

# VME Encounter Protocols

(VME indicators, thresholds and move-on-rules)

Comparative study: SEAFO+NAFO+CCAMLR

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# Encounter Protocols

## Part of VME process

To protect VMEs from bottom fishing activities that have significant adverse impacts

UNGA Res 61/105 (2006)+FAO DSF Guidelines (2009)

## To protect VME, we need to consider [1W+2H]

- **W**hat do we need to protect? → VME indicators
- **H**ow much do we need to protect? → Thresholds
- **H**ow far do we keep away to protect? → Move-on-rule

# What do we need to protect ?

## VME Indicator (FAO DSF guideline)(2009)

The following examples of species groups, communities, habitats and features often display characteristics consistent with **possible VMEs**.

*Corals, hydroids, stony corals, gorgonians, black corals, hydrocorals, sponge, Protozoans, invertebrates...*

**[CAUTION] Merely detecting the presence of an element itself is not sufficient to identify a VME.**



**Indicator should be a part of VME communities**

# In reality....

VME indicators are largely different  
by RFMOs/CCAMLR

Due to different geographical locations  
(habitats and topography)  
and objectives/ideas among RFMOs

We now go through actual situation..

# VME indicators (**Major species**) by RFMO/CCAMLR (sponges, corals, sea squirts and erect bryozoans)

| Division<br>(class/order)         | English name              | FAO<br>CODE | NAFO | SEAFO | CCAMLR |
|-----------------------------------|---------------------------|-------------|------|-------|--------|
| Porifera                          | Sponges                   | PFR         | 1    | 1     | 1      |
| Cnidaria<br>(Anthozoa<br>/corals) | Stony corals              | CSS         | 2    | 2     | 2      |
|                                   | Gorgonian                 | GGW         | 3    | 3     | 3      |
|                                   | Sea pens                  | NTW         | 4    | 4     | 4      |
|                                   | Hydroides                 | AZN         |      | 5     | 5      |
|                                   | Zoanthids                 | ZOT         |      | 6     | 6      |
|                                   | Black corals              | AQZ         |      | 7     | 7      |
|                                   | Soft corals               | AJZ         |      | 8     | 8      |
|                                   | Tube-dwelling<br>anemones | ATX         | 5    |       | 9      |
|                                   | Hydrocorals               | AXT         |      |       | 10     |
|                                   | Chordata                  | sea squirts | SSX  | 6     | 9      |
| Bryzoan                           | Erect<br>bryozoans        | BZN         | 7    | 10    | 12     |

VME  
indicators  
(minor  
species)

CCAMLR  
lists many  
  
ecosystem

| Division                      | English name                    | FAO CODE | NAFO | SEAFO | CCAMLR |
|-------------------------------|---------------------------------|----------|------|-------|--------|
| Echino-<br>dermata            | Sea lilies                      | CWD      | 8    | 11    | 13     |
|                               | Basket stars                    | OWP      |      | 12    |        |
|                               | Basket and<br>snake stars       | OEQ      |      |       | 14     |
|                               | Pencil spine<br>urchins         | CVD      |      |       | 15     |
| Annelida                      | Serpulid tube<br>worms          | SZS      |      | 13    |        |
| Chemosynthetic<br>communities |                                 | CXV      |      |       | 16     |
| Brachiopoda                   | Lamp shells                     | BRQ      |      |       | 17     |
| Hem-<br>ichordata             | Acorn worms                     | PBQ      |      |       | 18     |
| Xenophyophores                |                                 | XEF      |      |       | 19     |
| Arthropoda                    | Goose and<br>acorn<br>barnacles | BWY      |      |       | 20     |
| Mollusca                      | Antarctic<br>scallop            | DMK      |      |       | 21     |

## Number of VME indicators by RFMO/CCAMLR and Division(Order)

| Division            | NAFO               | SEAFO               | CCAMLR              |
|---------------------|--------------------|---------------------|---------------------|
| Sponges             | 1                  |                     |                     |
| Corals<br>(order)   | 4                  | 7                   | 9                   |
| Chordata            | 1 (sea squirt)     |                     |                     |
| Bryzoan             | 1 (erect bryozoan) |                     |                     |
| Echino-<br>-dermata | 1<br>(sea lilies)  | 2<br>(sea lilies+1) | 3<br>(sea lilies+2) |
| Others              | 0                  | 1                   | 6                   |
| <b>total</b>        | <b>7</b>           | <b>13</b>           | <b>21</b>           |

**H**ow much do we need to protect?

We need to consider “Encounter threshold”  
for each VME indicator



# Encounter thresholds

Criteria to prevent SAI (Significant Adverse Impact)

Again different among RFMO/CCAMLR due to different habitats, abundance and ideas

Now we review the current situation..

# CURRENT THRESHOLDS BY FISHERIES, INDICATOR AND RFMO/CCAMLR

*SEAFO (SPONGE) : DIFFERENT BY EXISTING AND NEW AREA*

| FISHERIES          | VME       | RFMO/ORG                         |   |        |
|--------------------|-----------|----------------------------------|---|--------|
|                    | INDICATOR | NAFO                             | SEAFO   | CCAMLR |
| TRAWL              | CORALS    | 7 KG (SEA PEN)<br>60 KG (OTHERS) | 60 KG   |        |
|                    | SPONGES   | 300 KG                           | 600 KG (EXITING)<br>400 KG (NEW)                          |        |
| BOTTOM<br>LONGLINE | CORALS    | 7 KG (SEA PEN)<br>60 KG (OTHERS) | 10 VME UNITS(*)<br>=10(L OR KG)<br>/1000 (HOOKS OR 1200M) |        |
|                    | SPONGES   | 300 KG                           |   |        |
| POT<br>(CRAB)      | CORALS    |                                  | 10 VME UNITS(*)<br>= 10(L OR KG)/1200M                    |        |
|                    | SPONGES   |                                  |   |        |

*(\*) includes ALL VME indicators defined by CCAMLR and SEAFO*

# Encounter **threshold** (values) How to evaluate ? NAFO : GIS method

Contour (biomass) estimation (e.g. sea pen)

+ (overlay) +

Commercial trawl tow tracks

Conduct virtual operation and simulation (Re-sampling sea pen)

(cumulative) Freq. distribution of simulated (sea pen) weights

Decide thresholds (arbitrary)

(normally probability encounter < 1% )

# Encounter **threshold** (values)

How to evaluate ?

**CCAMLR (LL + Pot)**

10 VME units → Arbitrary



Now, new evaluation is on-going  
(per comm. David Ramm data manager)

**SEAFO**

(no original methods)

NAFO+CCAMLR methods applied

# VME indicators subject to Encounter **thresholds**

CCAMLR/SEAFO (Bottom LL + Pot)

→ **ALL VME indicators**

NAFO (Trawls and Bottom LL)+SEAFO (Trawls)

**Subject Only** to Sea pen, other corals and sponges

*New attempt **NAFO** (2013)*

*Small gorgonian (0.2 kg), large gorgonian(2kg)*

*+ 4 new indicators (**new concept: presence**)*



*too small (**was not agreed**)*

# Number of VME indicators subject to thresholds by RFMO/CCAMLR and gear type

|  | NAFO            | SEAFO       |                     | CCAMLR              |
|--|-----------------|-------------|---------------------|---------------------|
| Division                                       | Trawls (+LL)    | (Trawls)    | LL+POT              |                     |
| Sponges  | 1               |             |                     |                     |
| Corals (order)                                 | 4               | 7           |                     | 9                   |
| Chordata                                       | (No Thresholds) |             | 1 (sea squirt)      |                     |
| Bryzoan  |                 |             | 1 (erect bryozoan)  |                     |
| Echino-dermata                                 |                 |             | 2<br>(sea lilies+1) | 3<br>(sea lilies+2) |
| Others   |                 |             | 1                   | 6                   |
| No (%) of VME indicators subject to thresholds |                 |             | <b>5</b><br>(71%)   | <b>8</b><br>(62%)   |
| (Total no of VME indicators)                   | <b>(7)</b>      | <b>(13)</b> | <b>(13)</b>         | <b>(21)</b>         |

**H**ow far do we need to move  
to protect VME (indicators)?

**Move-on-rule**

Move-on-rules : After encounter, **2 important responsibilities** for vessels (NAFO+SEAFO+CCAMLR )

If VME indicators weights > thresholds,  
Vessel shall...

**Action (1)**

Move away 1-2 miles from  
the reference point of the  
gear to any direction  
avoiding further encounters  
(then re-start operation)

**Action (2)**

Report to Secretariat

Establish closed  
(circle) areas<sup>(\*)</sup>

Inform to CPCs

*(\*) Once closed, same regulation imposed to re-open as in the closed area  
➔ SC need to evaluate no SAI on VEM indicators for re-open*

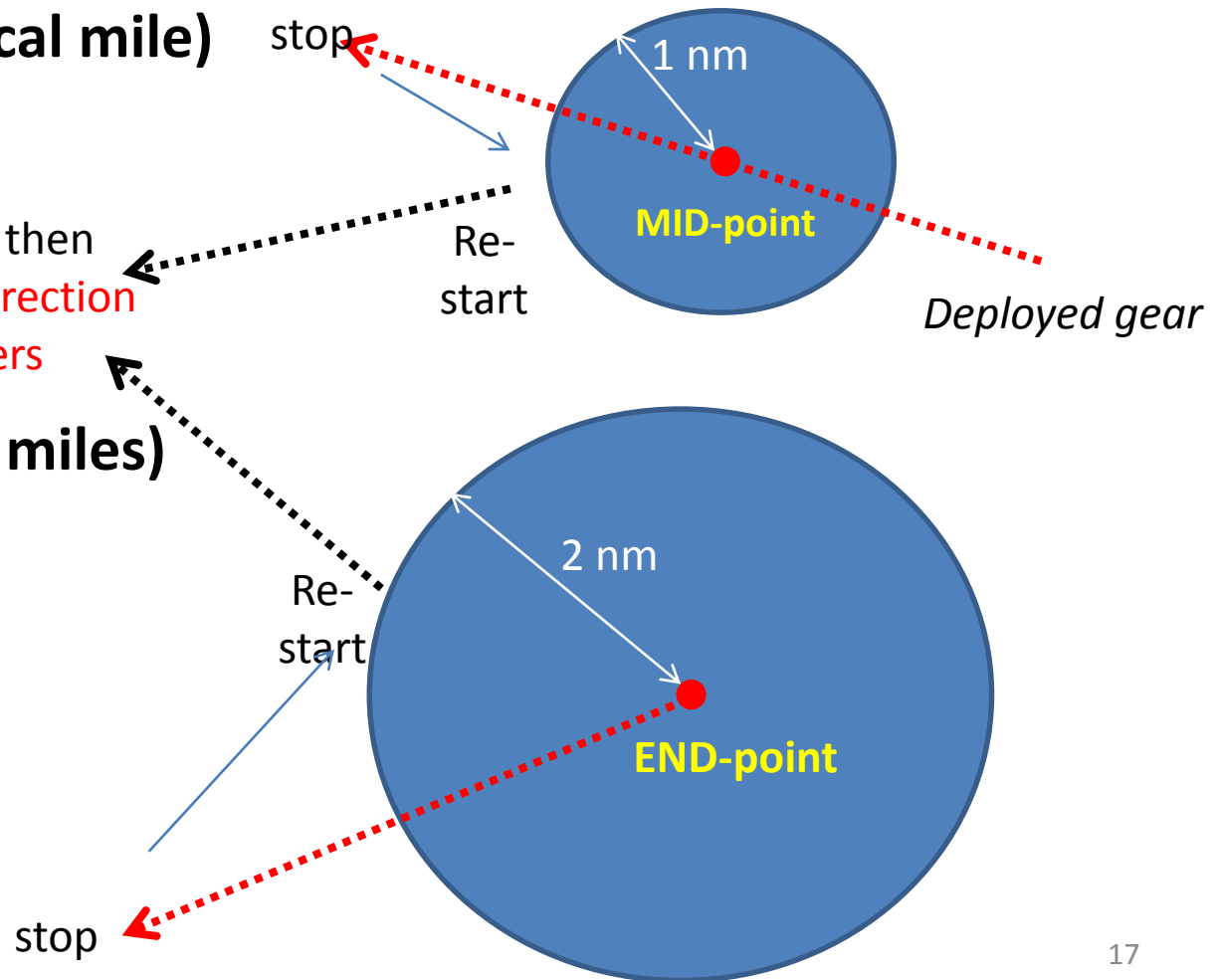


# Action (1) How to move away ?

- **CCAMLR (1 nautical mile)**  
(LL+POT)

Leave at least 1 nm away then  
re-start operation **in ANY direction**  
**avoid further encounters**

- **NAFO (2 nautical miles)**  
(Trawl+LL)



# SEAFO: move-on rule → a bit strange before

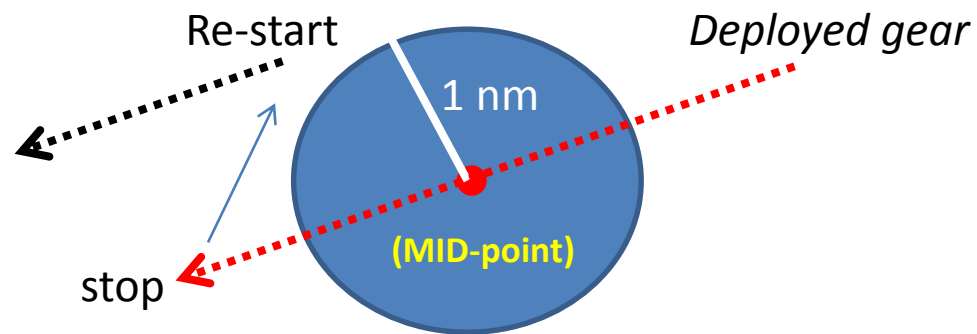
## Bottom LL and crab pot fisheries

- **Previous rule (2011 or before)**

Leave at least 1 nm away then re-start operation **ONLY PARALLEL direction**

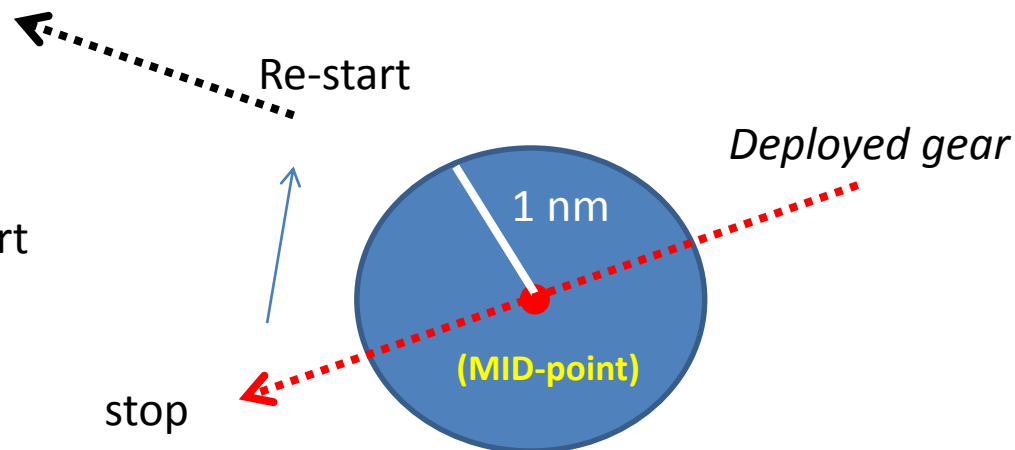


Can not necessarily avoid VME encounter



- **New rule (2012 -)**

Leave at least 1nm away then re-start operation **in ANY direction** avoid further encounters (similar to CCAMLR)



# SEAFO: move-on rule → new effective approach (2016)

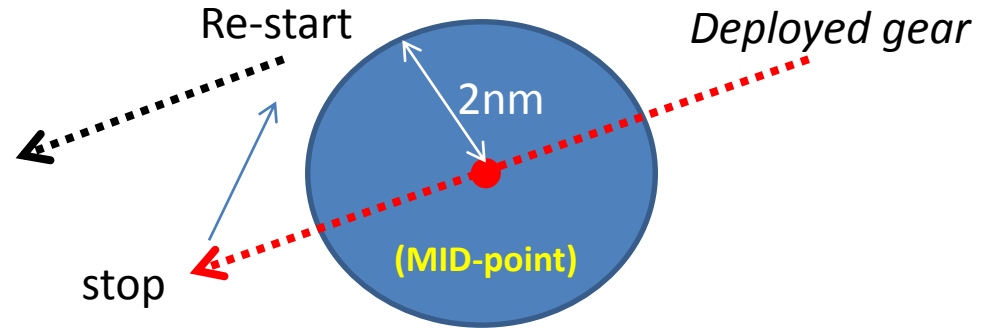
## Trawl fisheries (LINE based)

- **Previous rule (2015 or before)**

Leave at least 2 nm away then re-start operation **ONLY PARALLEL** direction

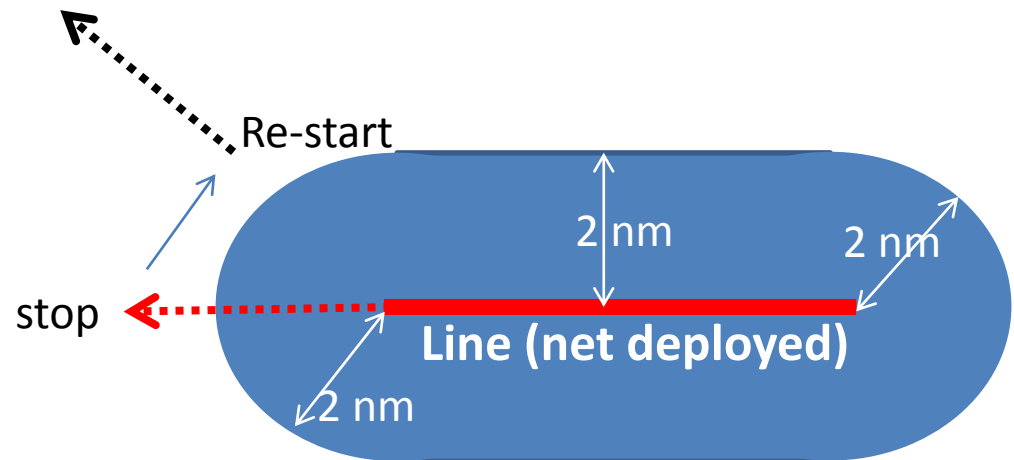


Can not necessarily avoid VME encounter



- **New rule (2016 -)**

Leave at least 2 nm away from **LINE (Net deployed)** then re-start operation in **ANY** direction avoid further encounters



## Summary : Move-on-rule (move away distances and management measure)

|        | GEAR<br>(*) | FISHING<br>GROUNDS | TRAWL        | BOTTOM<br>LL | CRAB<br>POT | AREA<br>SET TO                   |
|--------|-------------|--------------------|--------------|--------------|-------------|----------------------------------|
| NAFO   | END         | BOTH               | 2 NM (POINT) |              |             | CLOSED                           |
| SEAFO  | MID         | EXISTING           | 2 NM         | 1 NM (POINT) |             | AREA                             |
|        |             | NEW                | (LINE)(*)    | 2 NM (POINT) |             |                                  |
| CCAMLR | MID         | BOTH               |              | 2 NM (POINT) |             | RISK OR<br>RECTANGLE<br><br>(**) |

(\*) Reference point (line) of the gear

(\*\*) CCAMLR RISK (closed) area (VME > 10 unit)

Fine-scale rectangle area (VME > 5 units) ← not closed but for warning

## Action (2): 2<sup>nd</sup> responsibility (vessel) Report (> thresholds) to the Secretariat How is the situation ?

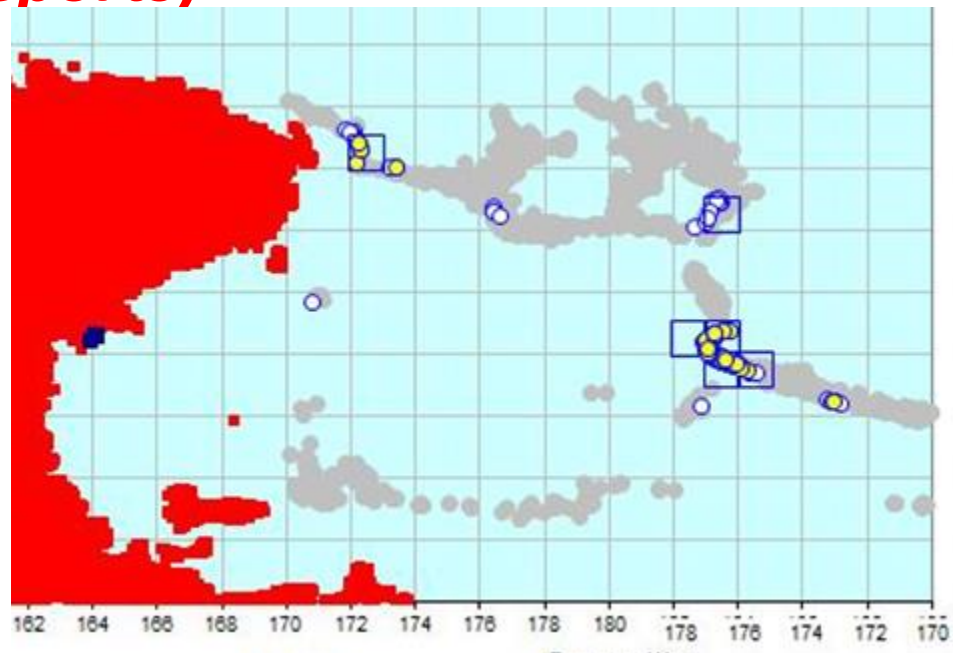
- **SEAFO+NAFO** → **NO** encounter reports to now  
→ **NO closed** (circle) area established
- **CCAMLR** → **YES (many reports)**

(e.g. Ross sea )

Risk (closed: **circle**) area

Fine-scale (warning)

**rectangle** area



# NAFO: Special situation (ad hoc based closed area)

No encounter report from **commercial vessels**



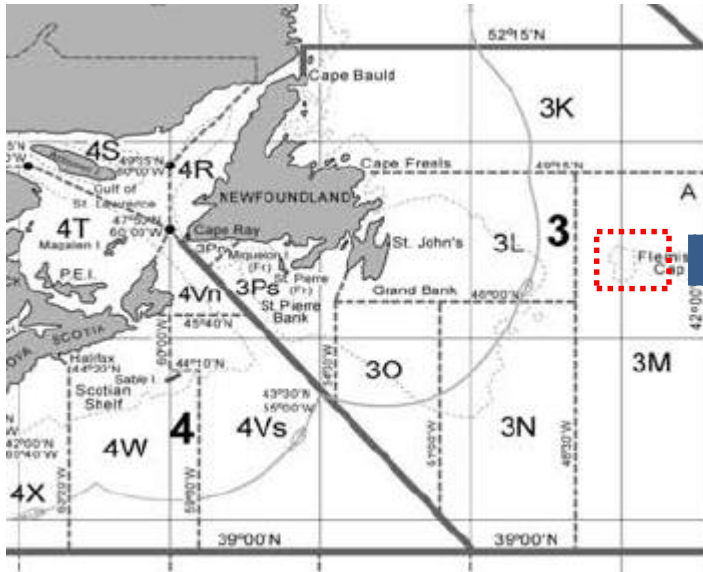
But in the past, survey data show  
high concentration areas of VME indicators



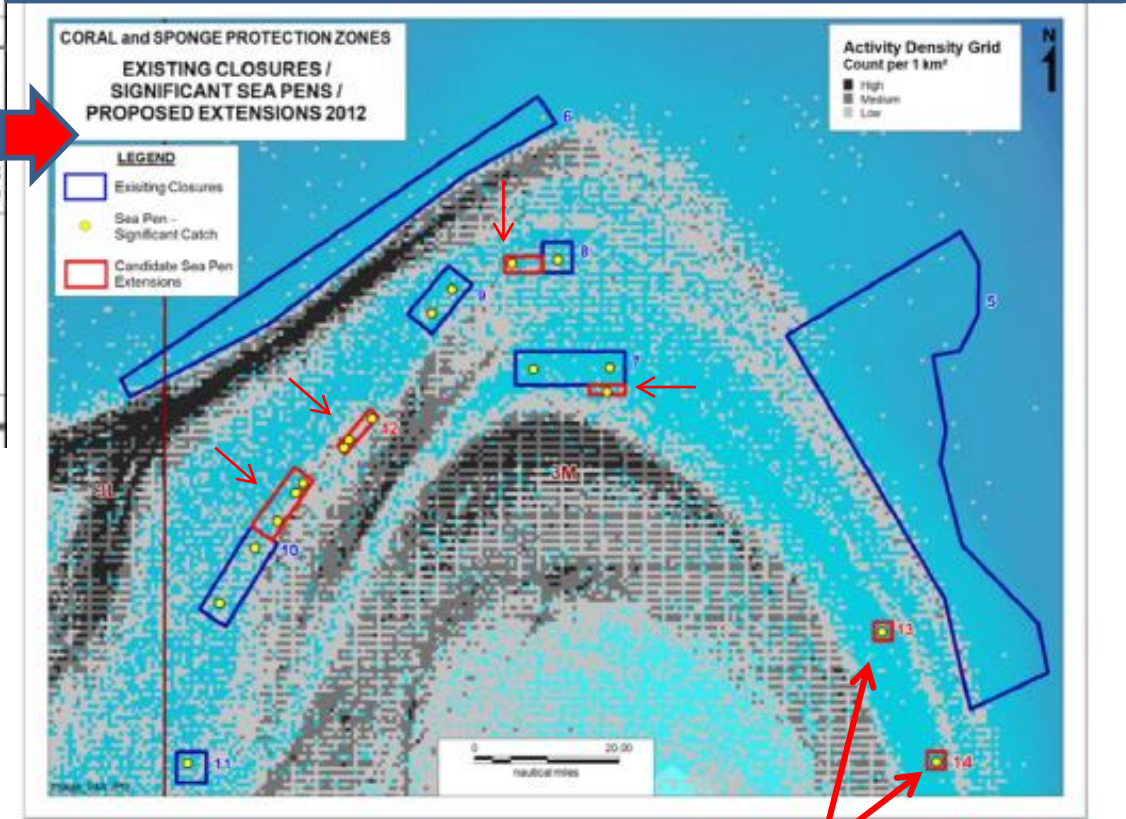
Closed areas proposed  
(Deep Sea ecosystem WG → SC) and agreed (COM)

(see recent example)

High Sea Pen concentration areas identified (Flemish Cap) 4 spots (→) were agreed (2013).



6 closed area (proposed): 4 west side agreed  
 Current closed area (corals and sponges)



*Survey data has been used for closure*

NOT AGREED

# “Move-on rule” or “Closed area” recent **HOT** dispute (NAFO)

**Scientists + some CPCs : prefer to closed area**

→ No encounter report

→ more effective to protect VMEs



**Industries + some CPC: prefer to move-on rule**

→ More flexible to operate

→ prefer to even recent complicate move-on rule (by SC), i.e., move longer distances to shallower waters



# Summary Encounter Protocols (1W+2H)

## (NAFO+SEAFO+CCAMLR)

(1) **W**hat do we protect? → **VME indicators**

Major : Corals (4-9 orders) and Sponges (1)

Minor : Other benthos : CCAMLR(11) >SEAFO(5)>NAFO(3)

(2) **H**ow much we need to protect? → **Thresholds**

Corals : 7-60kg Sponges :300-600kg (NAFO+SEAFO : Trawl)

10 VME units (@10kg) (all species) (CCAMLR+SEAFO : LL+POT)

(3) **H**ow far do we need to move? → **Move-on-rule**

1-2 nm from reference point or line of the gear

→ closed area established (CCAMLR)

# Thank you

*Good luck on your (NPFC) successful  
development on the VME process*

*(from SEAFO SC)*

*and .....Sayonara (5PM)*

