

PALMYRA ATOLL dFAD STRANDING HISTORY AND DEVELOPMENT OF THE PACIFIC'S FIRST FAD WATCH PROGRAM

The Nature
Conservancy 
Hawai'i and Palmyra

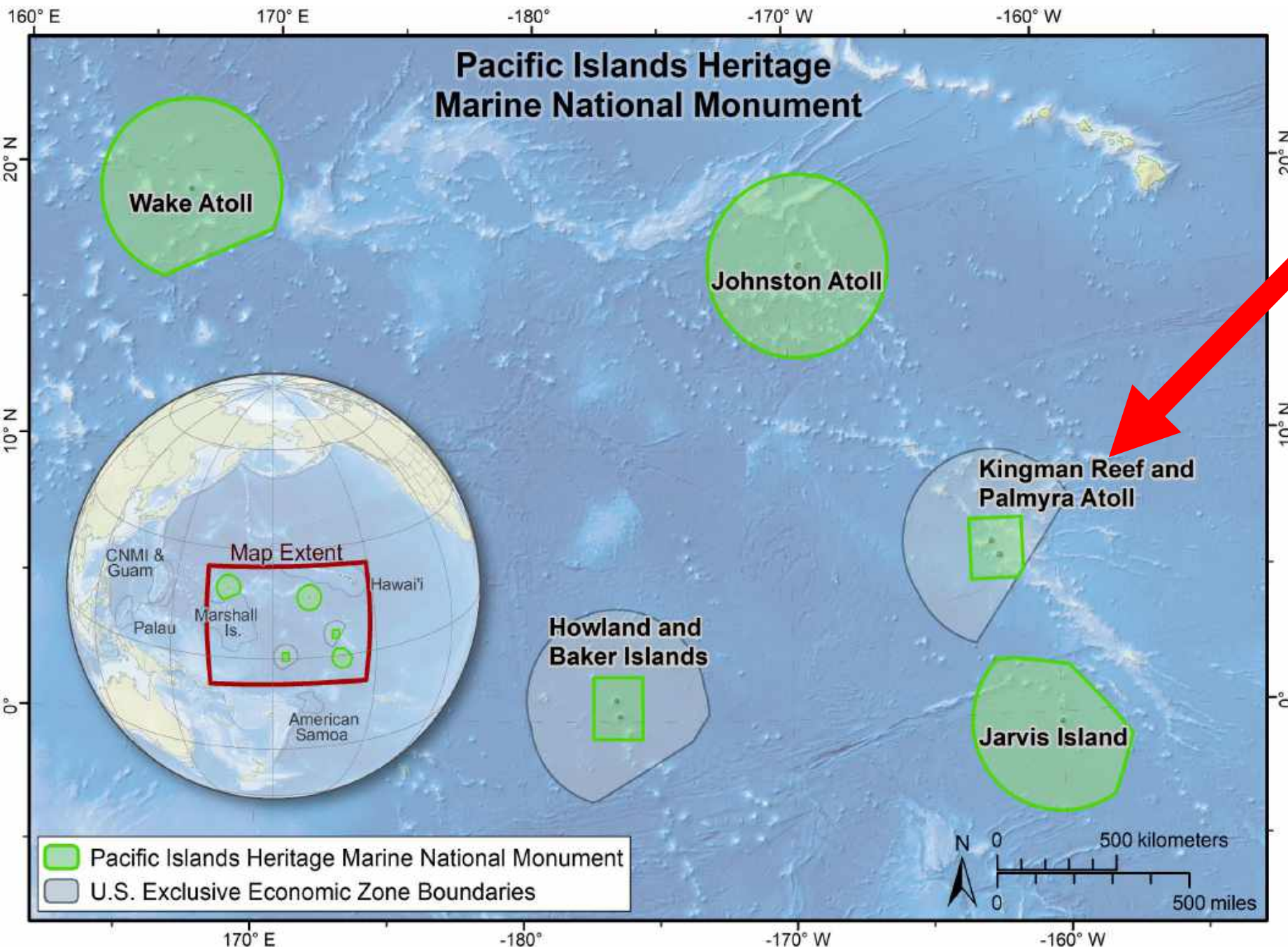
PALMYRA ATOLL

FAD Watch
Program



Kydd Pollock- Pelagic Conservation Strategy Lead-TNC

Pacific Islands Heritage Marine National Monument (PIHMMN)



Palmyra Atoll

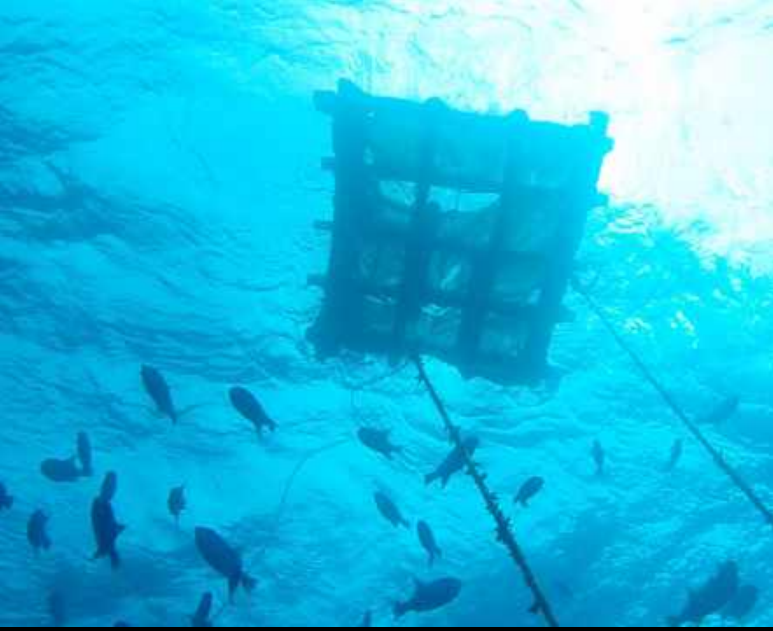
- ~6 degrees north of the equator
- 960 miles SSW of Hawaii
- US Territory
- Northern Line Islands
- Multiple layers of protection





© Adi Khen





Palmyra Atoll

- ~ 10 miles long (largo) and ~2 miles wide (extenso)
- 25 islets / 580 ac of land (de tierra)
- 6,500 ac of coral reef (Arrecife de coral)

2 dFAD Data Sets (Conjuntos de datos)-

1- 2009-present grounded dFAD data-longest running in the Pacific
(2009-presente: datos dFAD terrestres, el más longevo en el Pacífico)

2- Palmyra FAD Watch Program (PFWP) data covered by a strict MOU

Los datos del Programa de Vigilancia FAD de Palmira (PFWP) están cubiertos por un estricto memorándum de entendimiento



dFAD CONSERVATION AND MANAGEMENT OBJECTIVES AT PALMYRA ATOLL

MISSION- The Palmyra FAD Watch Program (PFWP) seeks to develop a robust coral reef conservation initiative through a collaboration with the Pacific purse seine tuna fishing industry by carrying out offshore dFAD recovery before the devices have the opportunity to ground on the sensitive ecosystem

MISIÓN- El Programa de Vigilancia de FAD de Palmira (PFWP) busca desarrollar una sólida iniciativa de conservación de arrecifes de coral a través de una colaboración con la industria de pesca de atún de cerco del Pacífico mediante la recuperación de dFAD en alta mar antes de que los dispositivos tengan la oportunidad de encallar en el ecosistema sensible

Analyze existing **grounded** dFAD data

- **Quantify the number of dFAD grounding events at Palmyra since 2009**

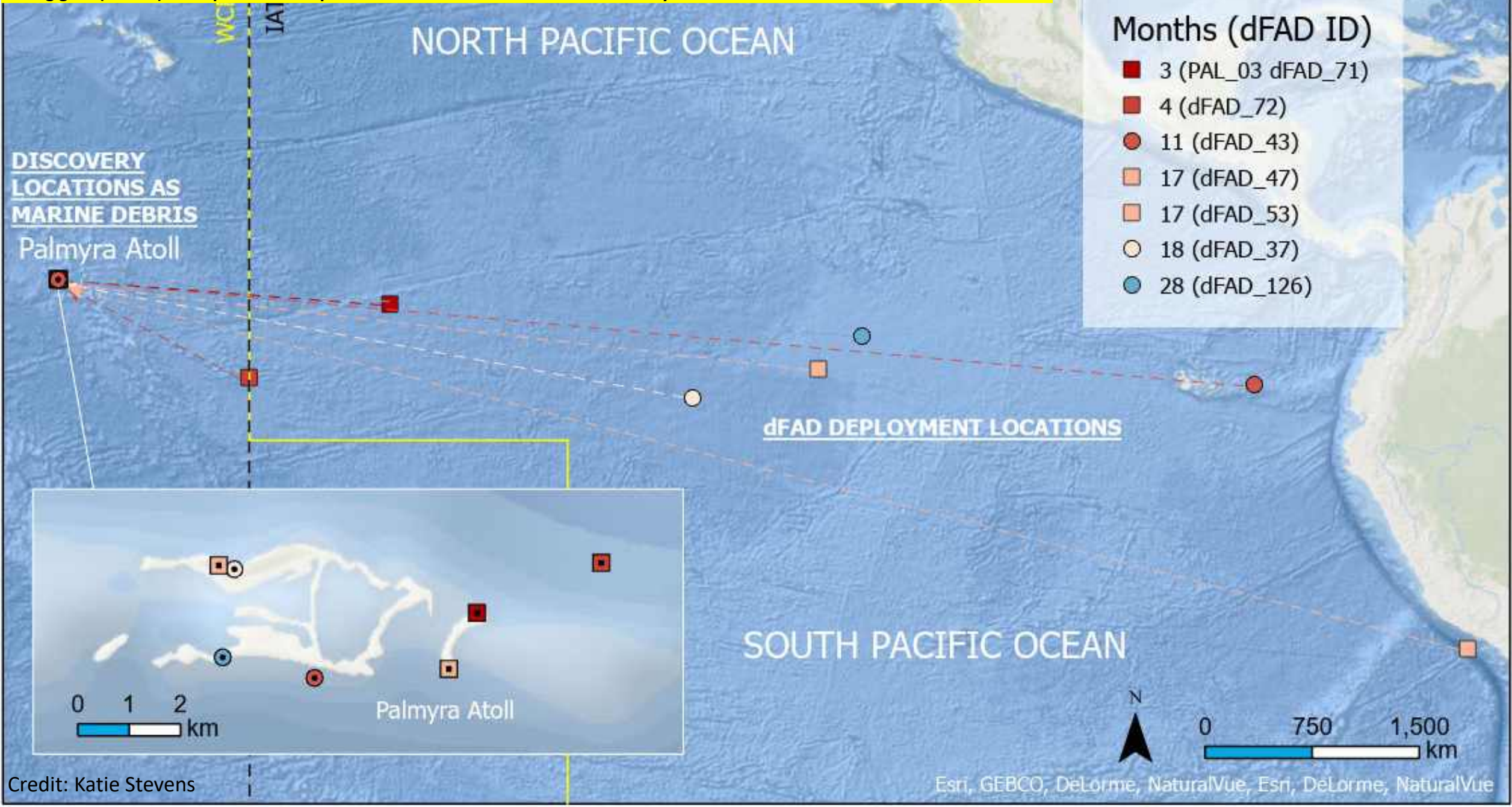
Cuantificar el número de eventos de puesta a tierra de dFAD en Palmyra desde 2009

- **Assess pollution and ecosystem impacts**

Evaluar la contaminación y los impactos en los ecosistemas

- **Evaluate dFAD materials and designs of those found on Palmyra- are they changing?**

Evalúe los materiales y diseños de dFAD de los que se encuentran en Palmira: ¿están cambiando?





Raft Style

What does a dFAD look like at Palmyra?

¿Cómo es un dFAD en Palmira?

- | | | |
|---|----------------|----------------|
| - | Satellite Buoy | Boya satelital |
| - | Float | Flotar |
| - | Tail | Cola |
| - | Weight | Peso |



Tail



Burrito Style

Submerged 'BOX' Style



Weight



Satellite buoys at Palmyra

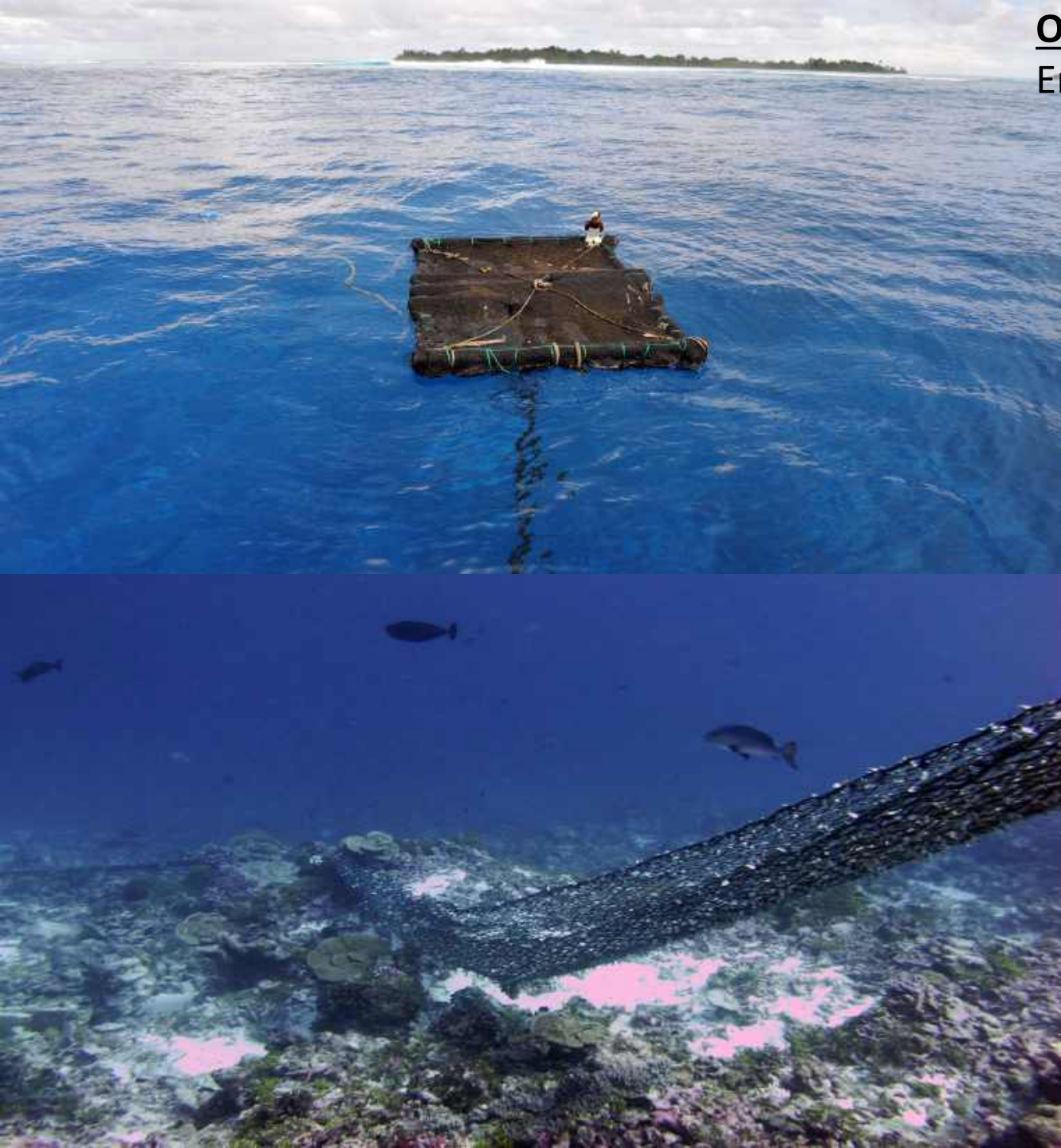
Boyas satelitales en Palmira



Satlink

Zunibal

Marine
Instruments



Offshore reef dFAD groundings at Palmyra

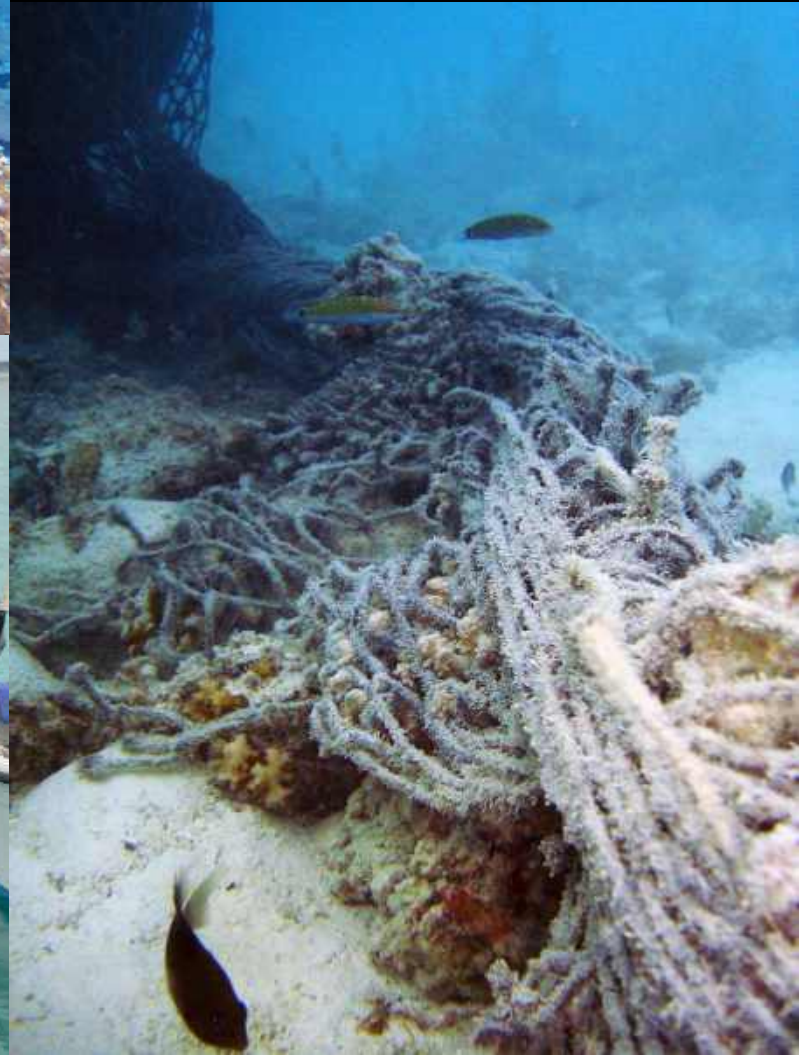
Encallamientos de arrecifes dFAD en alta mar en Palmyra

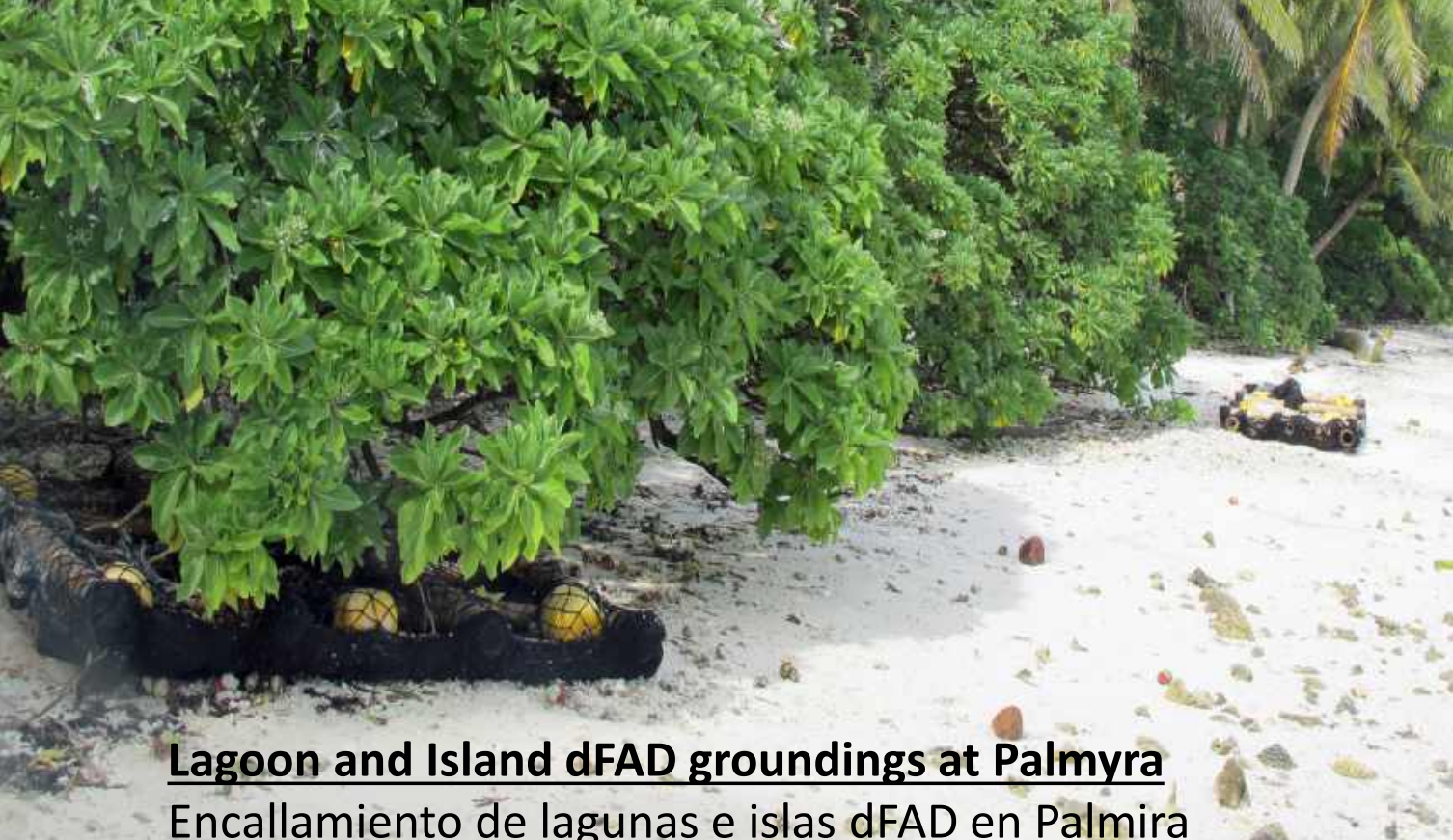




**Back reef dFAD groundings at
Palmyra**

Encallamientos de dFAD en Palmyra





Lagoon and Island dFAD groundings at Palmyra
Encallamiento de lagunas e islas dFAD en Palmira



Palmyra FAD Watch Program includes-

El programa de vigilancia FAD de Palmyra incluye-

- Over 20 Pacific PS industry collaborating companies
- Satellite Buoy vendors
- TNC
- Program Lead Sponsor- **Anthropocene** Institute

US PURSE SEINE TUNA GROUP



PALMYRA FAD WATCH PROGRAM

- **Quantify numbers of dFADs around Palmyra Atoll and Kingman Reef**
- Cuantificar el número de dFADs alrededor del atolón de Palmyra y el arrecife Kingman
- **Feasibility of intercepting the dFADs that threaten to ground on Palmyra**
- Factibilidad de interceptar los dFADs que amenazan con encallar en Palmira
- **How TNC can repurpose dFAD satellite buoys to benefit island nations**
- Cómo TNC puede reutilizar las boyas satelitales dFAD para beneficiar a las naciones insulares
- **Study the oceanic currents associated with the dFADs within the PIHMNM**
- Estudiar las corrientes oceánicas asociadas a los dFADs dentro del PIHMNM
- **Develop a model that is scalable to other Pacific Island nations**
- Desarrollar un modelo que sea escalable a otras naciones insulares del Pacífico



Palmyra FAD Watch Program Costs

Costos del Programa Palmyra FAD Watch

- **TNC covered all costs of program implementation including staff time, satellite account set up and continued monthly data transfer**

TNC cubrió todos los costos de implementación del programa, incluido el tiempo del personal, la creación de una cuenta satélite y la transferencia mensual continua de datos

- **TNC covers all dFAD recovery costs @ \$800/event**

TNC cubre todos los costos de recuperación de dFAD @ \$ 800 / evento

- **TNC pays ~\$25 K/year to run the program**

TNC paga ~ \$ 25 K / año para ejecutar el programa

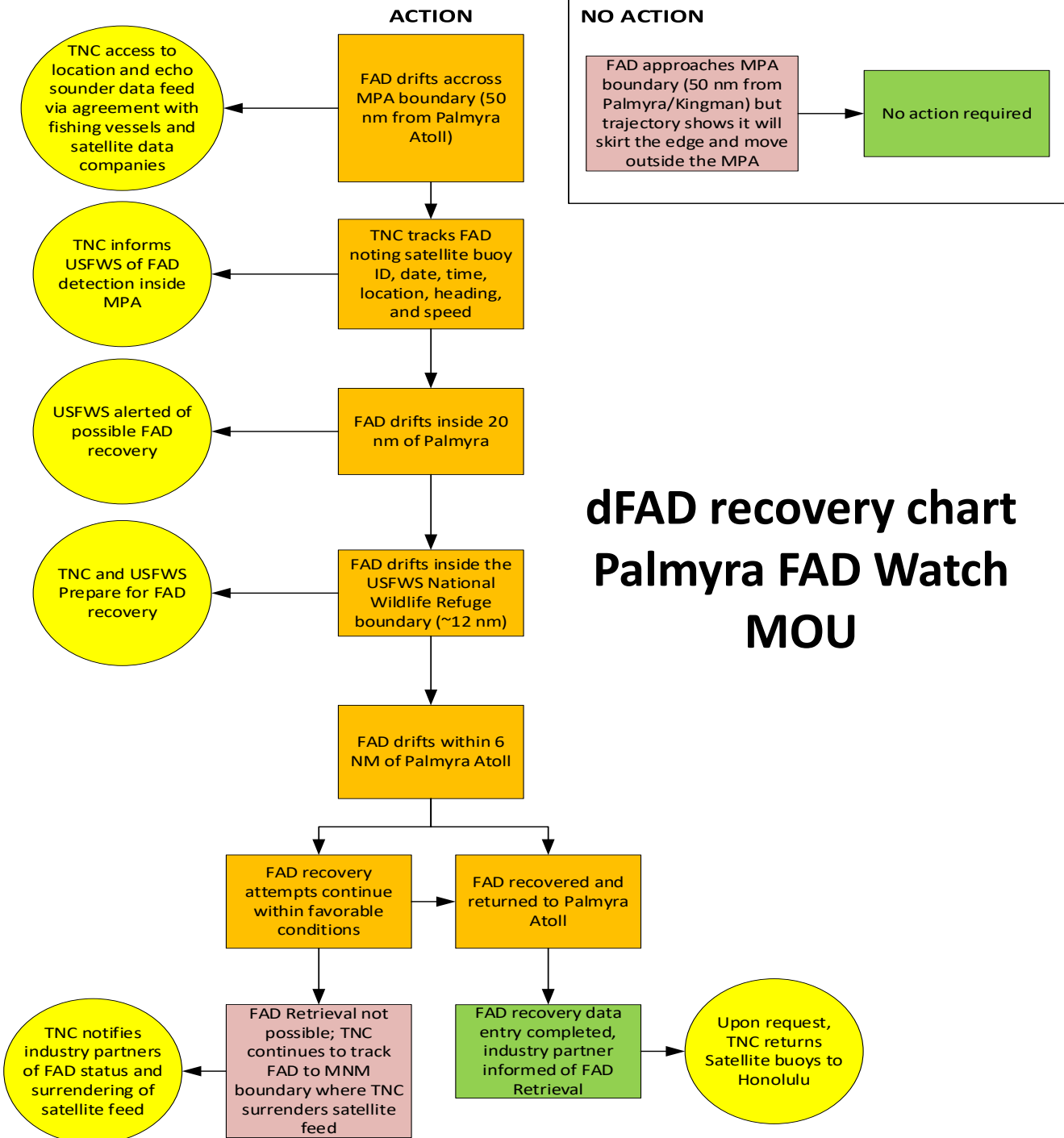
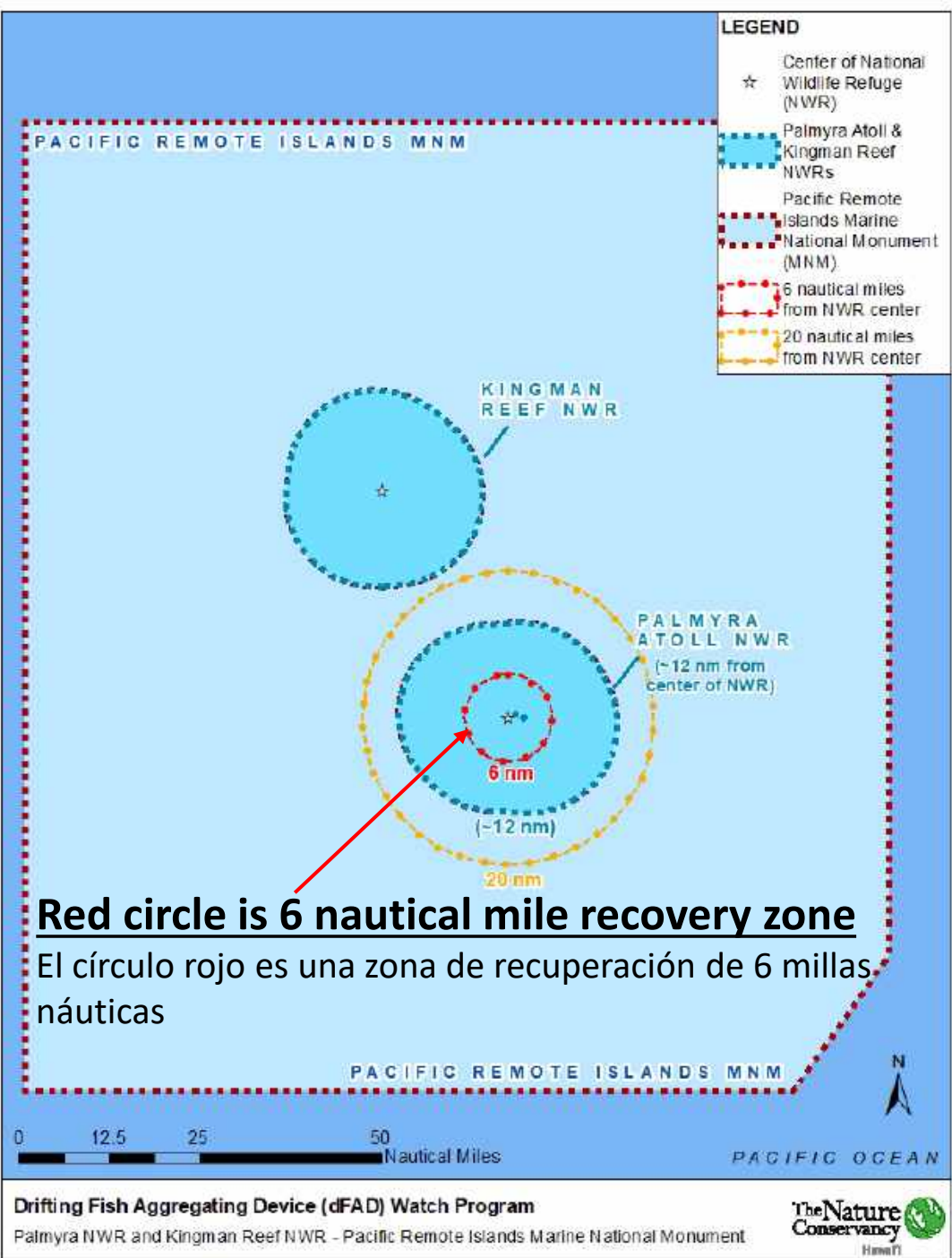
- **Industry covers satellite drift tracks and echosounder data while dFADs transit through the PIHMNM**

La industria cubre las trayectorias de deriva por satélite y los datos de ecosondas, mientras que los dFADs transitan a través del PIHMNM

- **TNC produces annual program reports for fishing industry collaborators**

TNC produce informes anuales de programas para colaboradores de la industria pesquera





Palmyra FAD Watch Program Timeline Cronología del programa Palmyra FAD Watch

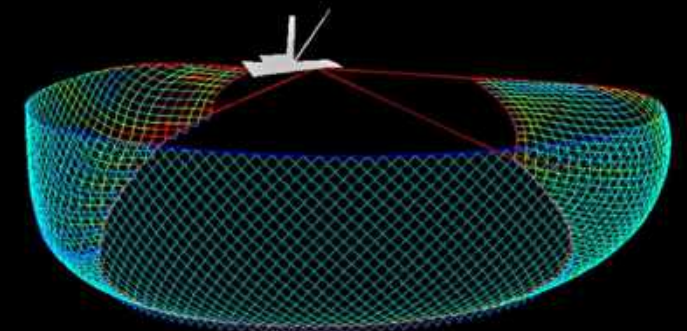
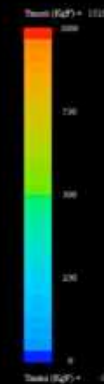
- **2021** -US Purse Seine Tuna Group (USPSTG) signed the MOU in May to start the PFWP
 - June 2021 Cape Fisheries Purse Seine Fleet joined the PFWP
 - Increase buoy locations from every 24 hours to once every 4 hours
- **2022** -TNC has data collection area expanded (30 NM), over doubling the dFAD tracking area
 - The USPSTG and Cape Fisheries sign 2nd year MOU
 - TNC receives approval to sign on AGAC Pacific Spanish PS vessels to the PFWP
- **2023** -MOU signed by Spanish fleet director, over doubling the vessels in the program
 - The USPSTG and Cape Fisheries sign 3rd year MOU
- **2024** -4th year all collaborators MOU's signed for the PFWP
 - Ran and concluded the American Samoa FAD tracking pilot project
 - Added Zunibal buoy vendor to the PFWP
- **2025** -5th year all collaborators MOU's signed for the PFWP
 - Develop Aitutaki, Cook Islands dFAD tracking pilot project
 - Add new PS fleets?

Palmyra's Relevance to Small Island Nations

La relevancia de Palmyra para las pequeñas naciones insulares

Training Documents- 'PALMYRA ATOLL FAD WATCH PROGRAM Location, Retrieval Process and Safety Requirements for a dFAD Recovery'

- Who uses dFADs, why and how?
- How do they affect Palmyra and how often?
- How do you know when a dFAD is on a grounding track to Palmyra?
- How do we respond to a threatening dFAD?
- What equipment do we need to carry out a recovery?
- What do we do with it after we recover it?



dFAD response

Respuesta dFAD

TNC Palmyra Marine Assets
Working on a small island with limited resources

TNC Palmyra Activos Marinos Trabajar en una isla
pequeña con recursos limitados





dFAD Retrieval at Palmyra Atoll = **Human Power!**

Recuperación de
dFAD en el atolón de
Palmyra = ¡Poder
humano!





**Marine
debris
disposal
issue
on a small
island**

Problema de
eliminación de
desechos
marinos en
una pequeña



Challenges of Recovering a dFAD at Palmyra

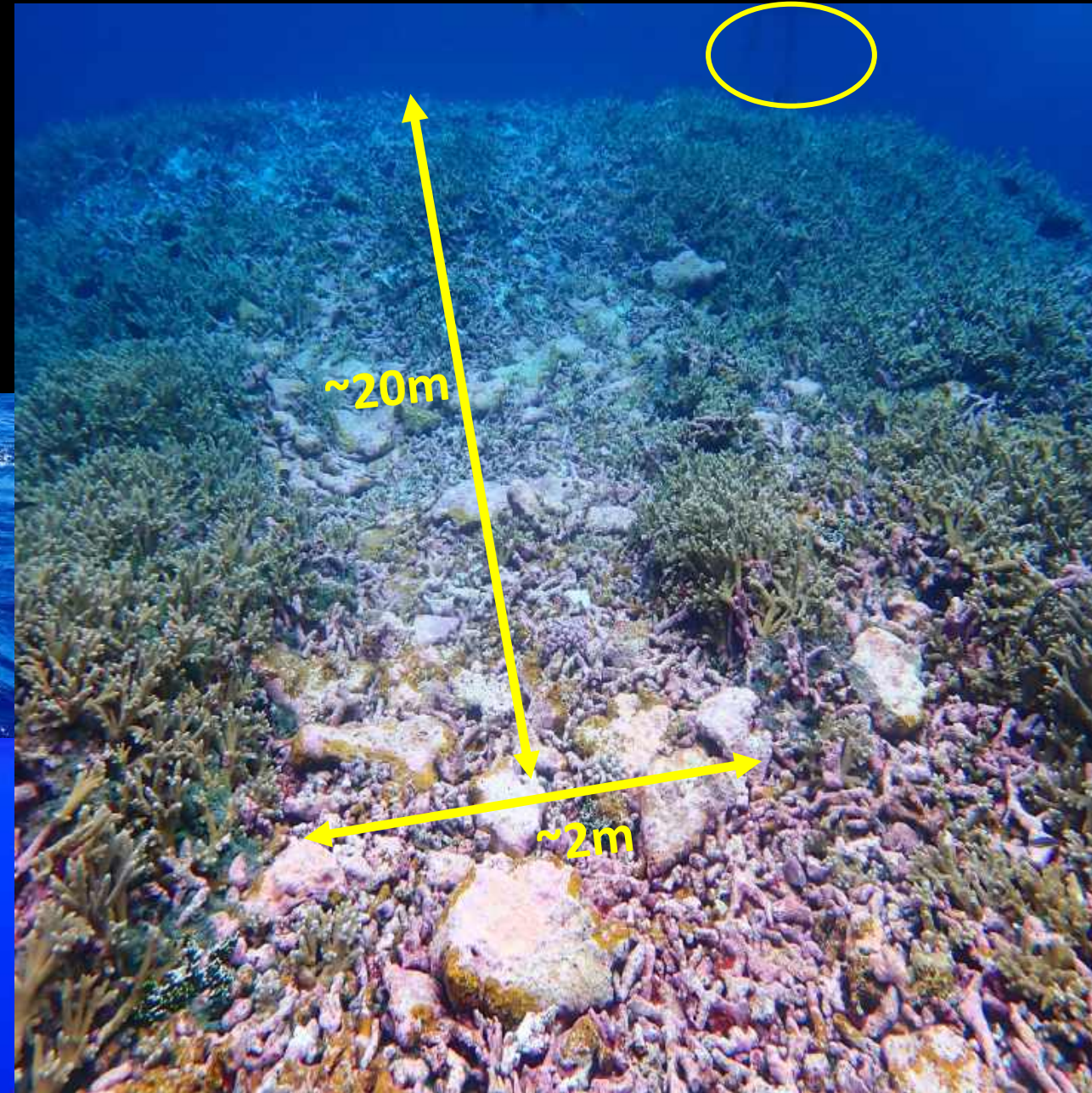
Desafíos de la recuperación de un dFAD en Palmira

- Staff and offshore vessel availability
- Buoys not responding to polls
- Intermittent internet connectivity
- Poor weather conditions during recovery- wind, rain squalls, waves
- dFADs sinking below the surface

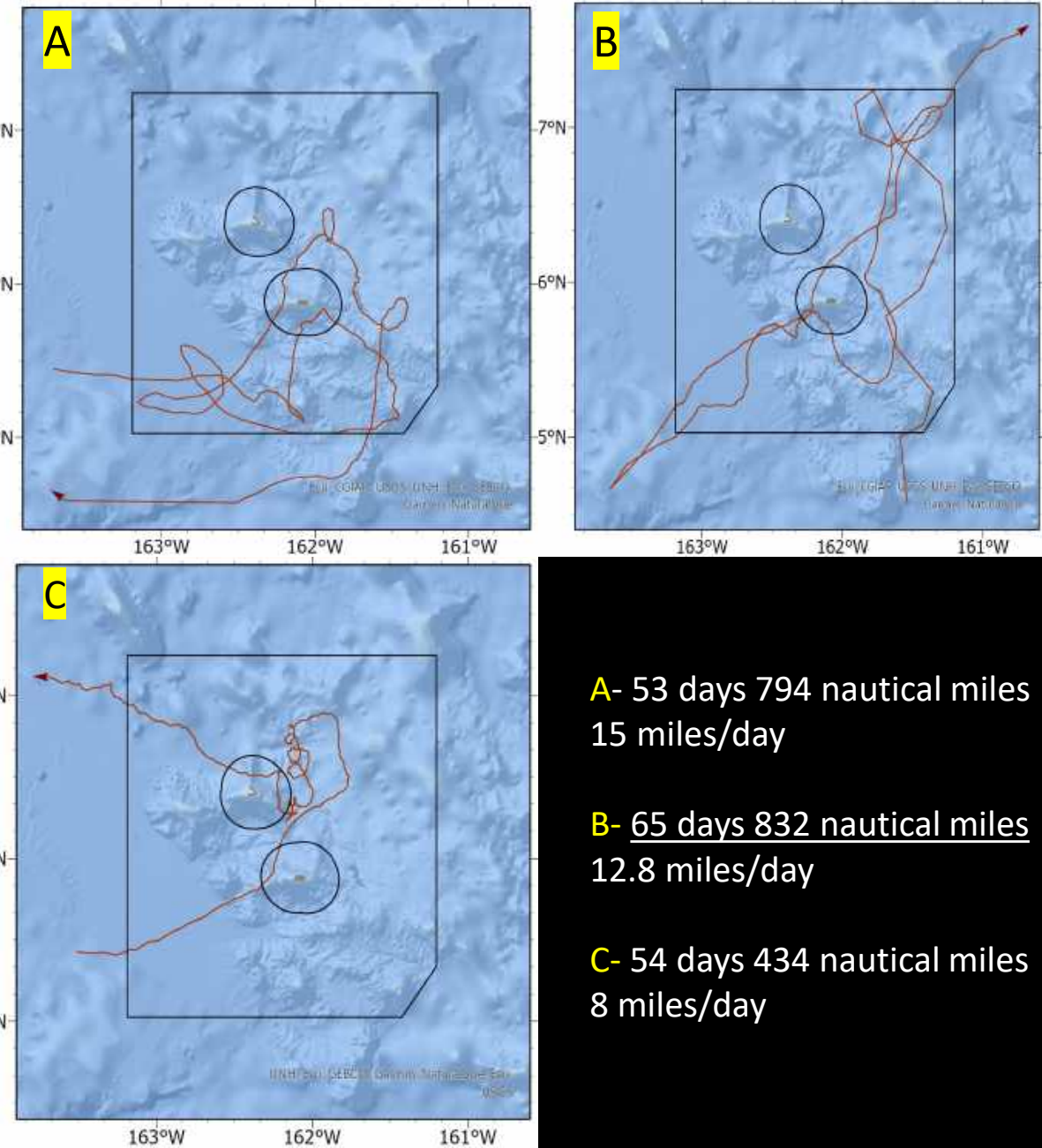


***Impact to fragile coral reefs if dFADs are **NOT** recovered**

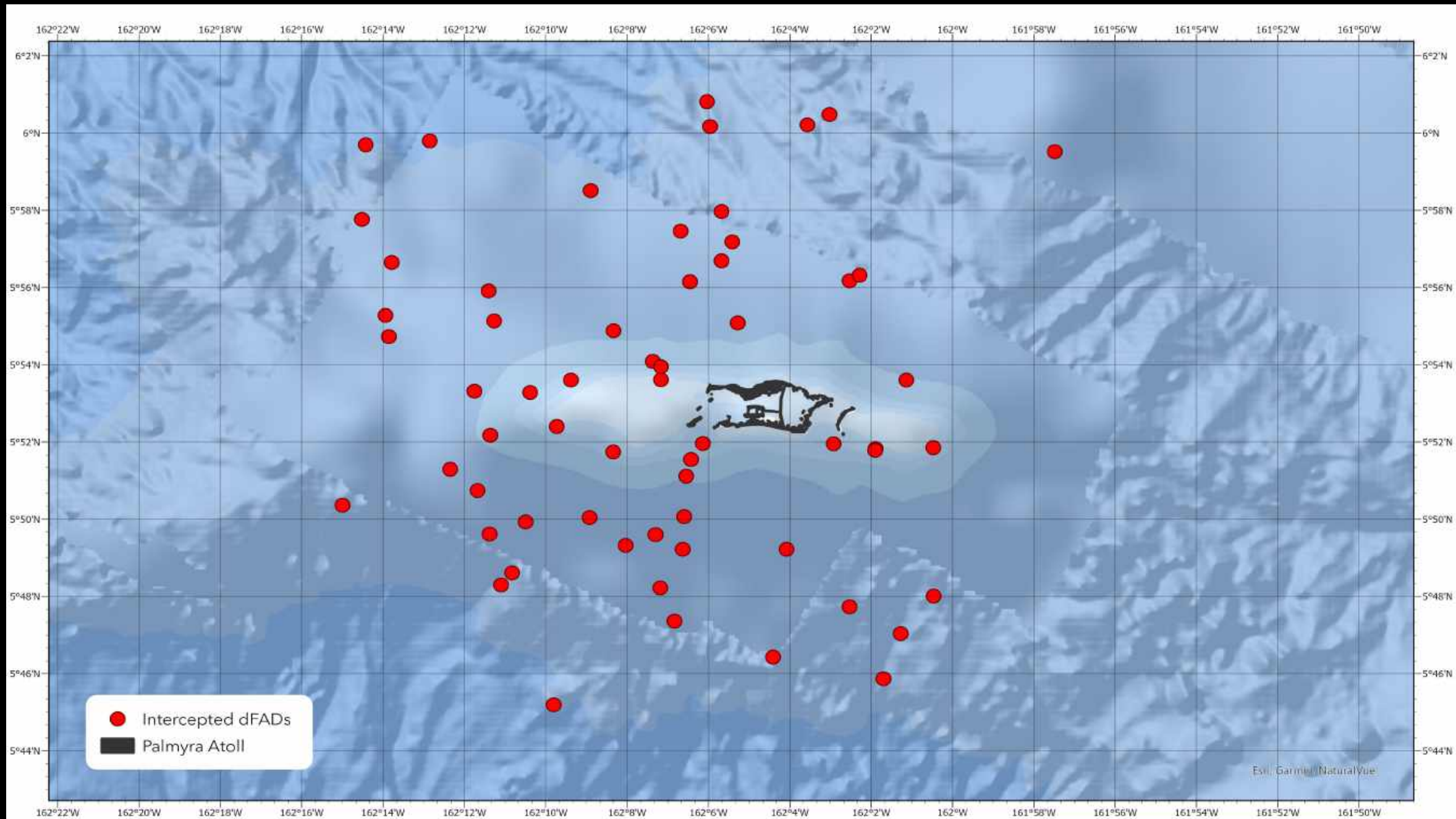
***Impacto en los frágiles arrecifes de coral si NO se recuperan los dFADs**



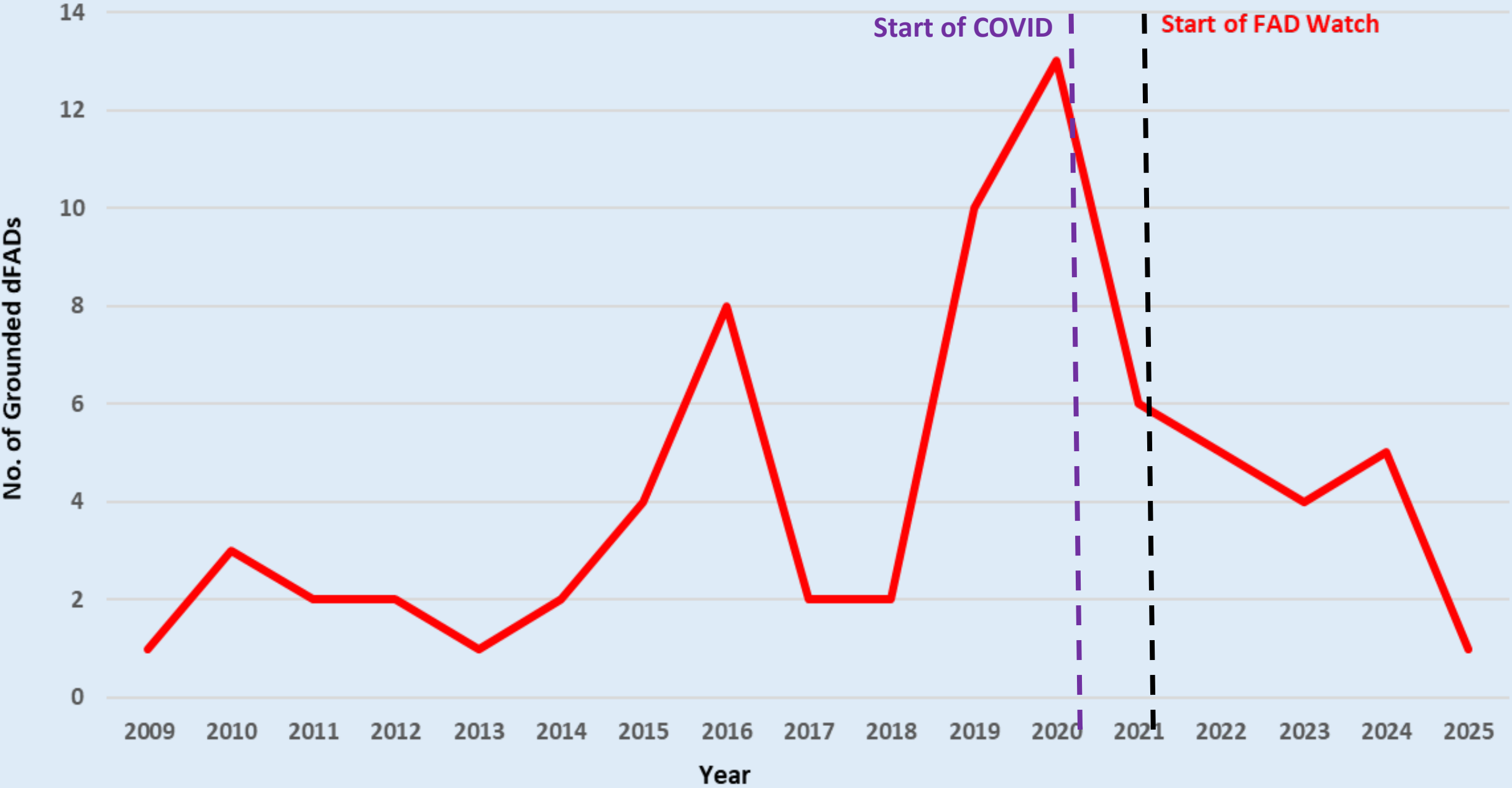
dFAD drift tracks around Palmyra- multiple passes



OFFSHORE dFAD RECOVERIES AT PALMYRA ATOLL 2021-2025



No. of Grounded FADs on Palmyra Atoll 2009-2025

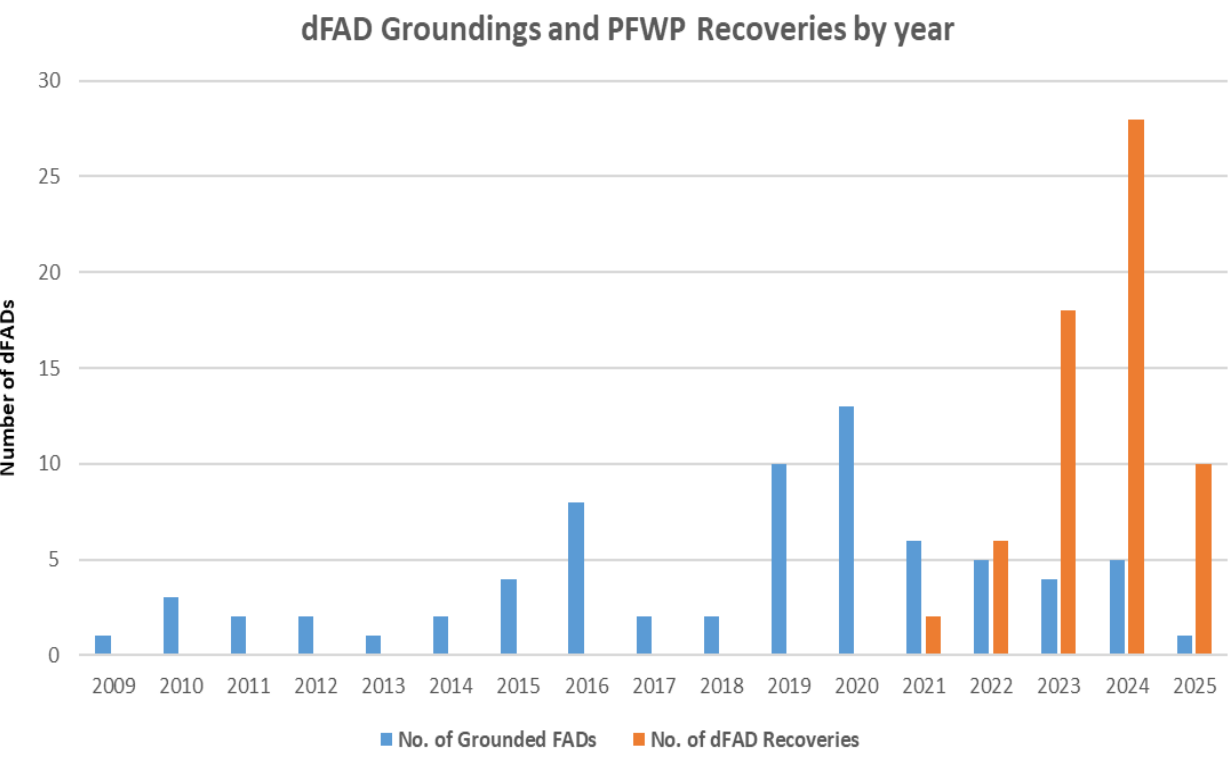


Palmyra dFAD Recoveries Recuperaciones de Palmyra dFAD

TNC carrying out their dFAD recovery responsibilities for the coral reef conservation success of the program

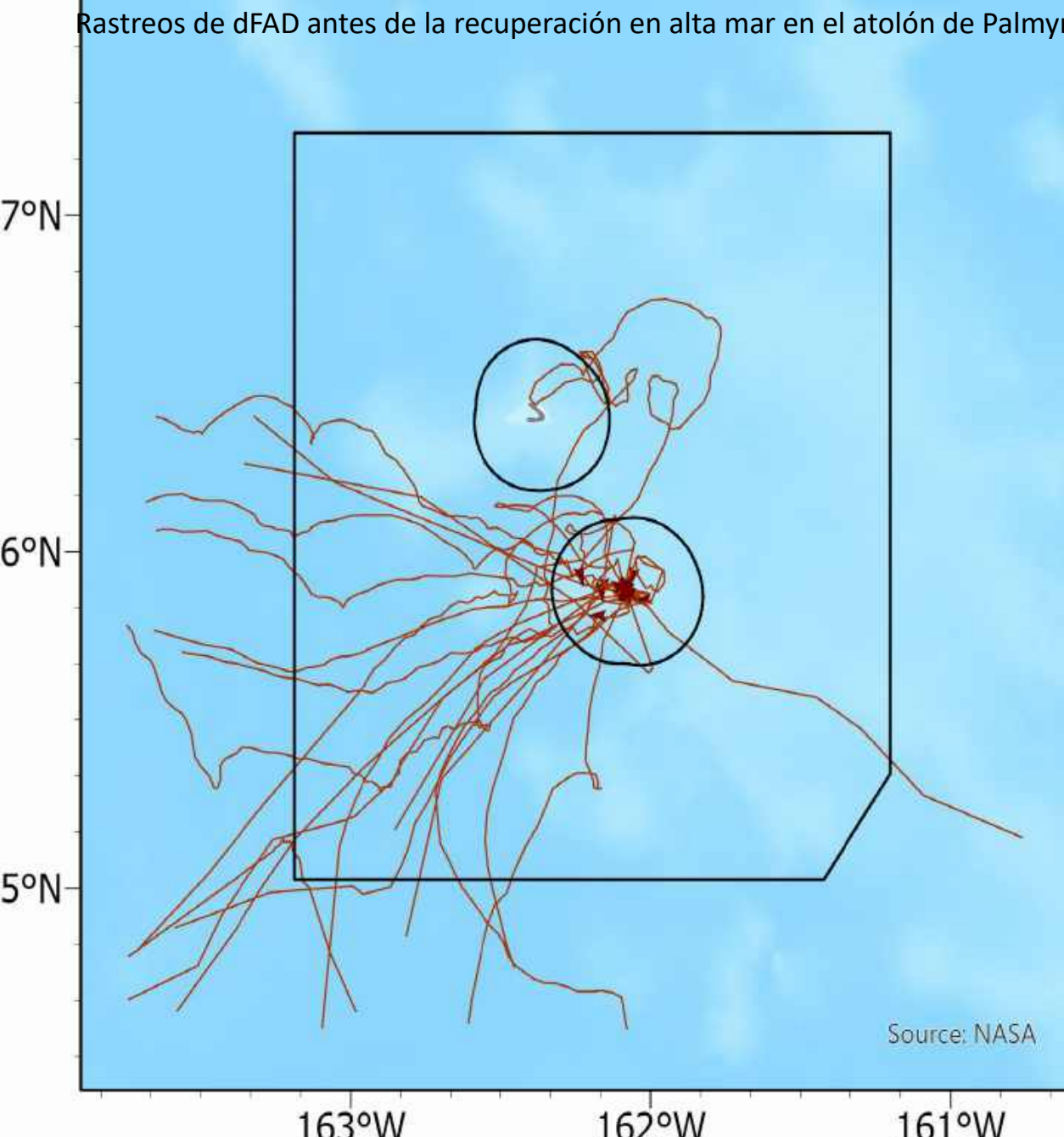
>60 dFAD recoveries at Palmyra within the MOU protocols of 6 nautical miles- all industry collaborators

>8,000' (~2,500m) of ropes, nets, canvas, shade cloth, bamboo, PVC pipes, chain, wire rope and buoys recovered prior to grounding on Palmyra's fragile coral reefs



dFAD tracks prior to offshore recovery at Palmyra Atoll

Rastreos de dFAD antes de la recuperación en alta mar en el atolón de Palmyra



Future Media and Fundraising Opportunities

- FAD Watch stories to potential funders
- Fisheries article and program success coverage
- Marine debris removal scientific papers



FISH & FISHERIES

Passing FAD: Partnership Protects the Reef at Palmyra Atoll

BY MATTHEW L. MILLER

MARCH 28, 2022 | Follow Matthew



NEWSROOM

Research Explores Use of Commercial Fishing Gear as a Conservation Tool

December 15, 2023 | Honolulu, HI



Futuros medios de comunicación y oportunidades de recaudación de fondos

NEWSROOM

The Nature Conservancy Announces Expansion of First Drifting Fish Aggregation Device Partnership to Drive Conservation & Pacific Island Food Security

May 02, 2023 | Hawaii



KEY OPERATIONAL LESSONS LEARNED

PRINCIPALES LECCIONES OPERACIONALES APRENDIDAS

- **Collaboration between island nations and the PS industry is critical**
- **TNC has seen tangible conservation value through this relationship with the PS industry**
- **PS industry collaborators have been exceptionally cooperative with TNC**
- **PS company's showing commitment beyond Fishery Improvement Projects (FIPs)**
- **Access to real time buoy locations is essential to successful recoveries**
- **FAD Watch can be carried out on a limited budget and low resources
(need more mechanical advantage)**
- **Funding is challenging but some funds recently raised for 5th year of program**

NEXT STEPS PRÓXIMOS PASOS

- American Samoa pilot dFAD tracking study completed in 2024. 2025 develop a FAD recovery program
 - US Purse Seine Tuna Group, Cape Fisheries, Satlink, StarKist Samoa-funders and TNC
- Assist the island of Aitutaki, Cook Islands to learn more about dFAD interactions on their reefs
- Work with French Polynesia to develop a FAD watch program
- Monitor dFAD material changes to non-entangling and biodegradable
- Utilize dFADs drift tracks as scientific tools for Central Pacific oceanographic current modelling
- Expand the Micronesian Artisanal Fishing Community Project
- Retaining current collaborators and signing new companies/vessels onto the program-Western and Eastern Pacific?
- Scale up dFAD recovery efforts with other Pacific Island nations utilizing the Palmyra model



THANK YOU/GRACIAS

ACKNOWLEDGMENTS (Palmyra FAD Watch couldn't have happened without the following)

US Purse Seine Tuna Group

Cape Fisheries

Asociación de Grandes Atuneros Congeladores (AGAC)

Satlink, Marine Instruments and Zunibal

US Fish and Wildlife Service

