



“SEAturtle” PICES special research project (2019-2023):
What we learned on sea turtles of Jeju Island for the last 5 years
and what we should do in future

Taewon Kim¹, Soojin Jang², Kyuggsik Jo¹, Sookjin Jang¹, Mi-Yeon Kim^{2, 5},
Byung-Yeob Kim³, Jibin Im¹, George Balazs⁴, Hideaki Nishizawa⁵, Connie Ka Yan
NG⁶, George Shillinger⁷, Michelle María Early Capistrán⁸

¹Inha University, Incheon, Republic of Korea

²Marine Animal Research & Conservation, Jeju, Republic of Korea

³Jeju National University, Jeju, Republic of Korea

⁴Golden Honu Services of Oceania, Hawaii, USA

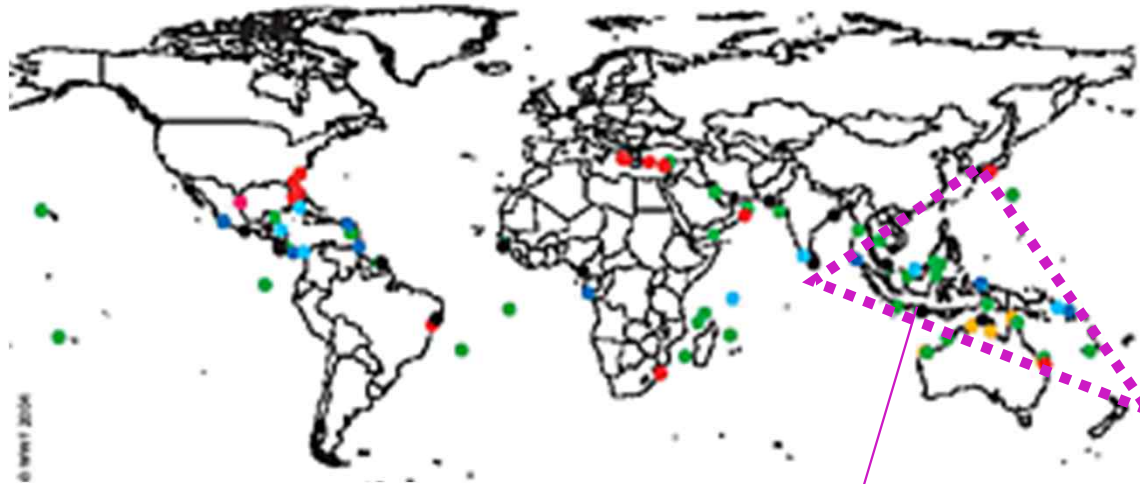
⁵Kyoto University, Kyoto, Japan

⁶City University of Hong Kong, Hong Kong Special Administrative Region, PR China

⁷Upwell, Monterey, USA

⁸Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE), Mexico.

Sea Turtles



http://wwf.panda.org/what_we_do/endangered_species/marine_turtles/?src=footer

- Loggerhead
- Kemp's Ridley
- Olive Ridley
- Leatherback
- Flatback
- Hawksbill
- Green

Coral triangle

CORAL TRIANGLE MARINE TURTLES & THEIR PROTECTION STATUS



Hawksbill
Eretmochelys imbricata
CRITICALLY ENDANGERED



Leatherback
Dermochelys coriacea
CRITICALLY ENDANGERED



Loggerhead
Caretta caretta
ENDANGERED



Green turtle
Chelonia mydas
ENDANGERED



Olive ridley
Lepdochelys olivacea
VULNERABLE

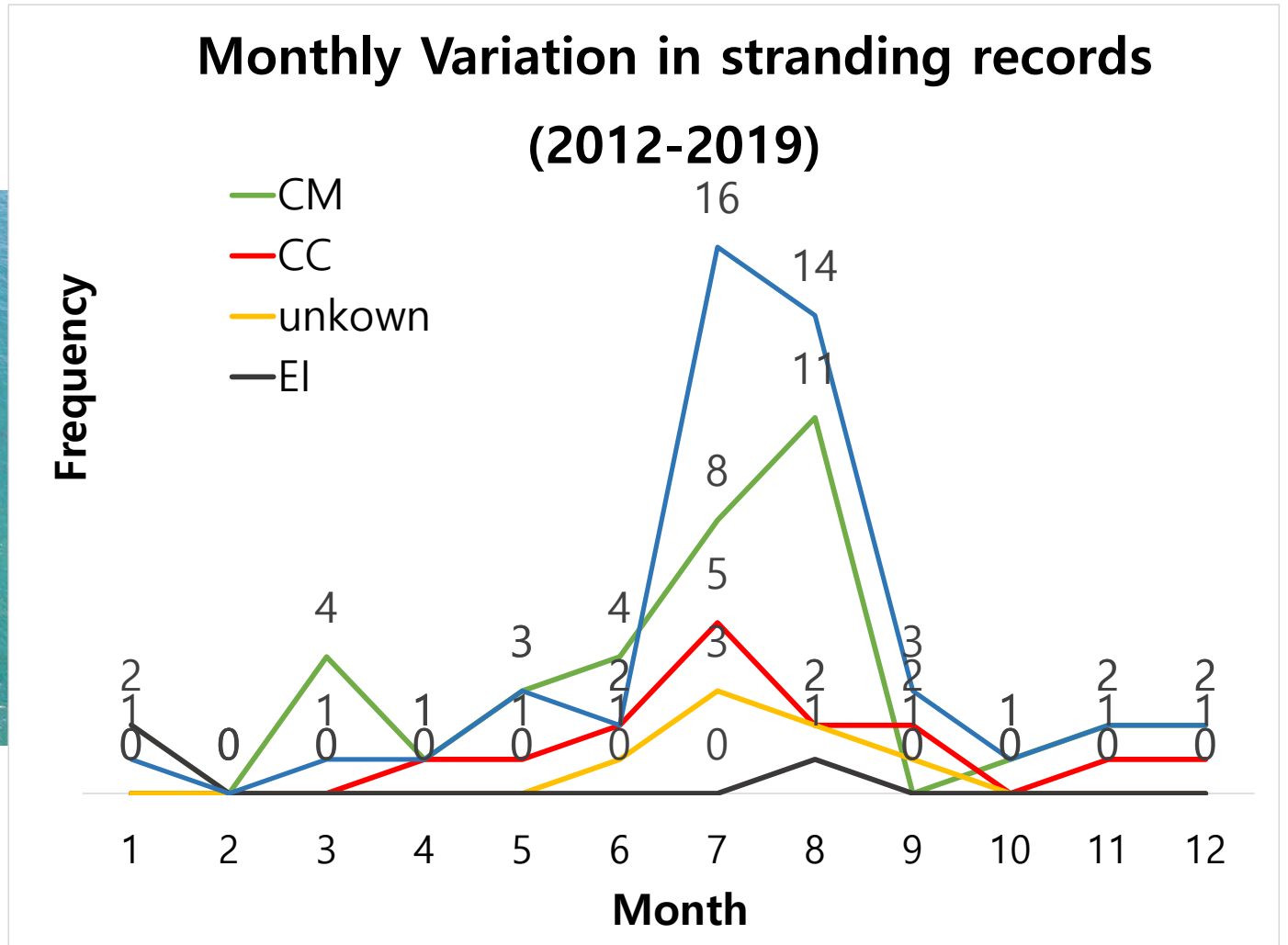


Flatback
Natator depressus
DATA DEFICIENT

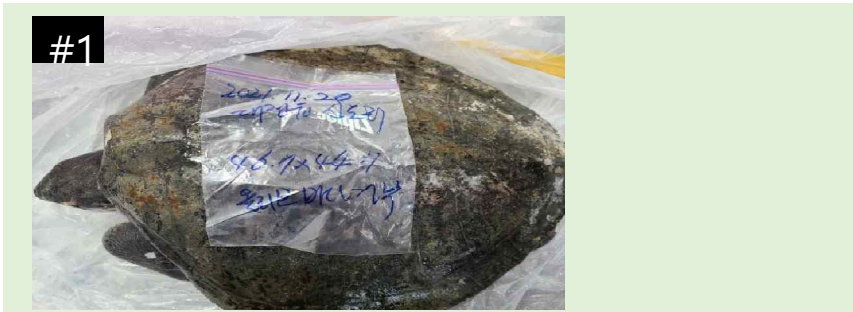
Sea turtle bycatch in Jeju Island



A pound net at Jongdal-ri in Jeju



Species identified in Jeju island



Lepidochelys olivacea (올리브각시바다거북)



Eretmochelys imbricata (매부리바다거북)

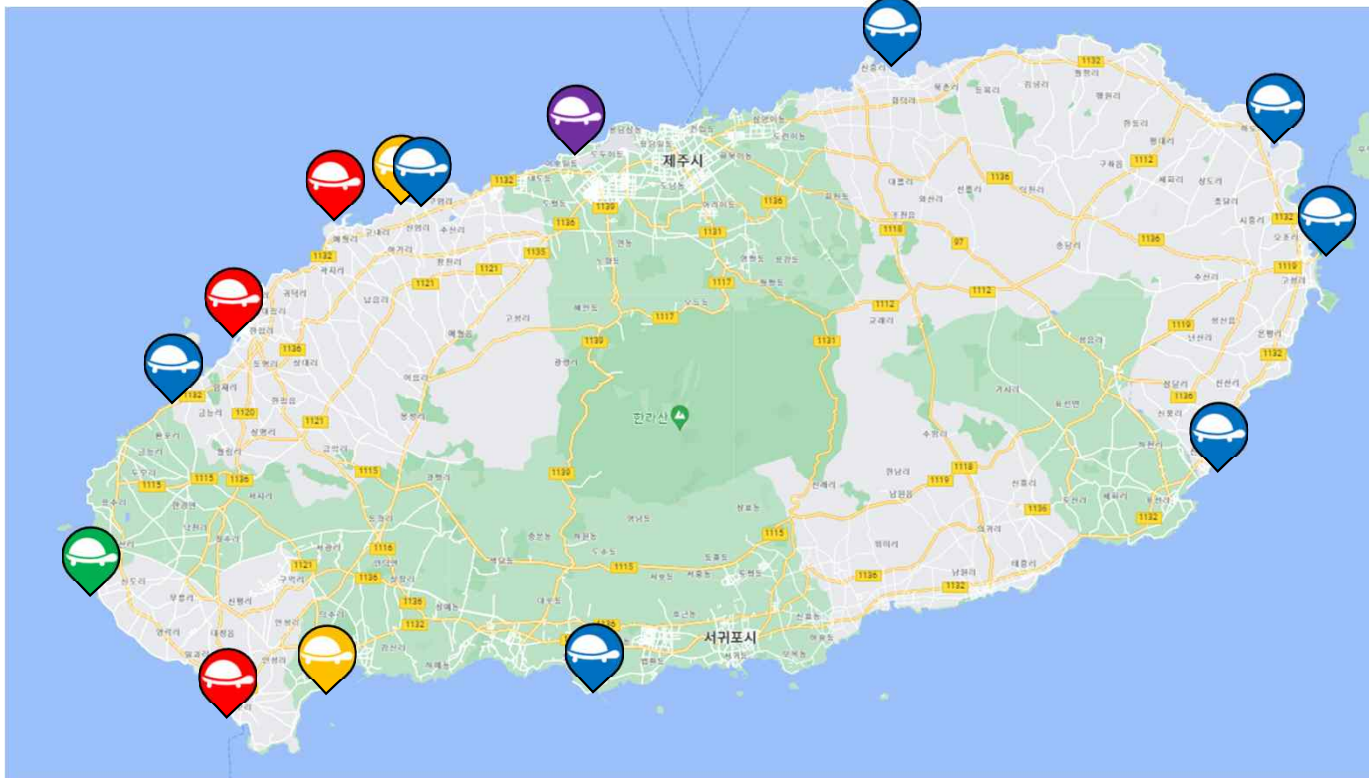


Caretta caretta (붉은바다거북)



Chelonia mydas (푸른바다거북)

Locations where the dead sea turtles were found



 *Chelonia mydas* (푸른바다거북) 18

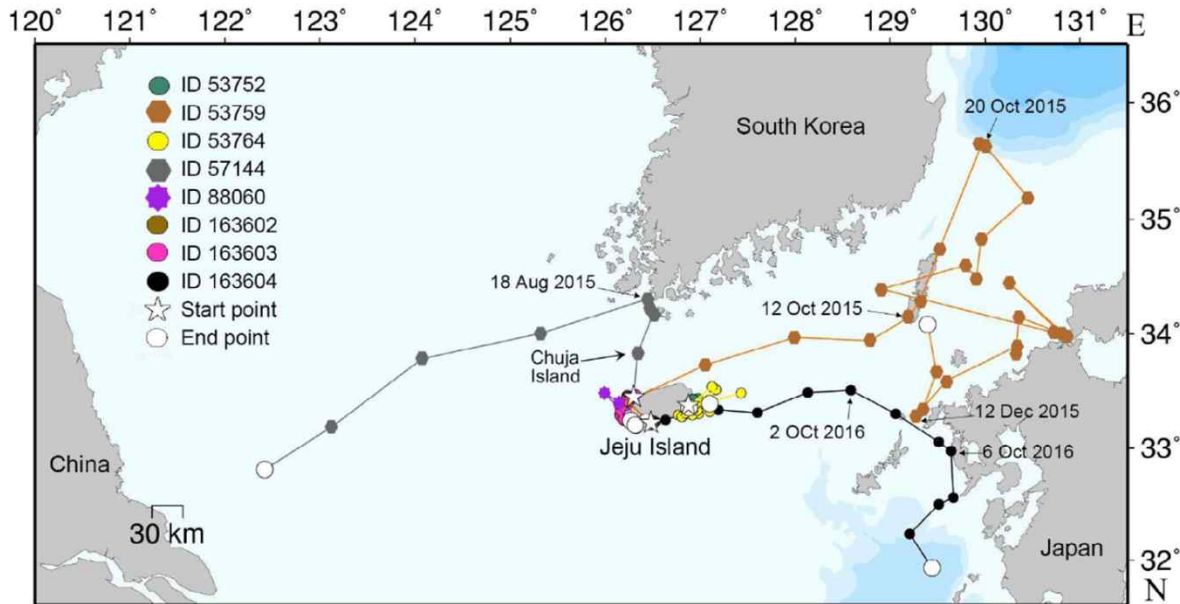
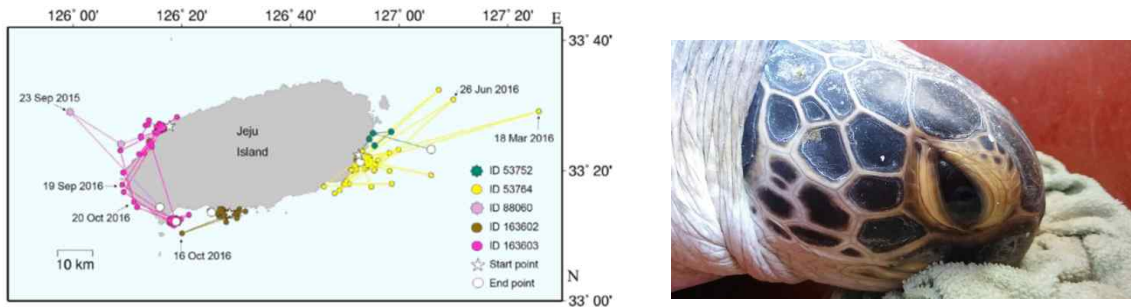
 *Dermochelys coriacea* (장수거북) 1

 *Caretta caretta* (붉은바다거북) 8

 *Eretmochelys imbricata* (매부리바다거북) 2

 *Lepidochelys olivacea* (올리브각시바다거북) 2

Tracking rescued green sea turtles in Jeju Island



Jang et al. (2018) CCB

PICES SEAturtle project (2019-2023)

Sea turtle ecology in relation to environmental stressors in the Northwest Pacific regions





Your PICES science Images- Feature: PICES Special Project: SEAturtle

Seven sea turtles released with Iridium tags of PICES SEAturtle project in 2019 - 2020

ID710313

First (green) sea turtle
released in 2019



ID710314 (released in 2019)



PICES SEAturtle team in Korea released 7 sea turtles (6 greens and 1 loggerhead) with PICES iridium tags. In 2020, we ran a social media contest to name 5 of the released sea turtles. A total of 122 names were submitted by the public. Using this method, we were successful in increasing public awareness for the PICES SEAturtle project.

ID718336_Zevi (제비)
First loggerhead sea turtle



ID710315_Purunee (푸르니)



ID718338_Bit-gyeol (빛걸)



ID718339_Parang (파랑)



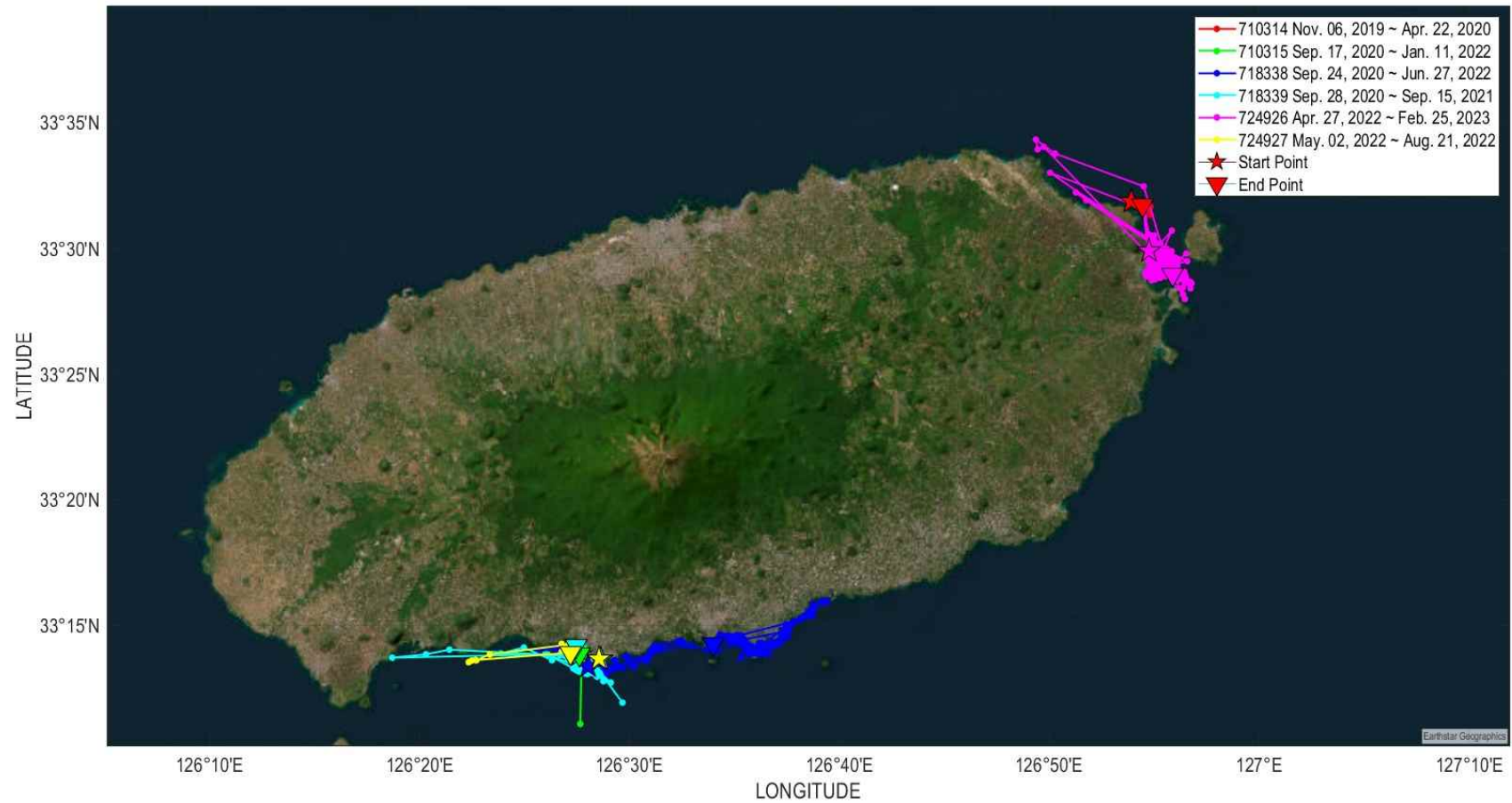
ID718337_Dol-mook (돌묵)



- + 9 = Total 16 individuals (14 greens + 2 loggerheads) tagged.
- 2 greens missing
- 14 successful!



PICES green sea turtles staying at Jeju Island (6/10)

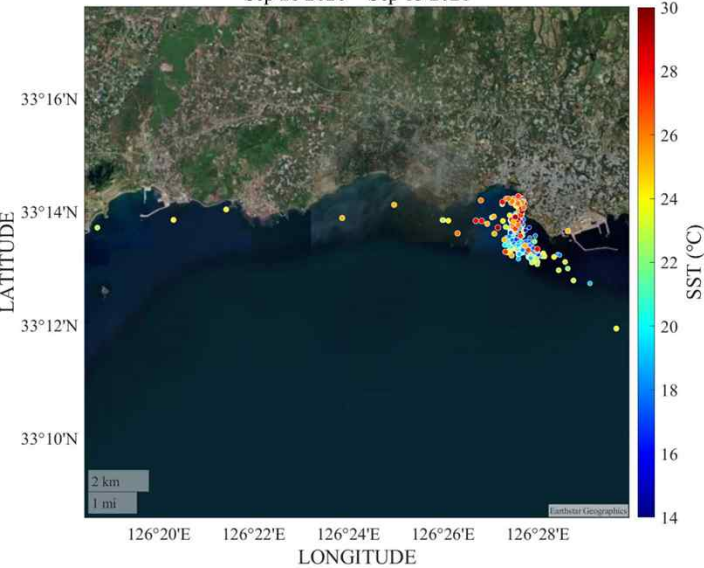


Behavior of overwintering green sea turtles

ID718339_Parang (파랑)



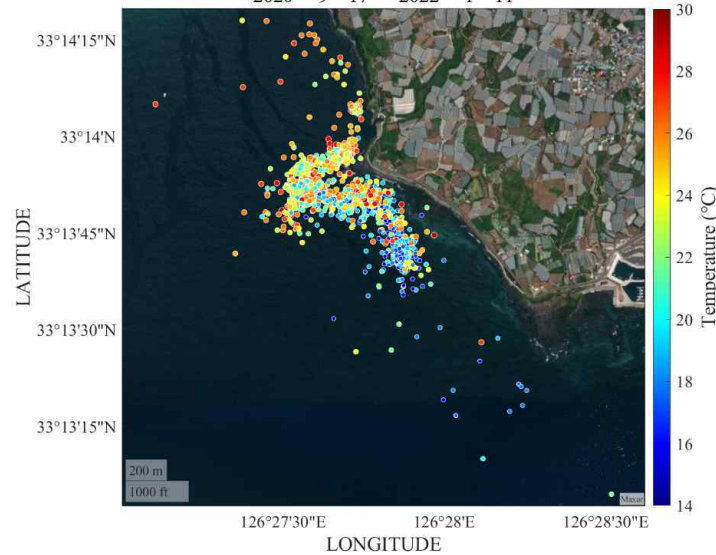
Sep 28 2020 ~ Sep 13 2021



ID710315_Purunee (푸르니)



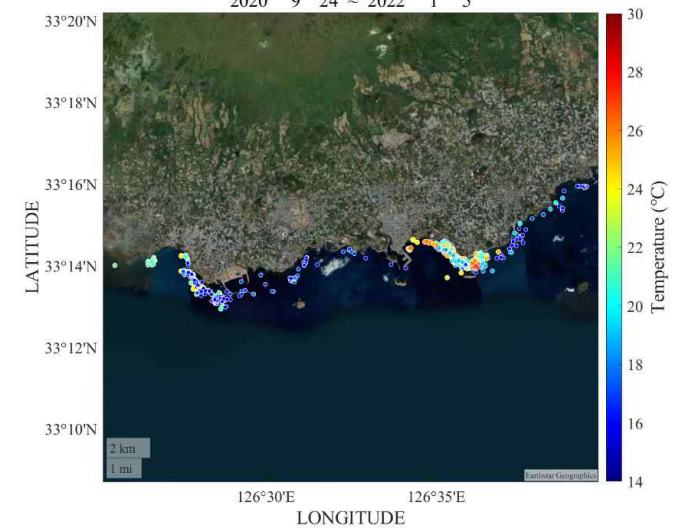
2020 9 17 ~ 2022 1 11



ID718338_Bit-gyeol (빛결)



2020 9 24 ~ 2022 1 5



Max. dive duration increased with decreasing temp.

ID718339_Parang (파랑)



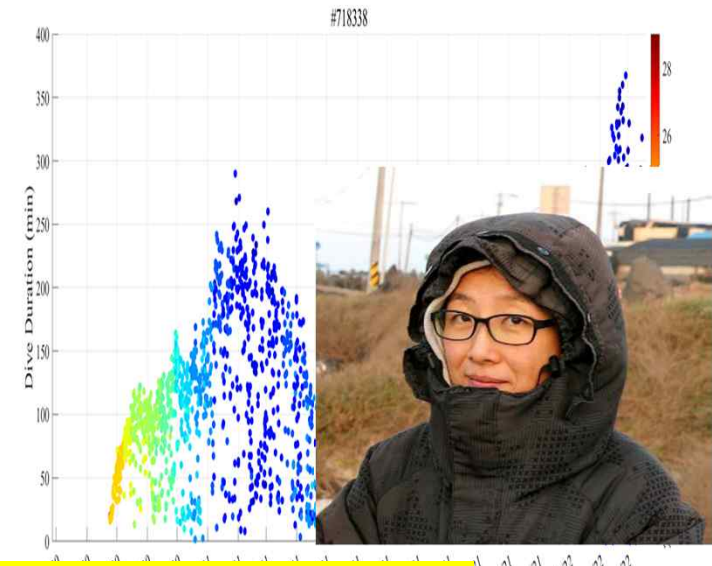
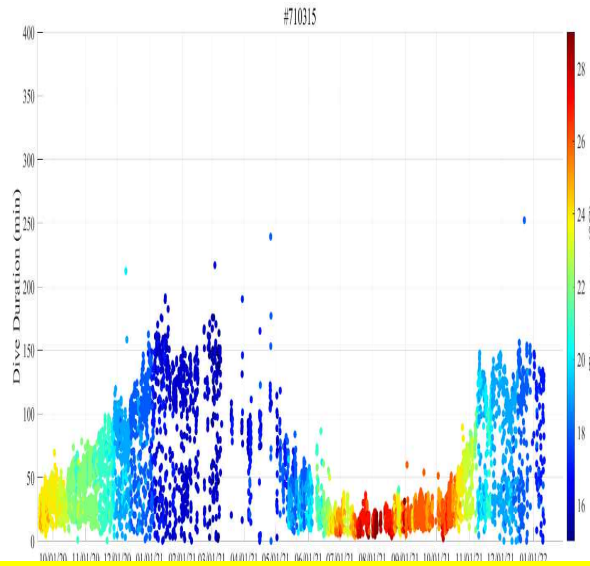
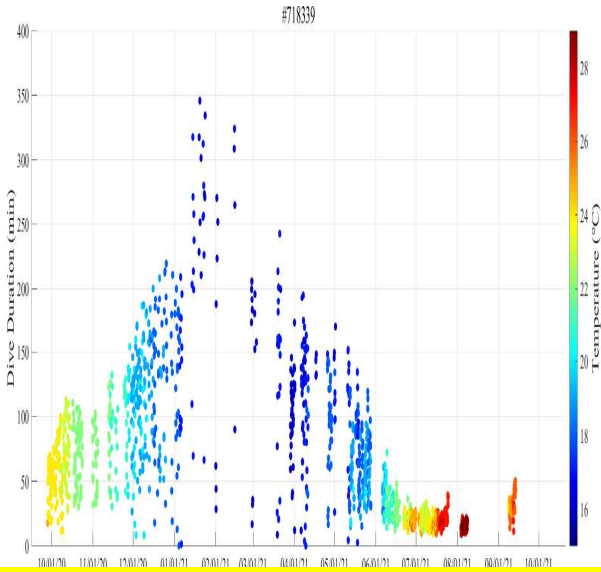
ID710315_Purunee (푸르니)



ID718338_Bit-gyeol (빛걸)



Dive duration



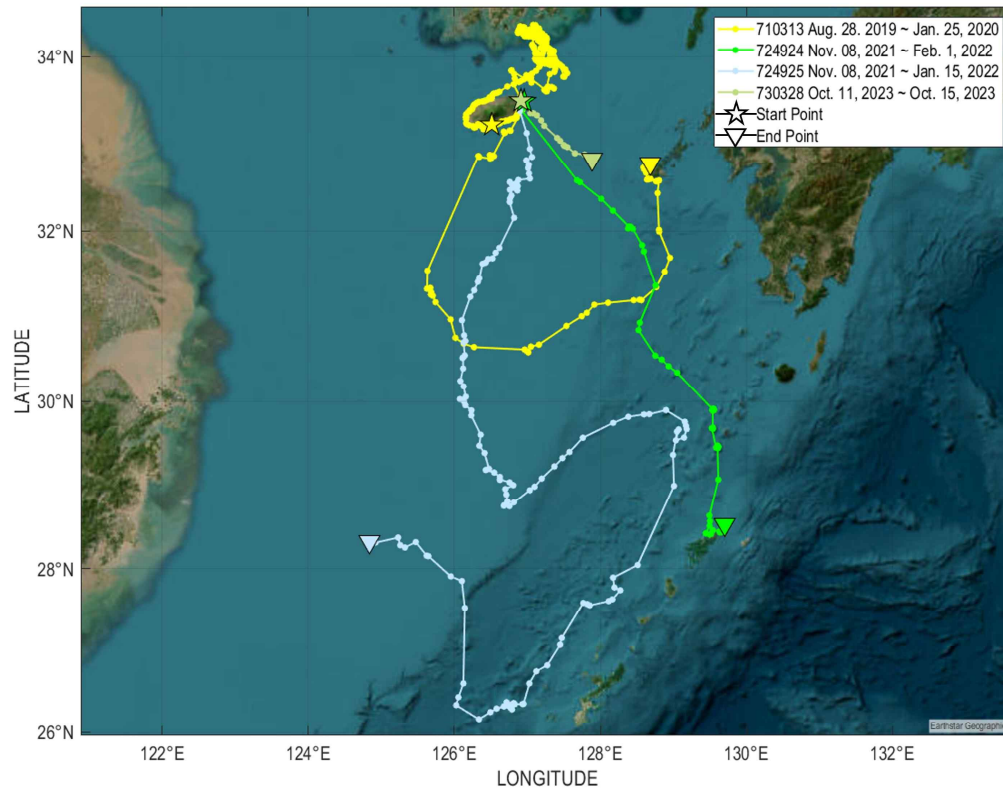
S11(BIO) 16698 Soojin Jang et al. Overwintering behavior of green sea turtles in a temperate habitat

Date (mm/du/yy)
11/01/21
12/01/21
01/01/22
02/01/22
03/01/22

Bit-gyeol (빛결) rescued but dead in Hanwha Aquaplanet (June to July 2022)



PICES green sea turtles (*Chelonia mydas*) moving away from Jeju Island (4/10)



ID 710313 (Aug 2019-Jun 2020)



ID 724924
(Nov 2021-Feb 2022)

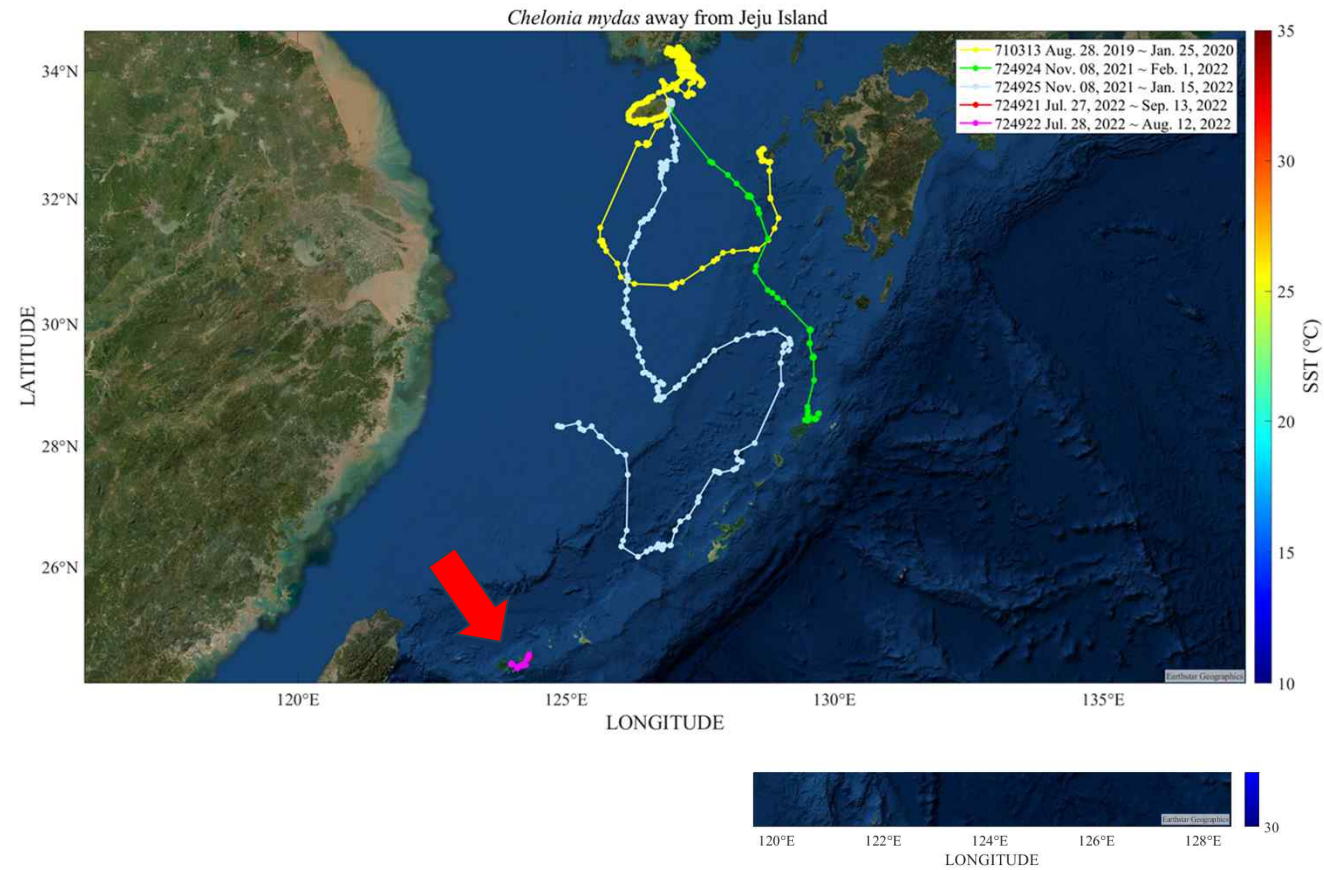


ID 724925
(Nov 2021- Jan 2022)

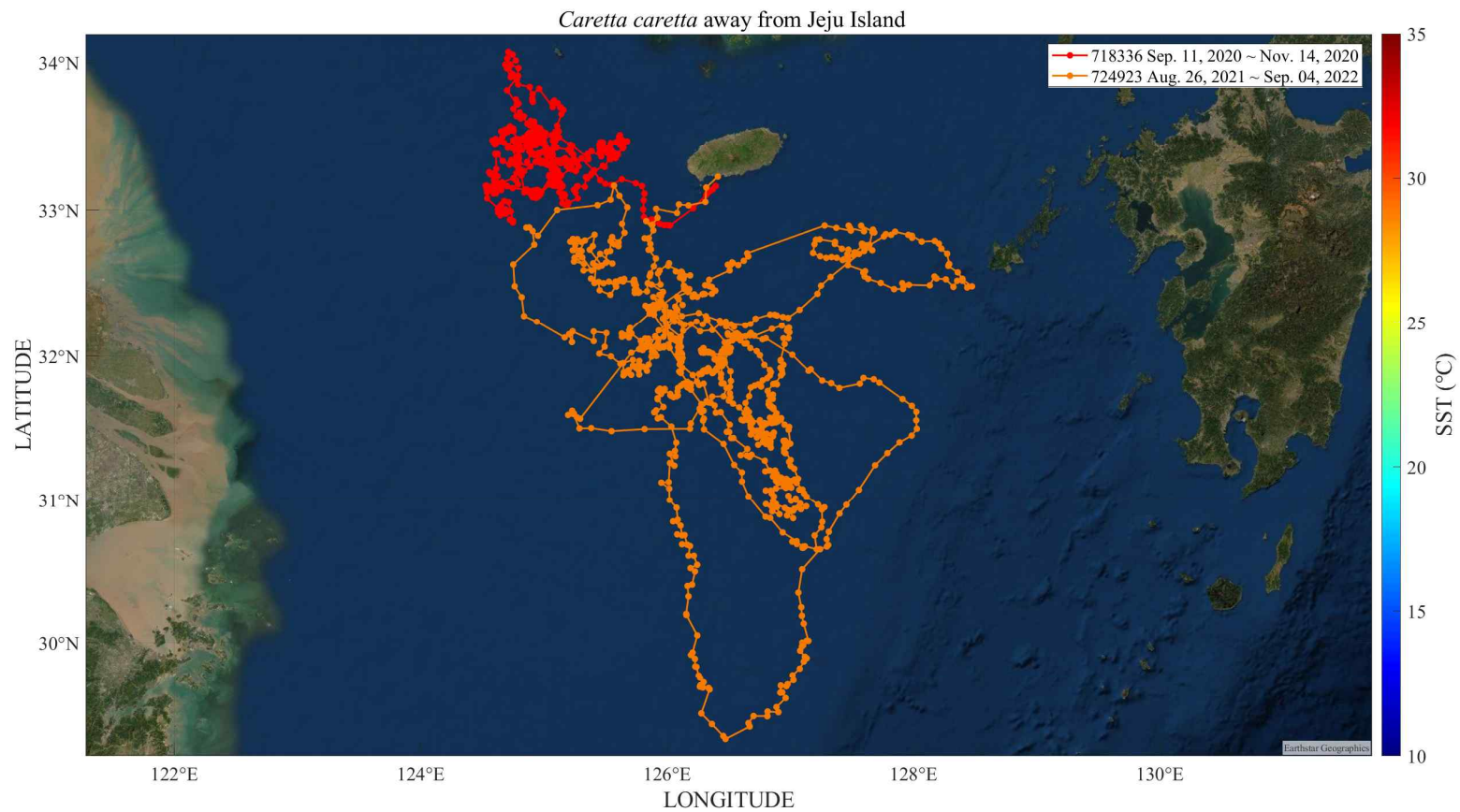


ID 730328
(Oct 2023- Present)

Two tags on nesting green sea turtles (ID 724921 & 724922) in Ishigaki Island, Japan (released in Jul 2022)



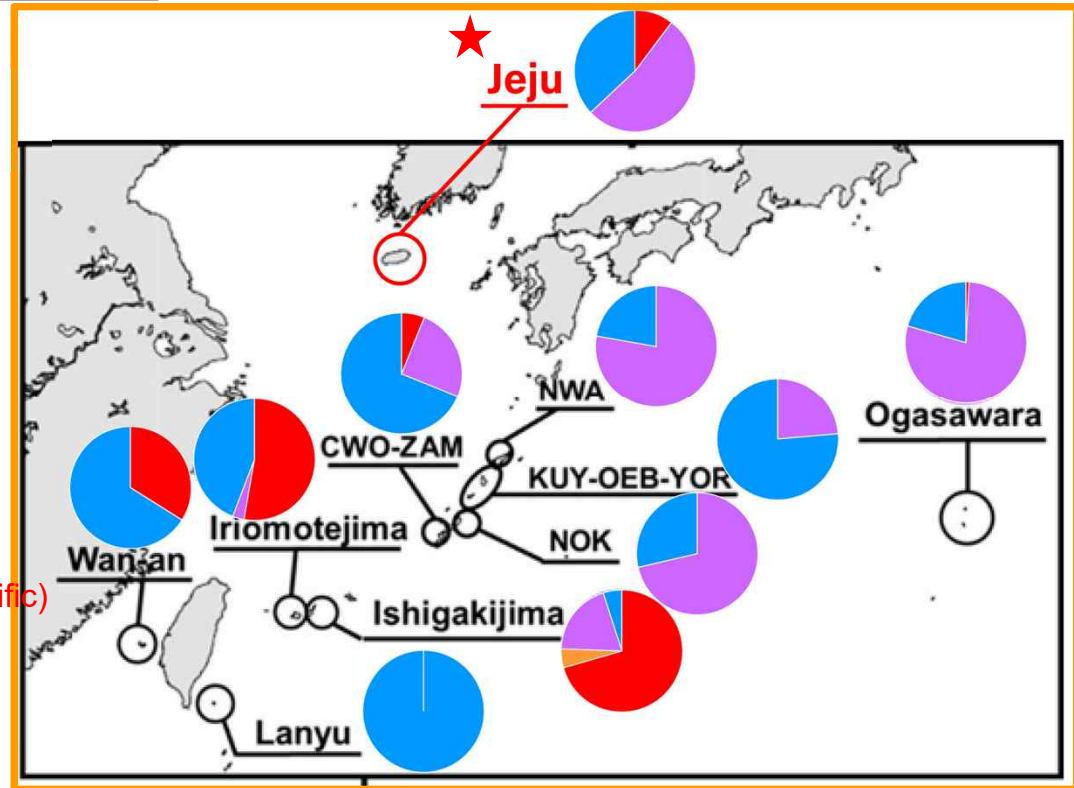
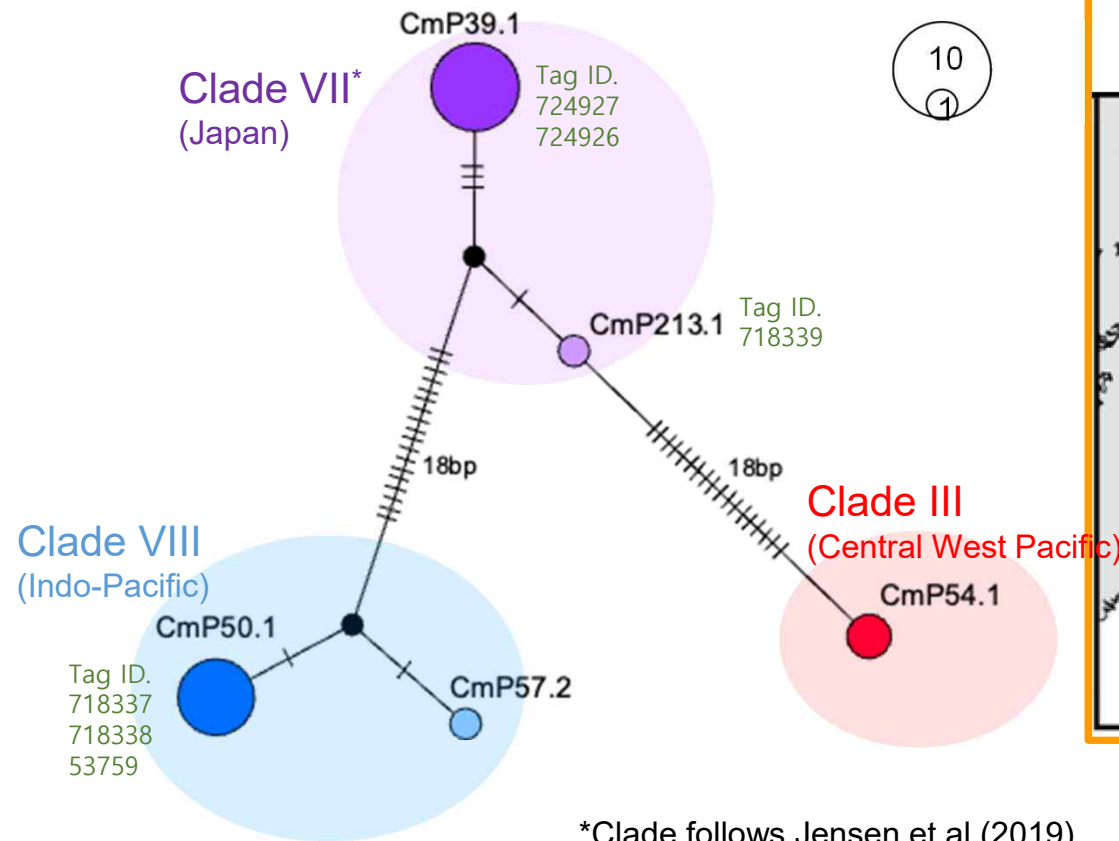
Movement of PICES loggerhead sea turtles (*Caretta caretta*)



Genetic structure of green turtles in Jeju Island

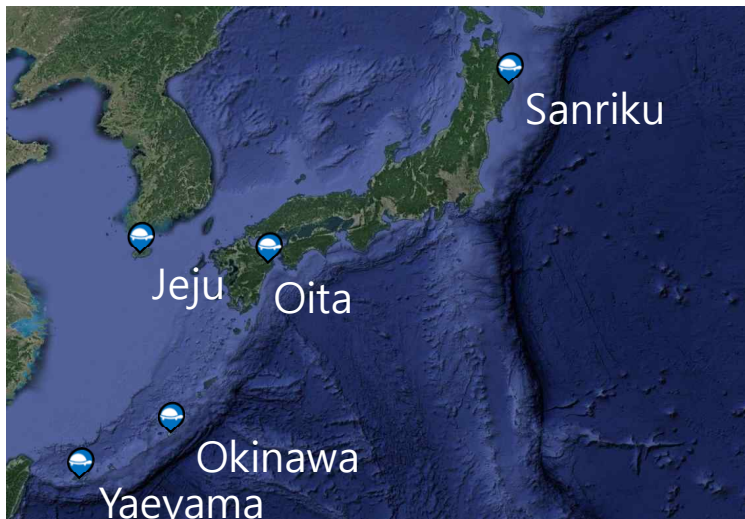
Genetic composition of *Chelonia mydas* (CM) in Jeju Island and neighboring rookeries

- 706 bp of mtDNA control region (D-loop) from 18 specimens

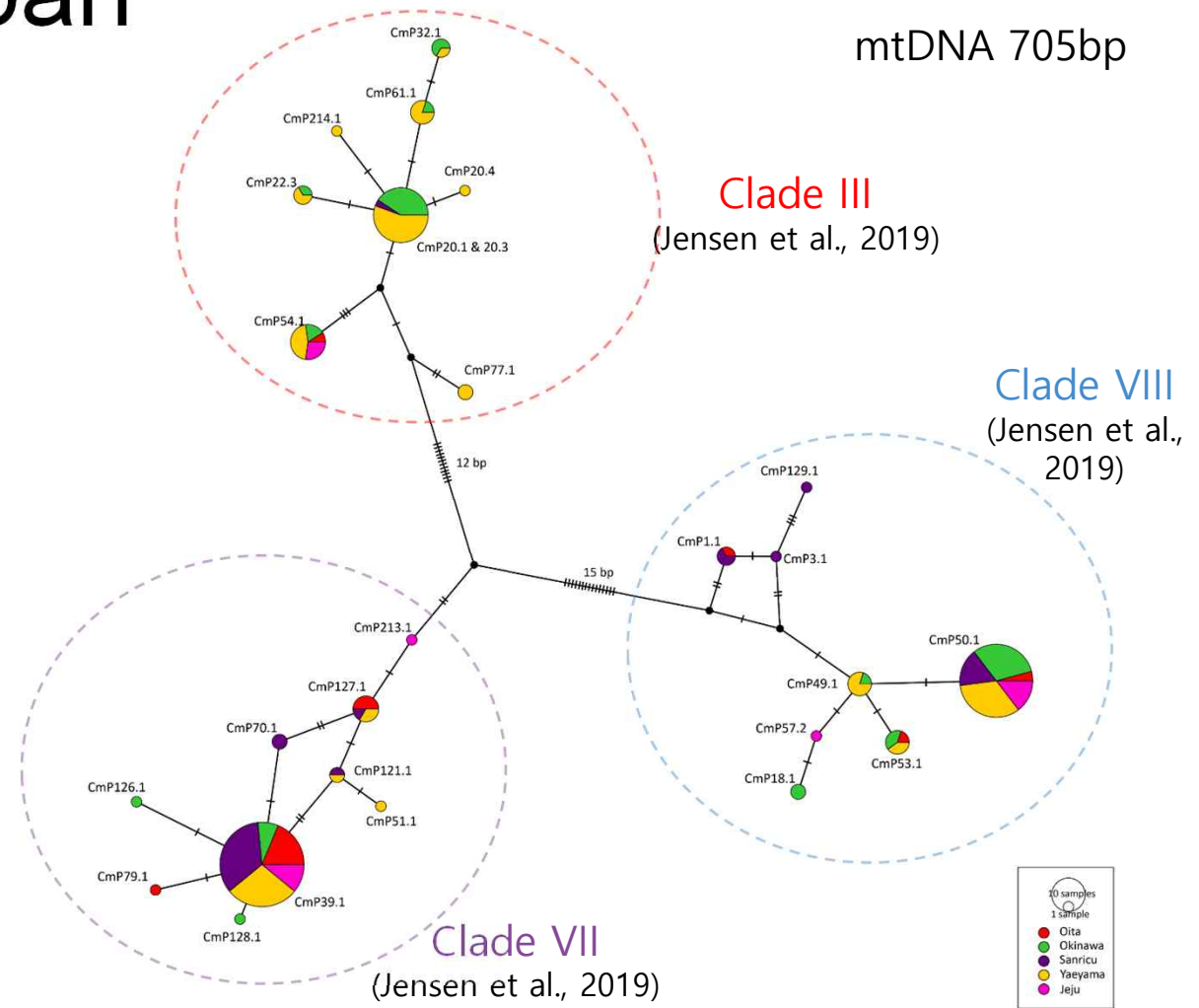


The map was modified from Hamabata et al. 2014 based on the proportions of neighboring islands organized in Hamabata et al. 2014 and Jensen et al. 2019

Comparison with the foraging aggregations in Japan



- Sanriku
- Oita
- Okinawa
- Yaeyama
- Jeju



Genetic structure of loggerhead turtles in Jeju Island

Genetic composition of *Caretta caretta* (CC) in Jeju Island and neighboring rookeries

- 808 bp of mtDNA control region (D-loop) from **8 specimens**

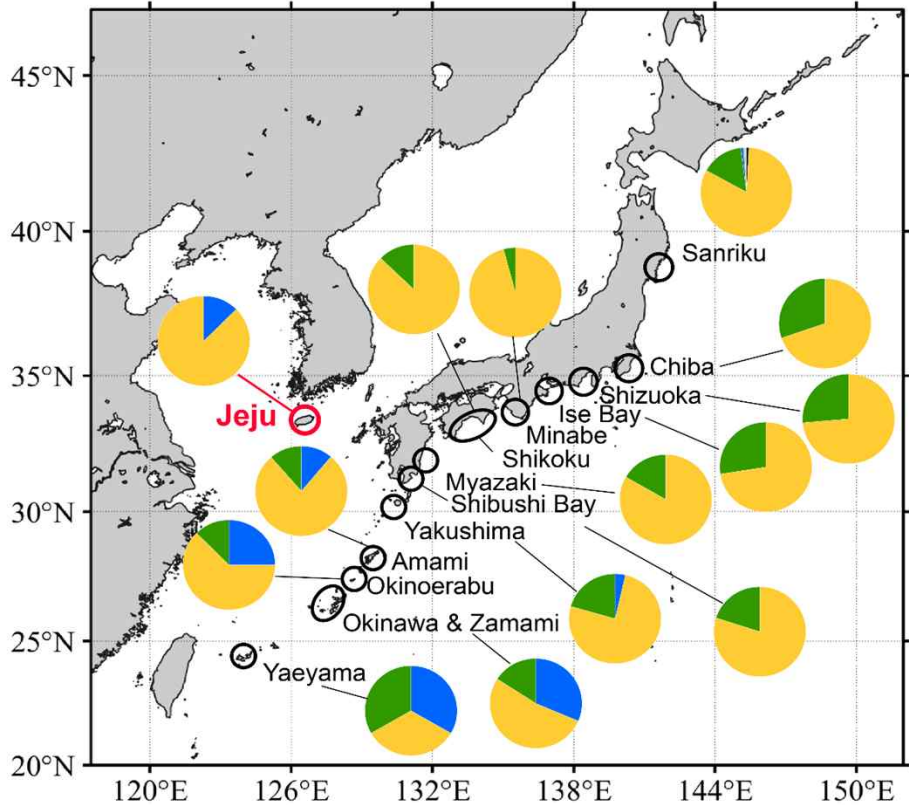
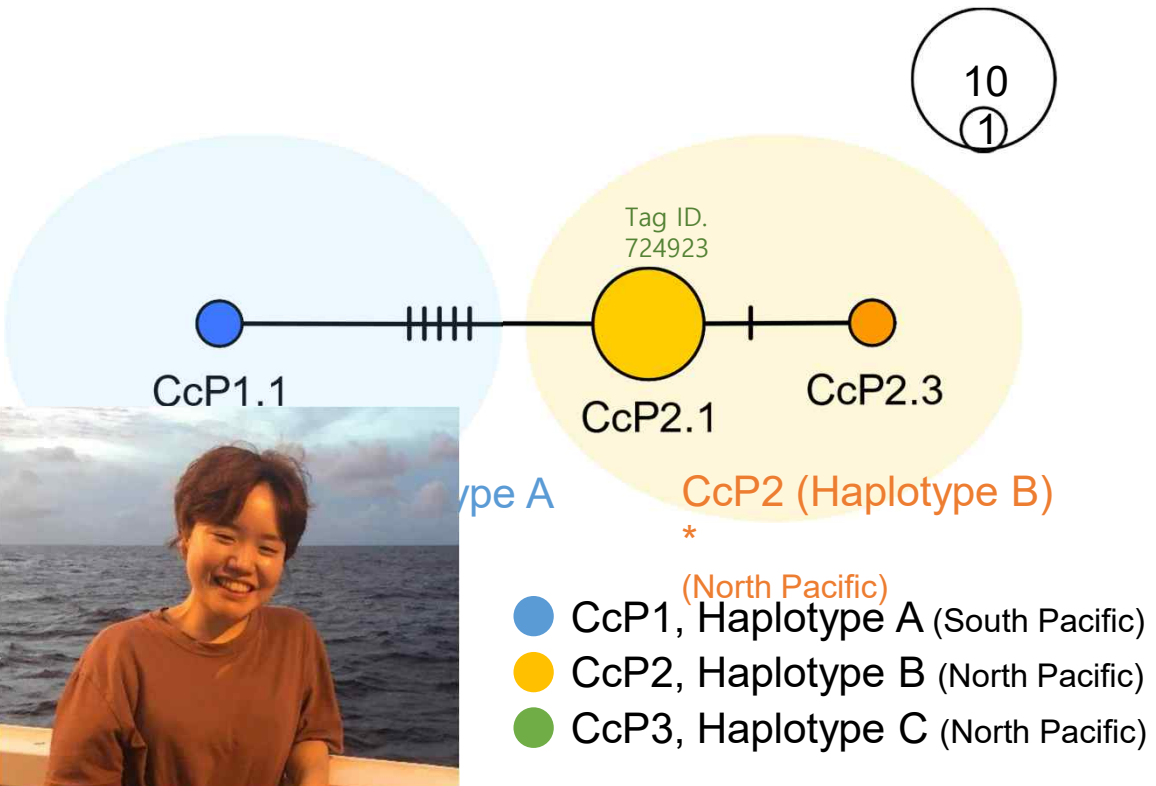


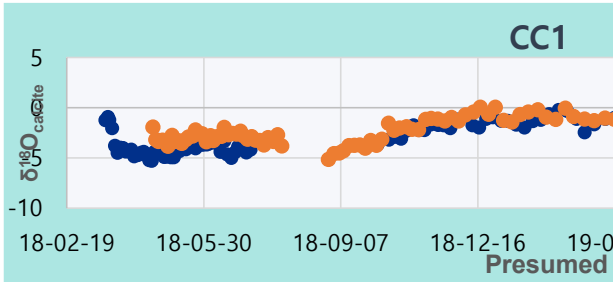
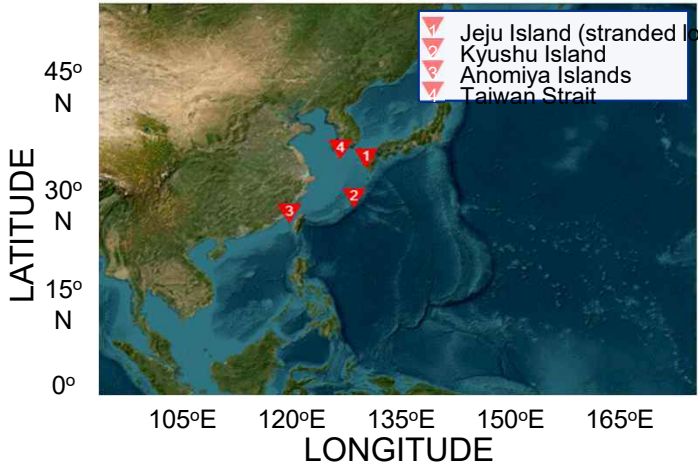
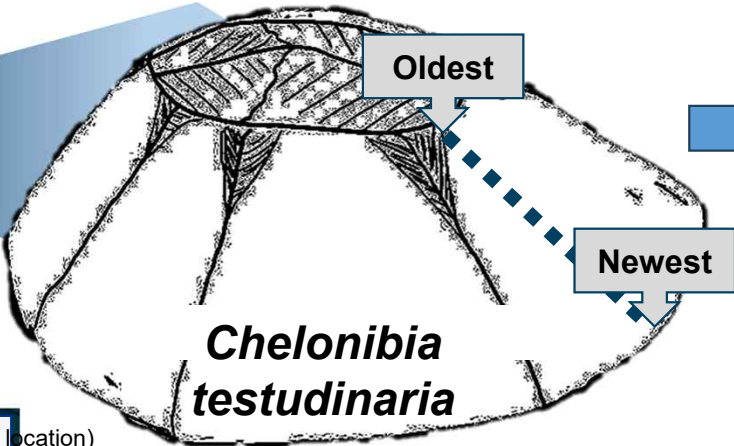
Figure. Genetic composition of loggerhead in Jeju Island and rookeries in Japan. The haplotype frequencies in Japan were referred to Matsuzawa et al. (2008)

S11(BIO) 16587 Jang et al. Connectivity of sea turtles in Jeju Island of Republic of Korea to the populations in the Western Pacific

Presuming Sea Turtle Pathway Using $\delta^{18}\text{O}$ from Commensal Barnacle Shell by SIMS (Secondary Ion Mass Spectrometer) ft. KBSI



“CC1” 63 weeks before stranding



S11(BIO) 16505 Kyungsik et al. Presuming the pathways of sea turtles by using $\delta^{18}\text{O}$ values from commensal barnacle shells

Derelict fishing gear and the sea turtle stranding



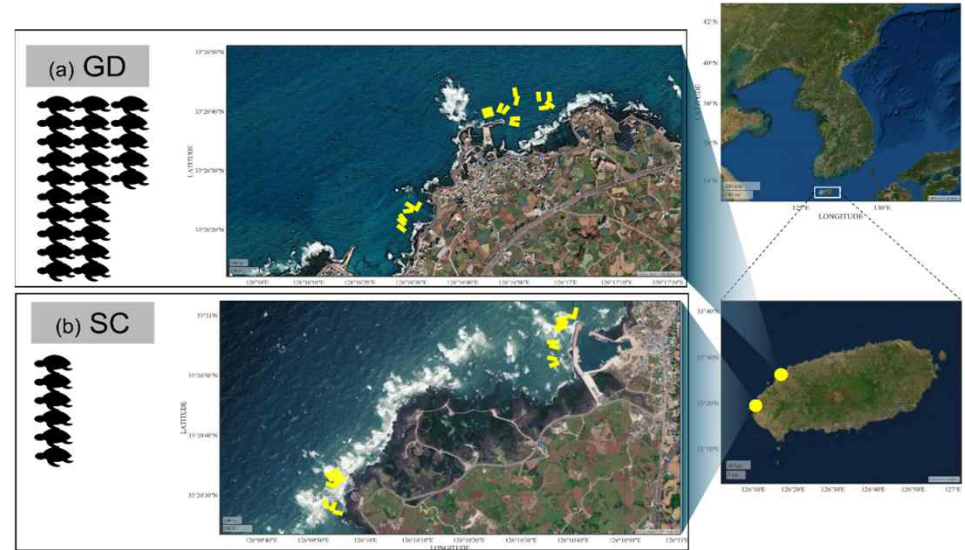
- **Objectives**

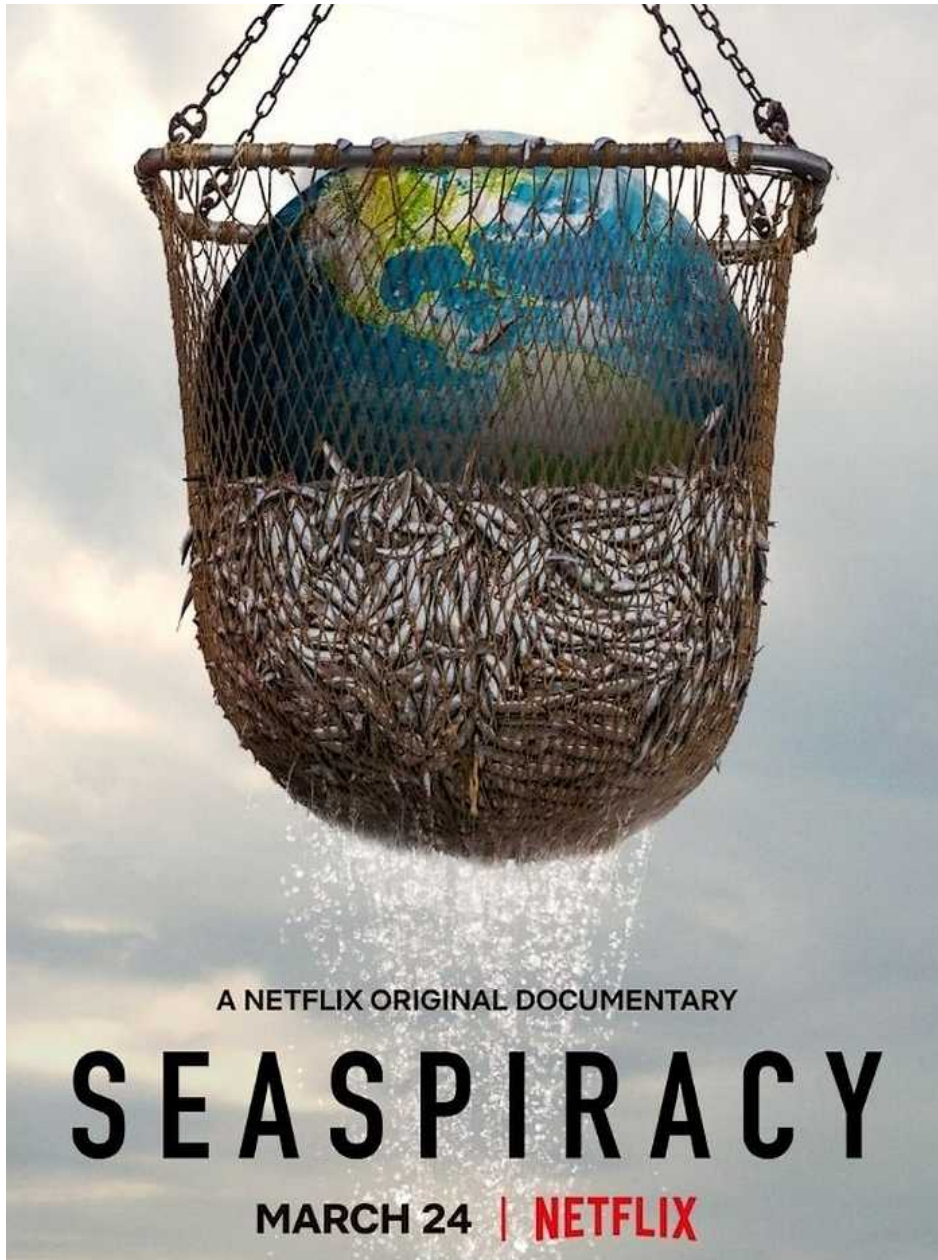
To investigate the impact of DGF on sea turtle stranding

- **Methods**

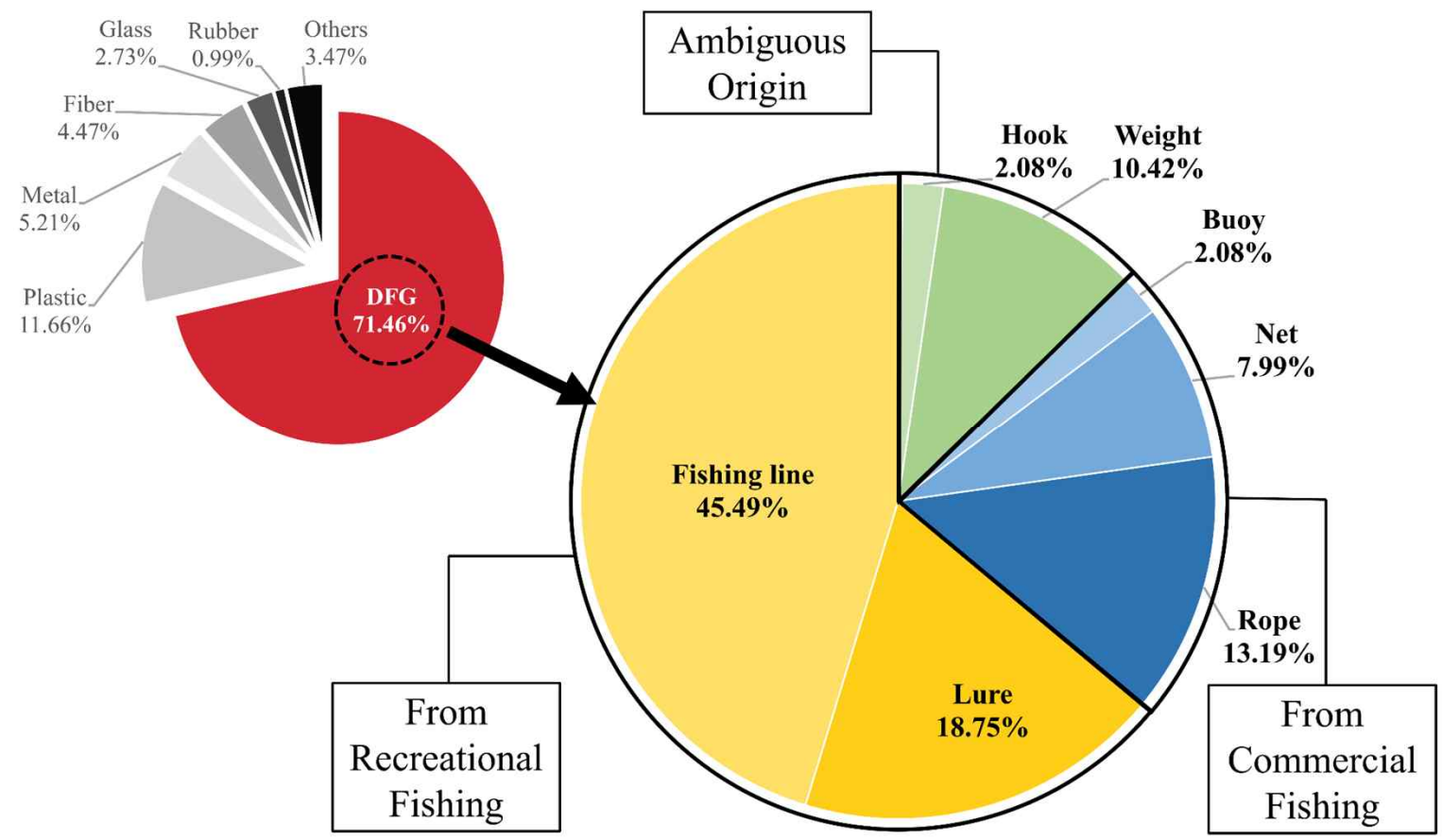
SCUVA diving

Compare DFG btw two sites which have different stranding pressure.



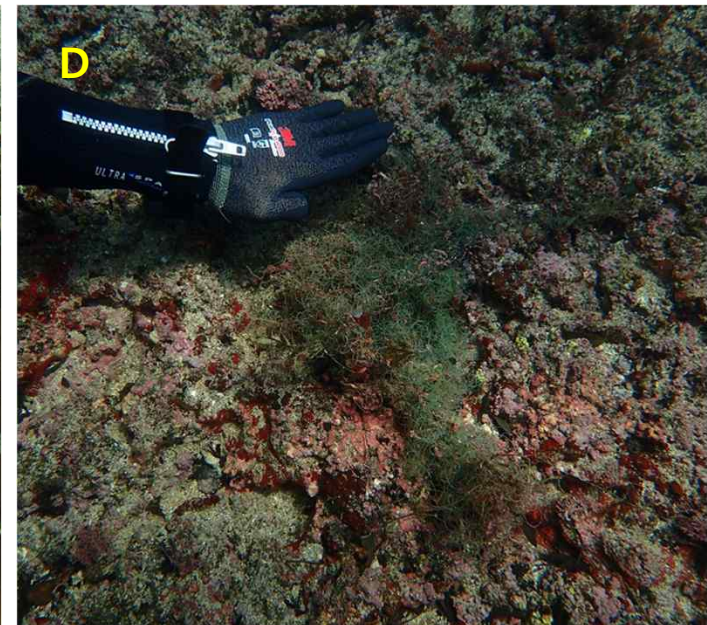
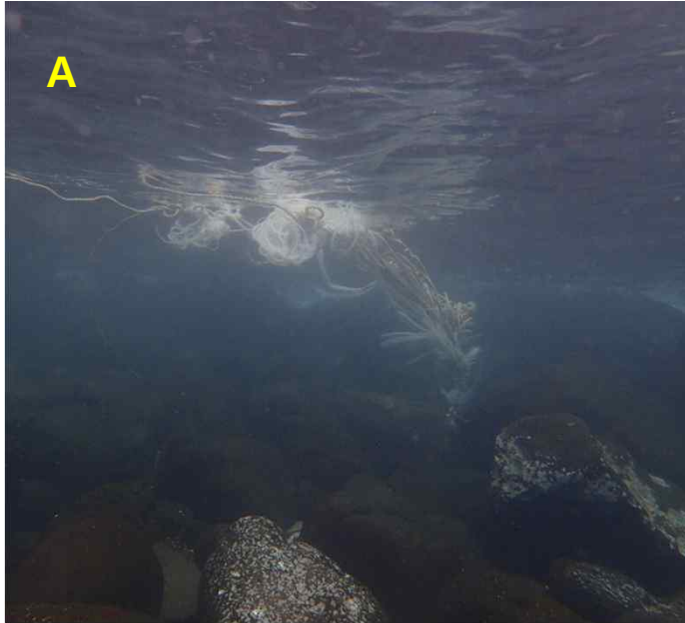


Underwater Plastic Garbage in Jeju Fishing Village

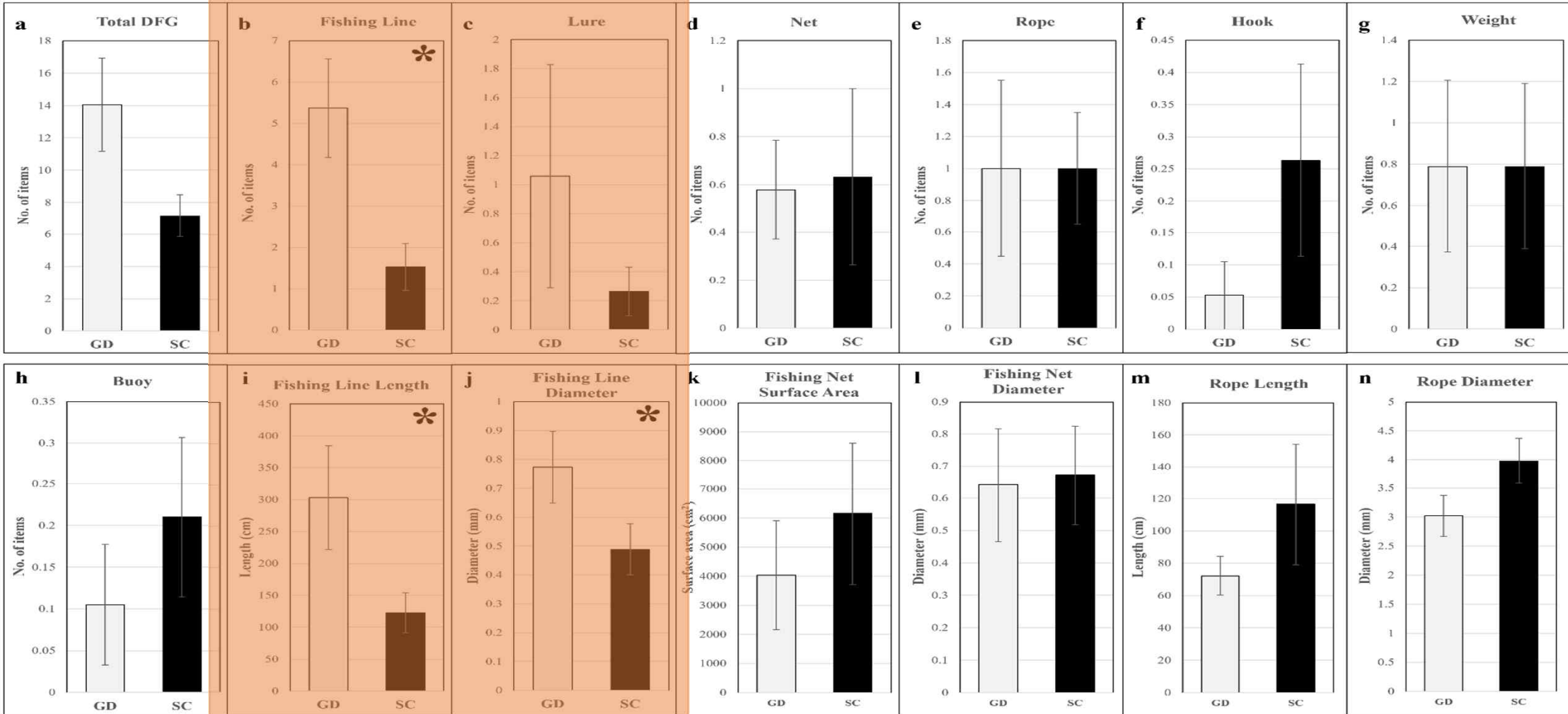


Derelict fishing gears

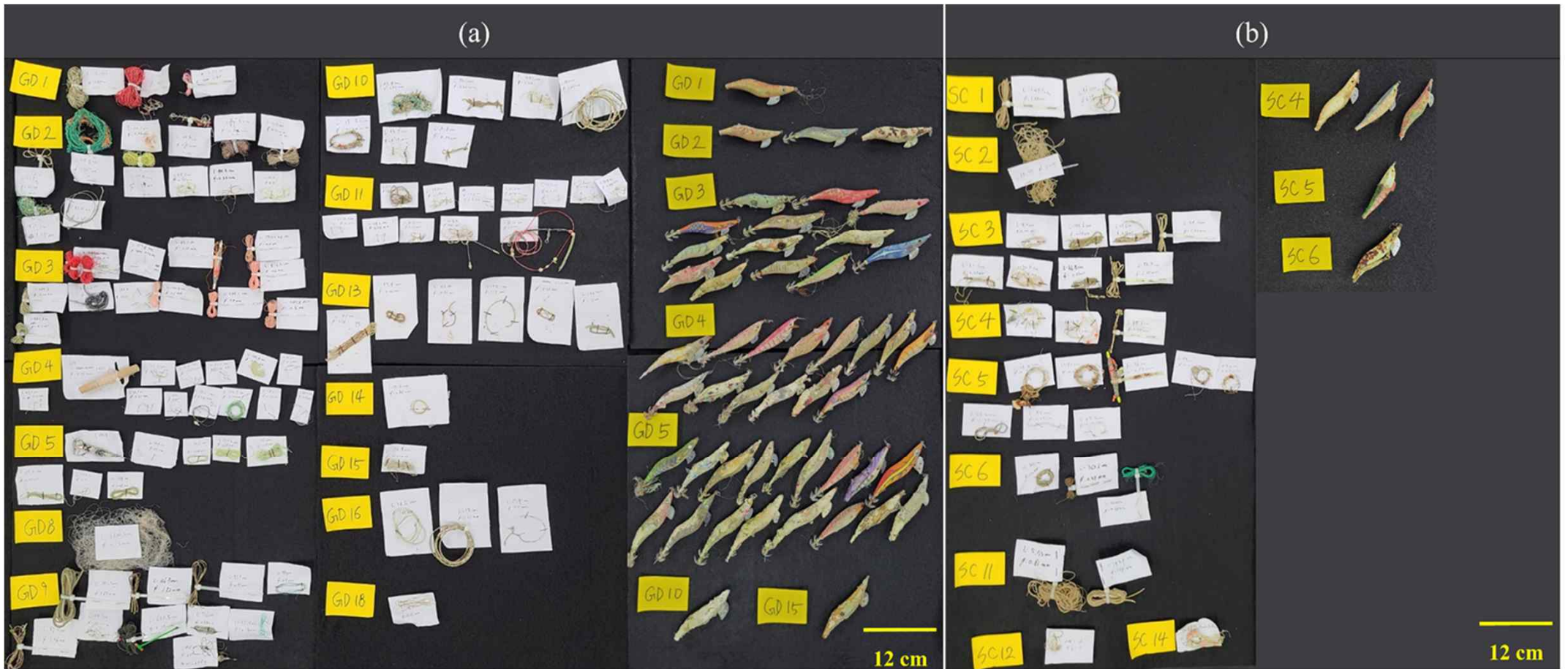
- A. Rope
- B. Lure
- C. Fishing line
- D. Nets



GD SC



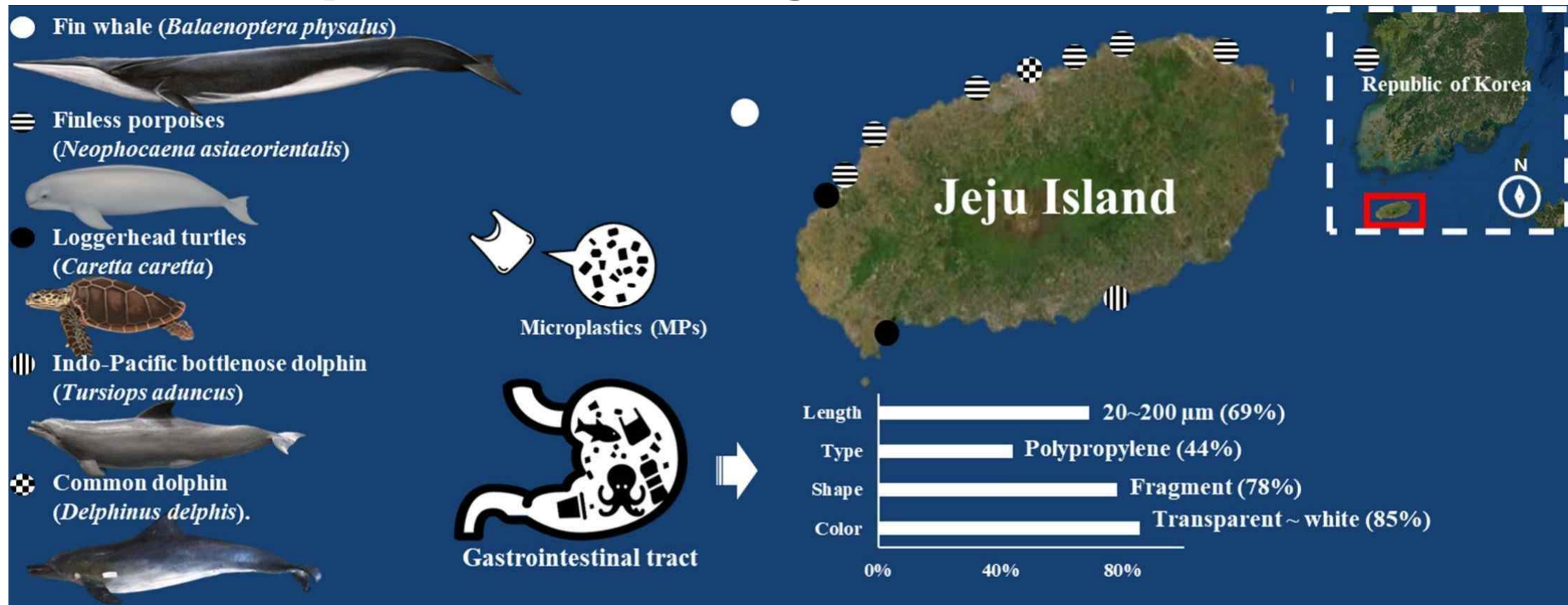
Fishing lines and lures



Fishing lines found in Necropsy

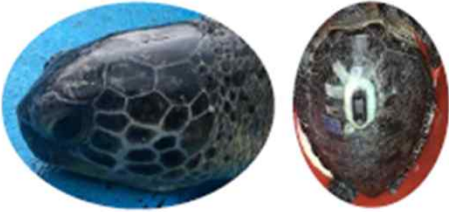


Microplastics in large marine animals





ID710313
First (green) sea turtle released in 2019



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ID710314 (released in 2019)



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First loggerhead sea turtle



ID710315_Purunee (푸르니)



ID718338_Bit-gyeol (빛걸)



ID718339_Parang (파랑)



ID718337_Dol-mook (돌묵)



Knowing is behaving!
(알면 행동한다)

