

TESTS

Trials with JellyFADs

September 1st, 2022

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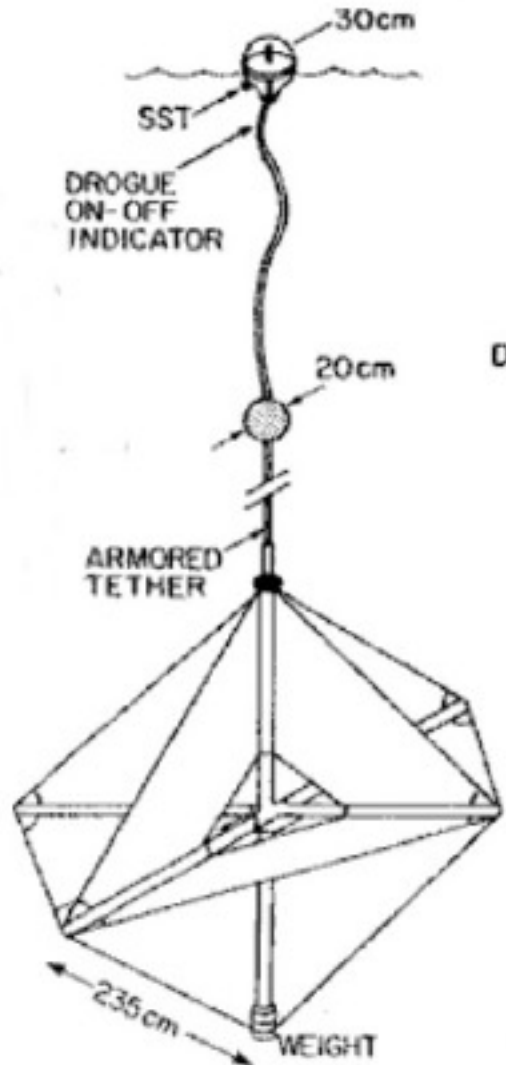
In order to work with organic materials we need to reduce FAD's structural stress

Jelly-FAD



- **Neutral buoyancy**
- **Reduces structural stress**
- **Reduces the need for plastic buoys**

SLOW DRIFT



Shape	Drag Coefficient
Sphere	0.47
Half-sphere	0.42
Cone	0.50
Cube	1.05
Angled Cube	0.80
Long Cylinder	0.82
Short Cylinder	1.15
Streamlined Body	0.04
Streamlined Half-body	0.09



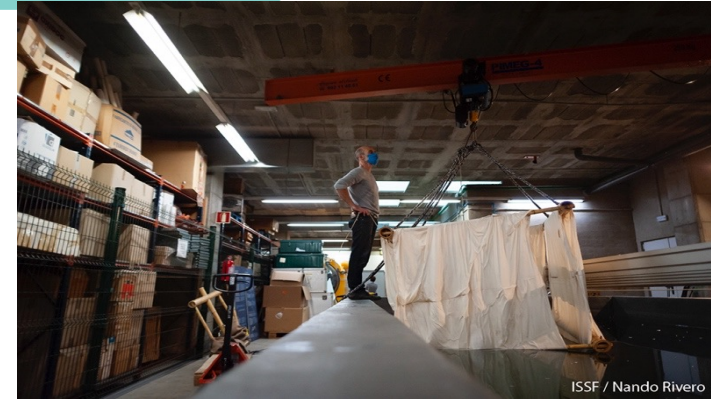
Measured Drag Coefficients ³

Biodegradable materials' density measurements over time

Neutral buoyancy



ISSF / Nando Rivero



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**Seawater
tank**



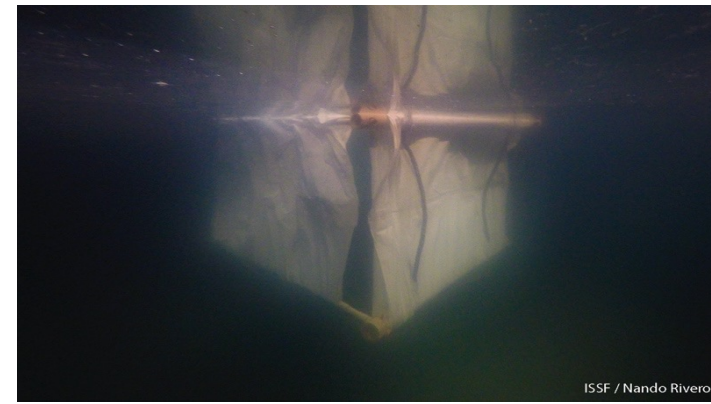
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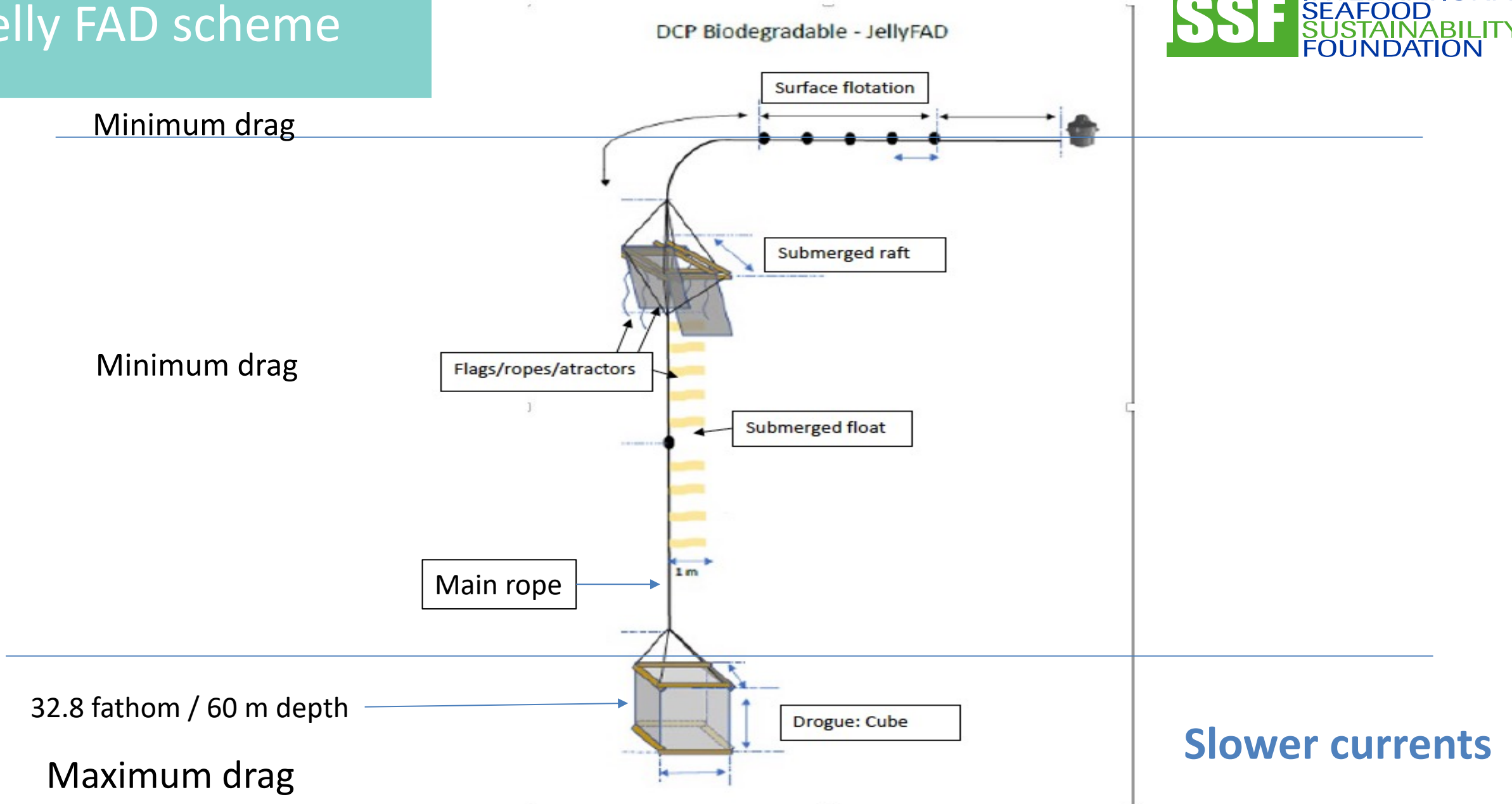


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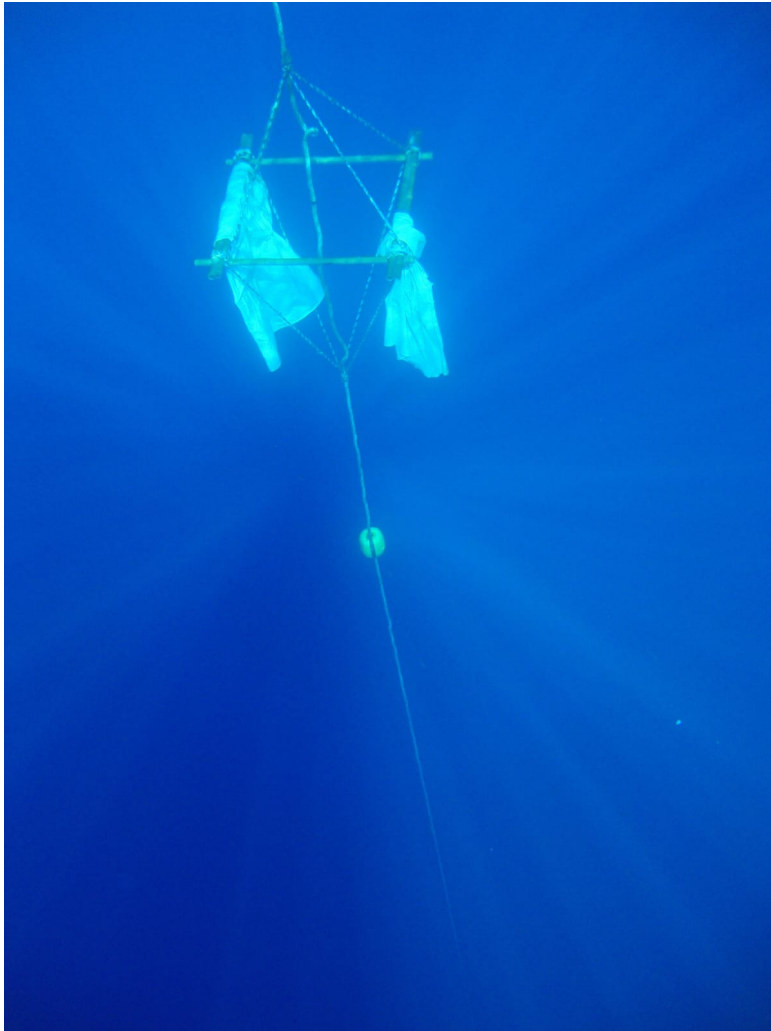


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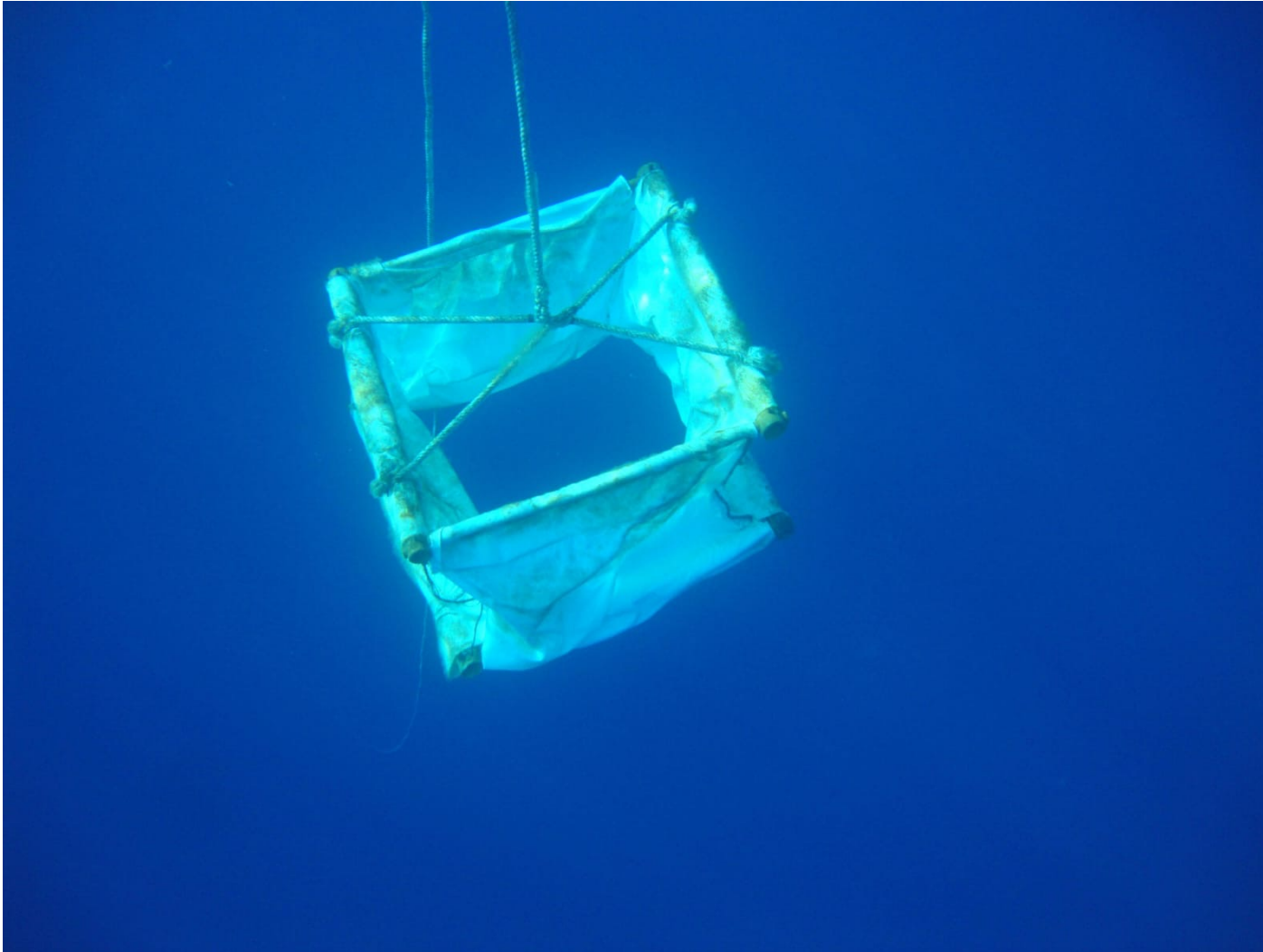
Jelly FAD scheme



Submerged raft (5 months at sea)



Cube (5 months at sea)



- Biofouling and degradation is lower at 32.8 fathom
- The cube is “floating” at that depth does not pull downwards
- Clay used to sink the structure dilutes in seawater

JellyFAD construction in Manta

BUOYS ARE PAINTED IN BLUE



PACKED 5 BY 5



THE CUBE AND CLAY TO MAKE IT SINK



Some features of the JellyFAD

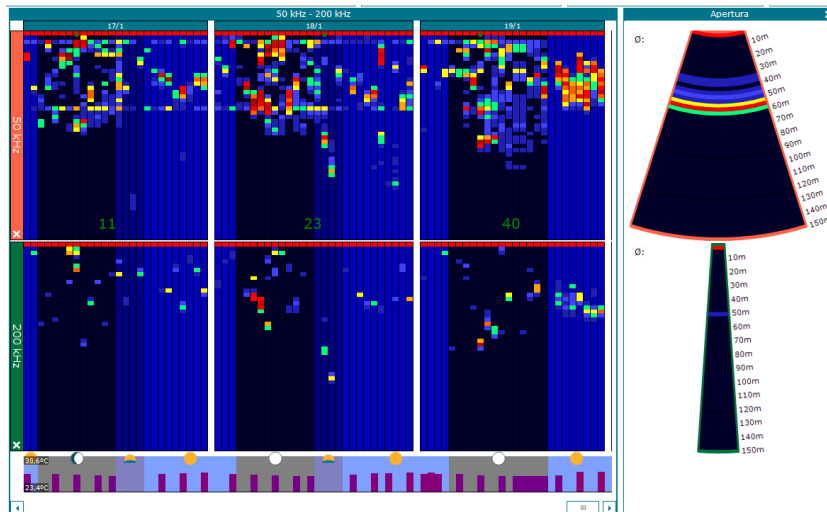
- It drifts vertically, the cube does not pull downward, it **floats** at 60 m /32.8 fth.
- The **weight**, clay, is temporal it will dilute in seawater
- The cube drifts embedded in the water mass, it does not rotate, density very similar to that of seawater.
- The **emerged** component should be **minimized**
- The flotation and weights are precisely calculated don't add or remove any weight or flotation or any other component

The cube can be seen with the buoy's echo-sounder at 60 m depth



Ongoing trials:

- **Ghanaian Fleet** 130 JellyFADs (Atlántic O.)
- **Micronesia (Caroline Fisheries Corporation):** 100
- **Pevasa Fleet (Anabac)** 200 Jelly FADs (Atlantic O.)
- **Opagac Fleet** 350 JellyFADs (Atlantic O.)
- **Ugavi Fleet** 500 JellyFADs (Pacífico O.)
- **USA Fleet:** 260 JellyFADs (East and West Pacific)



Next trials:

- **Nirsa fleet:** 100 jellyFADs to start trials (EPO)+ 20% regularly
- **UE-US-SPC-ISSF** (West Pacific Diverse fleets)

TRIALS AT SEA PHASE 1

FAD NUMBER ASSIGNMENT

Vessel	Phase 1 (115 FADs)	Number of FADs to deploy in phase 1
Cape Breton	FAD 1 to FAD 10	10
Cape Cod	FAD 11 to FAD 19	9
Cape Elizabeth III	FAD 20 to FAD 28	9
Cape Finisterre	FAD 29 to FAD 37	9
Cape Ferrat	FAD 38 to FAD 46	9
Cape May	FAD 47 to FAD 55	9
Capt. Vincent Gann	FAD 56 to FAD 65	10
Friesland	FAD 66 to FAD 75	10
Pacific Princess	FAD 76 to FAD 85	10
Sea Encounter	FAD 86 to FAD 95	10
Western Pacific	FAD 96 to 105	10
Daniela	FAD 106 to 115	10

TRIALS AT SEA PHASE 1

- Each JellyFAD (BIOFAD) will be deployed close to a conventional FAD (CONFAD).
- Use the same echosounder buoy Brand to track those FADs (you selected **Satlink**), so use satlink for BIO and CONFADs. in the experiment, so that sounder data is comparable.
- Each vessel will paint on top of the buoy the code assigned to their FADs (both in the bioFAD and the pair conventional FAD):
Example: (BIO1 and CON1; BIO2 and CON2;..... BIO100 and CON100)
- The same number (i.e BIO100 etc), will be used in the Excel form to identify that FAD, and the file named with the same code (ex. BIO100.xls)
- The form needs to be filled each time an activity is performed with the BIOFAD (JellyFAD) or with the CONFAD
- Each time an activity is performed with the FAD (i.e. deployment, visit, set, etc) a form within the file should be filled.
- Report on any bioFAD encountered even those of other vessels/fleets.
- Monitor, if posible, the presence of the cube in the buoy's echosounder

DEPLOYMENT OF THE JELLYFAD

In this **first phase*** the JellyFAD should be deployed **gently** in 3 steps while the vessel is moving slowly.

- **FIRST:** deploy the **cube** (the deepest part of the jellyFAD)
- **SECOND:** let the rope run to ensure that the structure is well stretched and deploy the **submerged RAFT**
- **THREE:** Deploy the **corks** and **echosounder buoy**

Note: the main rope (the rope connecting all the structure, from the buoys to the cube) is a twisted rope. Make sure there are no loops that could make the cube and the raft entangle one with each other on the surface. Hence the importance of deploying the structure in three steps while moving.

Don't add any extra flotation or weight to the structure or any other component
The flotation has been calculated to support the structure in neutral buoyancy
and to allow biofouling

*in the second phase deployment Will be conducted as in regular FADs.

THANK YOU VERY MUCH

Questions, doubts, improvements, constructive criticism:
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