ETABLISSEMENT ET GESTION D'AIRES MARINES PROTEGEES D'INTERET HALIEUTIQUE

Izmir (Turkey), 27 September 2013

ARTIFICIAL REEFS PROTECTED AREAS IN THE GULF OF GABES (TUNISIA)

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INTRODUCTION

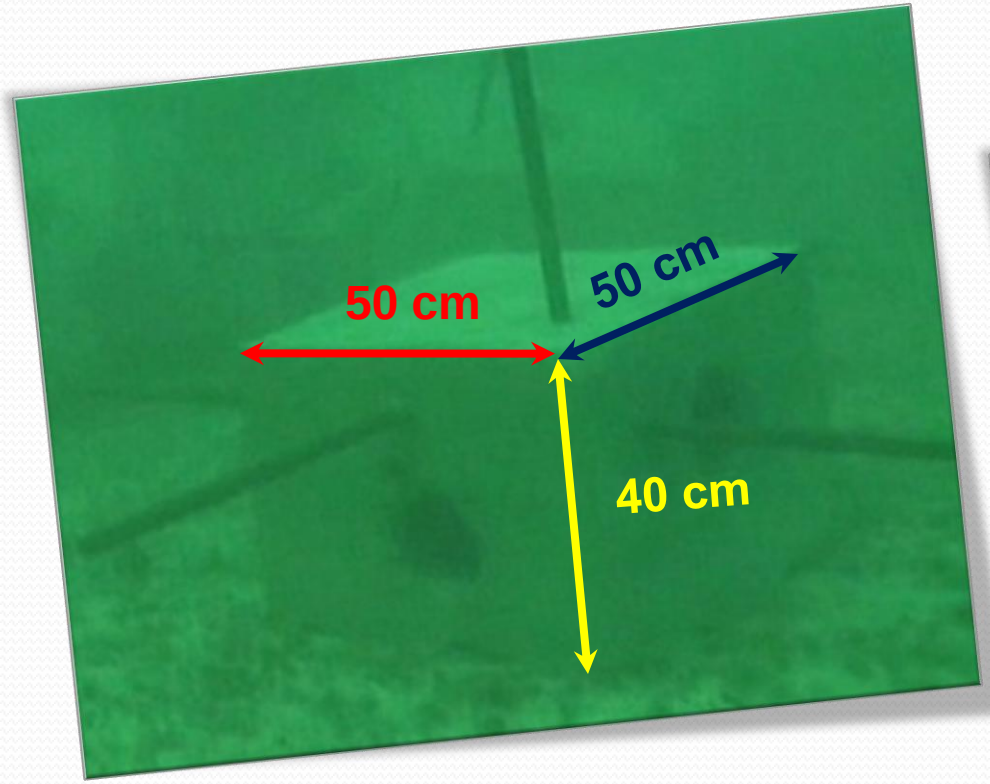
In Tunisia, the Gulf of Gabes is considered as an important fishing area. And fish production in this region contributes significantly to the national economy.

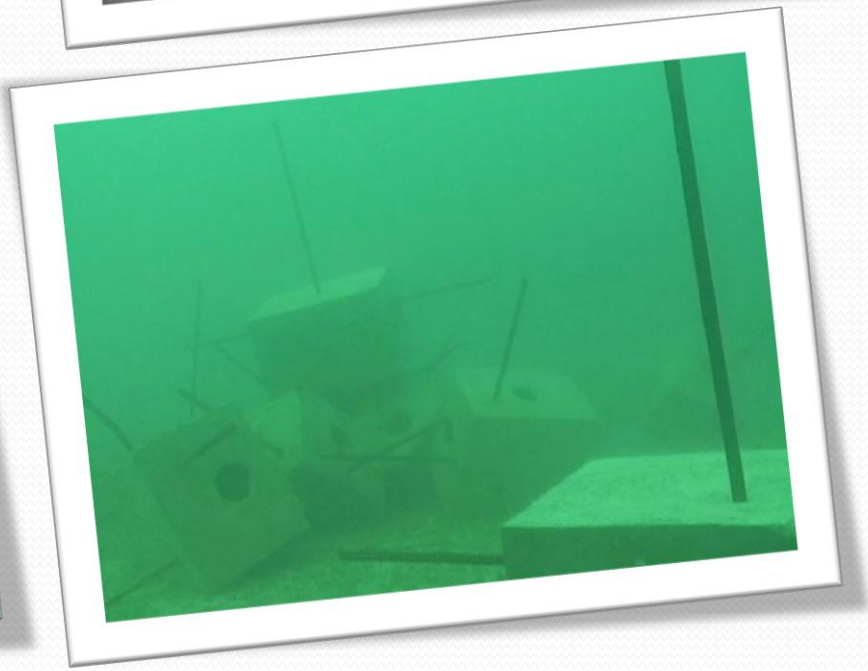
This area is also known by the vast seagrass medows of Posidonia.
For years, the Gulf of Gabes suffers from marine pollution, high exploitation pressure and from illegal fishing which resulted the seagrass degradation, habitats and fisheries resources disturbance and subsequently declining stocks of benthic species. This had the effect of reducing the fishing profitability and declining of fishermen' incomes.

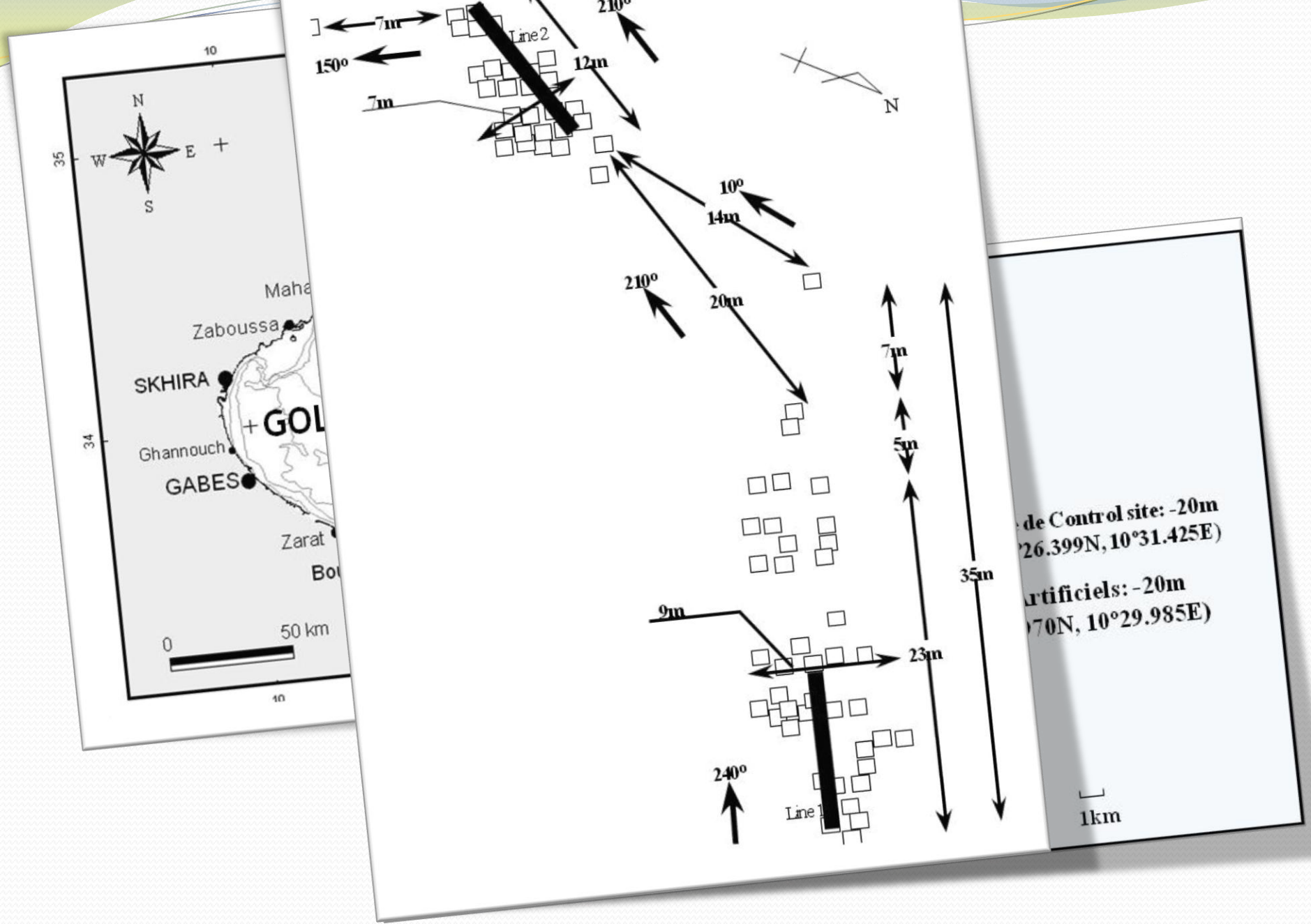
Many management measures were considered to preserve fish stocks in the region. And, as it is impossible to close and to prohibit fishing in the area for a significant period of time, the best solution was to create a biological rest period but also to create small protected areas in the coastal zones of this region by implanting marine artificial reefs . In 2006 the **Tunisian-Japanese project** on sustainable management of coastal fisheries resources in the Gulf of Gabes was launched for this purpose.


Kerkennah
Mahares
Zarrat
Ajim
Chebba
Rass Kaboudia
11°E
10°E
35°N
34°N
Port de Mahares
Mahares
Port
5m
10m
15m
A
B
C
D
E
JICA Kerkennah
PECHEURS KERKENNAH
El Kraten
SFAX
Ile Kerkenna
El Ataya
Zone El Kraten
Zone El Ataya
JICA Mahares
Skhira
Ile Kneiss
EPAVES/DGPA2000
INSTM - GREENPEACE1993
Gabès
JICA Zarrat
JICA Ajim
Ile de Jerba
Ajim
Zarrat
Zarzis
Port de ZARRAT
Projet
Port d'Ajim

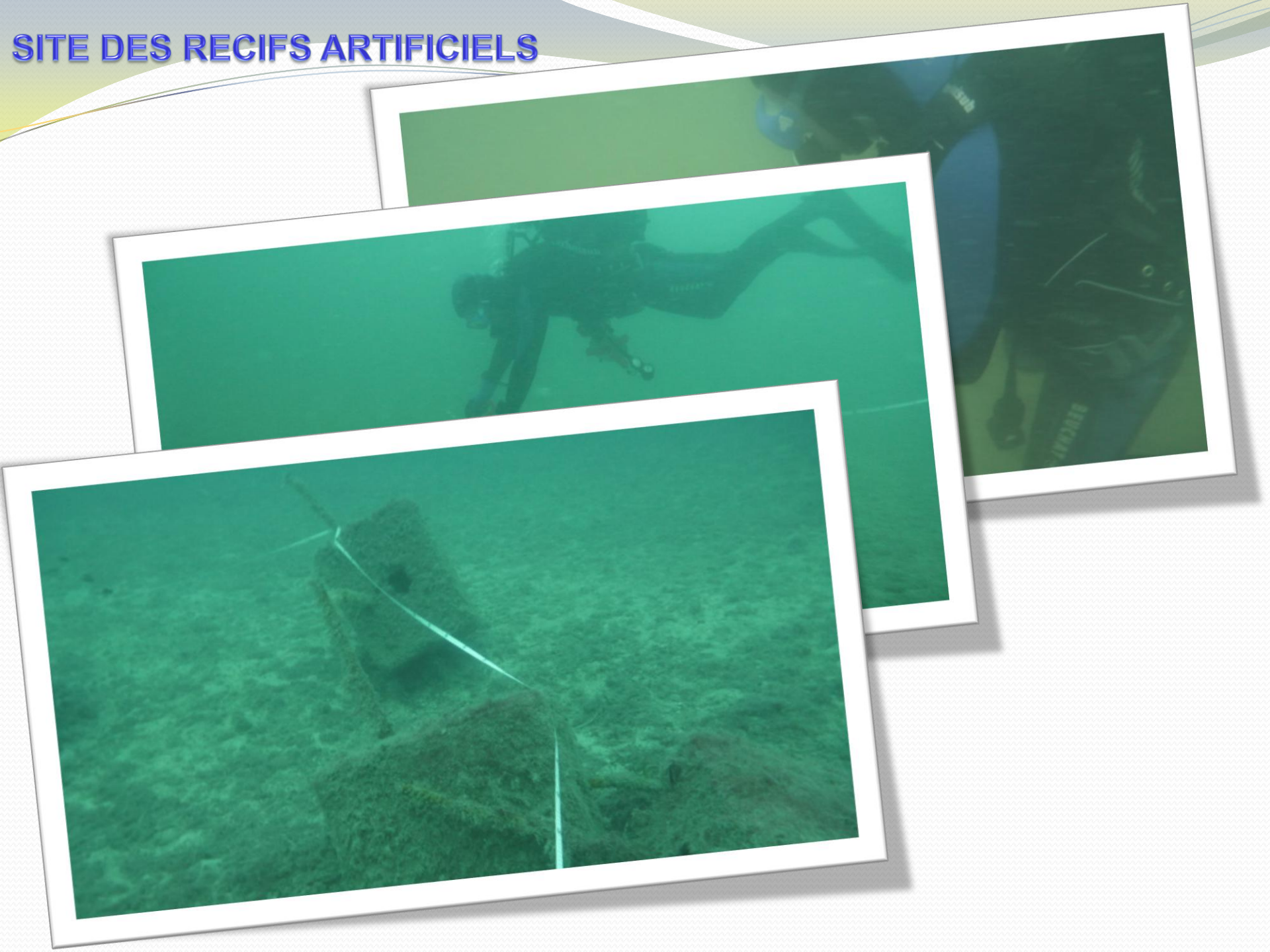
- December 2006, a total of: 500 AR were implanted in each coastal area of Kerkennah, Mahares, Zarat and Ajim.
- Cubic AR (50*50*40 cm) of about 200 kg.

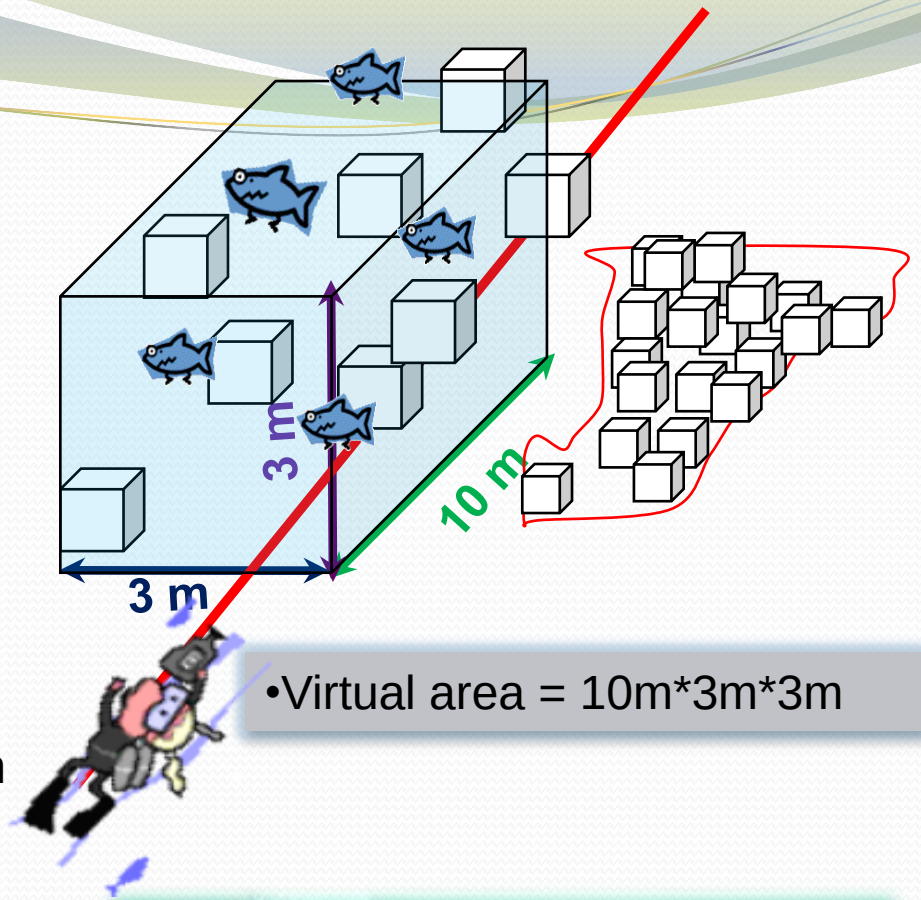





10
35
34
N
W
E
S
Maha
Zaboussa
SKHIRA
GOL
Ghannouch
GABES
Zarat
Bou
0
50 km
7m
150°
Line2
210°
12m
7m
N
10°
14m
210°
20m
7m
5m
35m
9m
23m
240°
Line1
de Control site: -20m
'26.399N, 10°31.425E)
rtificiels: -20m
)70N, 10°29.985E)
1km

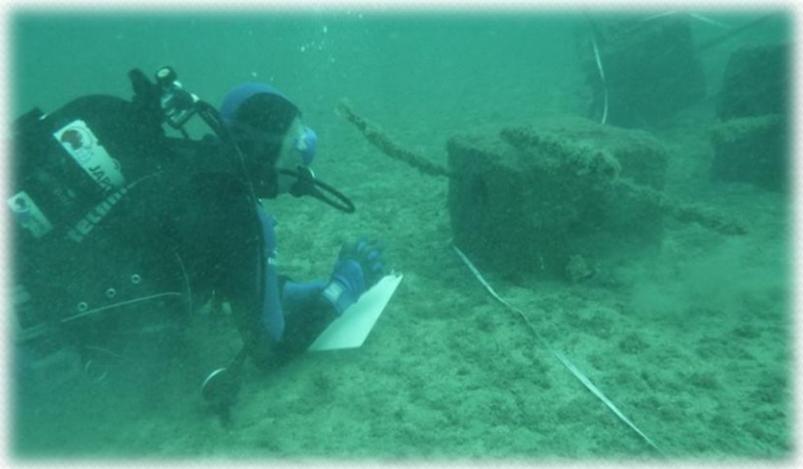
SITE DES RECIFS ARTIFICIELS





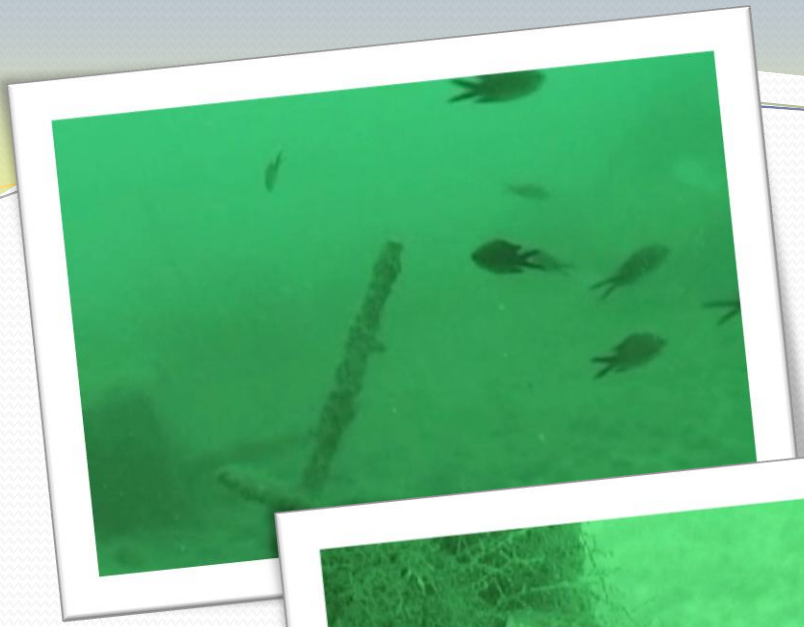
- Data collect (transect of 10m):
  - observed individuals counting
  - observed individuals size determintion

•Virtual area = 10m*3m*3m

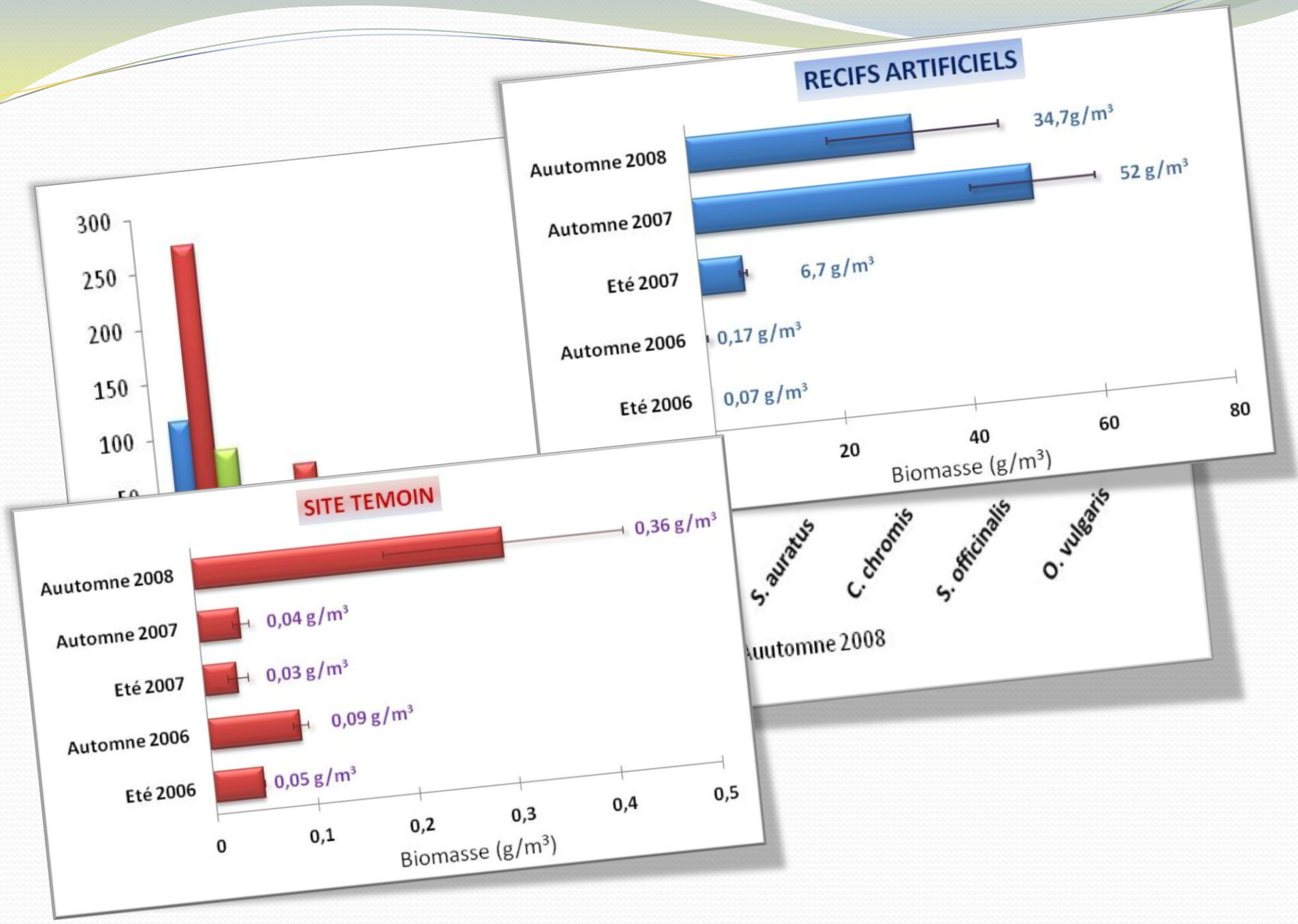


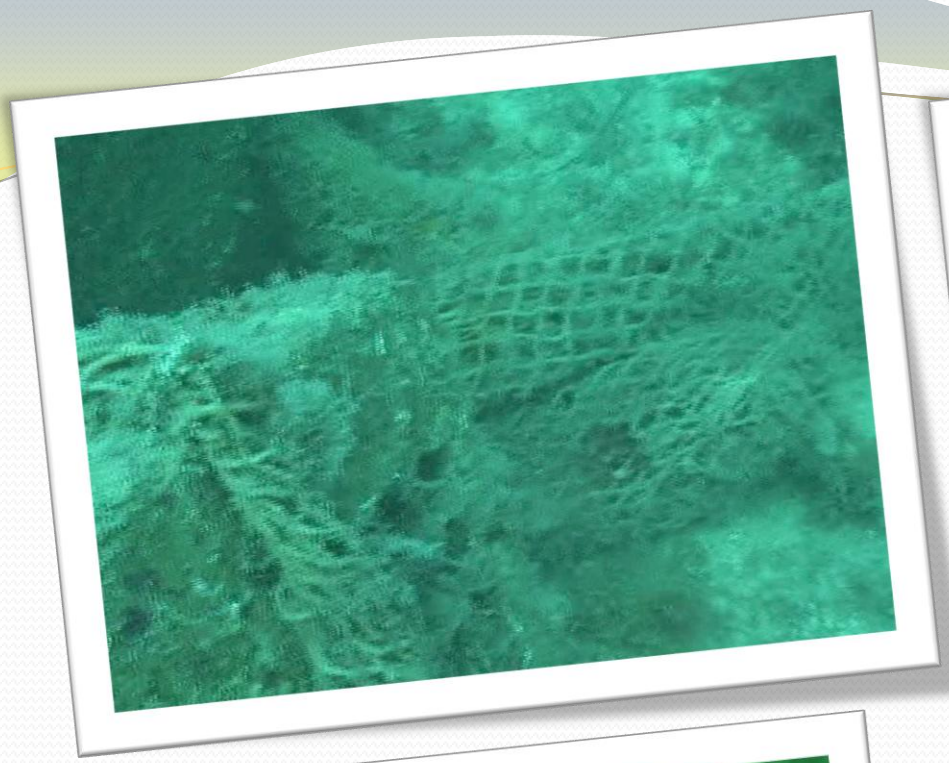
AR monitoring Periods

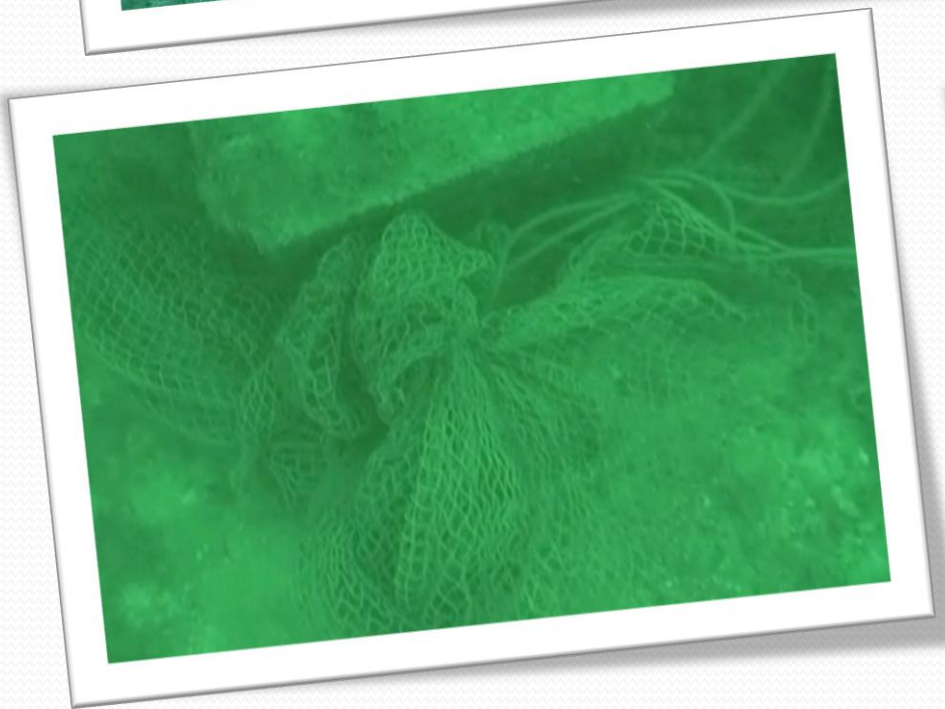
Periods	Date	Number of dives	Average duration
Summer 2006	5 et 24 July 2006	2	20min/dive
Autumn 2006	17, 18 & 28 october 2006	3	20min/dive
Summer 2007	7-8 july 2007	11	20min/dive
Autumn 2007	29 october - first november 2007	8	27min/dive
Autumn 2008	17-19 october 2008	9	40min/dive







RECIFS ARTIFICIELS
Auutomne 2008
Automne 2007
Eté 2007
Automne 2006
Eté 2006
34,7g/m³
52 g/m³
6,7 g/m³
0,17 g/m³
0,07 g/m³
20
40
60
80
Biomasse (g/m³)
300
250
200
150
100
S. auratus
C. chromis
S. officinalis
O. vulgaris
Auutomne 2008
SITE TEMOIN
Auutomne 2008
Automne 2007
Eté 2007
Automne 2006
Eté 2006
0,36 g/m³
0,04 g/m³
0,03 g/m³
0,09 g/m³
0,05 g/m³
0
0,1
0,2
0,3
0,4
0,5
Biomasse (g/m³)





CONCLUSION

Regular monitorin of AR coastal areas in the Gulf of Gabes permitted us to report :

- Artificial Reefs efficiency as protecting structures (aginst benthic trawlers)
- a significant quantitatif and qualitatif improvement of species biodiversity in the protected areas in comparison with non protected areas (control areas)
- a significant improvement of coastal vessel productivity in the area and an important decrease of illegal fishing operation of benthic trawlers particularly in the AR areas
- An increase artisanal fishing activity arround AR areas and improvement of artisanal fishing productivity.