals



# Environmental education and social inclusion



# Environmental education and social inclusion





Thanks!

Gracias!

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Patrocínio oficial:

