Food and Agriculture Organization of the United Nations

General Fisheries Commission for the Mediterranean
Commission générale des pêches pour la Méditerranée

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MedPAN

CIHEAM Bari

FELAHA

Building a future for sustainable small-scale fisheries in the Mediterranean and the Black Sea Regional Conference (7–9 March 2016, Algiers, Algeria)

Panel 3

Panel 3 : "Improve the efficiency of Marine Protected Areas (MPAs) as fisheries management tools and benefits from involving the small scale fisheries sector"

Happy fishers, plenty fishes and right fishing in Gökova MPA, Turkey

Is it a dream or reality for a sustainable SSF?

Vahdet ÜNAL

Ege University-Faculty of Fisheries & Mediterranean Conservation Society

Contents of presentation (30)

- Characteristics of Gökova MPA (5)
- Main conclusion in advance (before loosing attention)
- Managing (or mismanaging) fisheries in Gökova MPA (2)
- What data shows us: doesn’t go like this! (6)
- How could we increase the efficiency of the MPA to support sustainable SSF (13)
    - Fishers involvement
    - Establishing NFZs
    - Starting marine ranger system
    - Starting monitoring (by fishers by using fishers’ own data)
- Today (1)
- Conclusion (1), lessons learnt (1) and recommendations (1)

Today; fishers are happy and fishes are plenty in Gökova MPA…

And we attracted FAO-EastMed project to start a pilot project in the area to develop FMP according to the EAF…

In our case in Gökova;

MPA + No Fishing Zones + strong enforcement = socio-economic benefits for SSF + resource protection.

- **Success in sustaining the resource and environment in Gökova MPA while rising the economic benefits to SSF is the results of:**

  - working together with fishers and other stakeholders

  - using traditional knowledge besides scientific information

  - organizing many meetings and informing fishers on the results of researches

- **Only MPA is not sufficient to support sustainable SSF!**
  MPAs should be supported with NTZs , MCS and MPs.

- **Involvement of stakeholders should be ensured!**
  Fishers should be the main partner of whole management process!

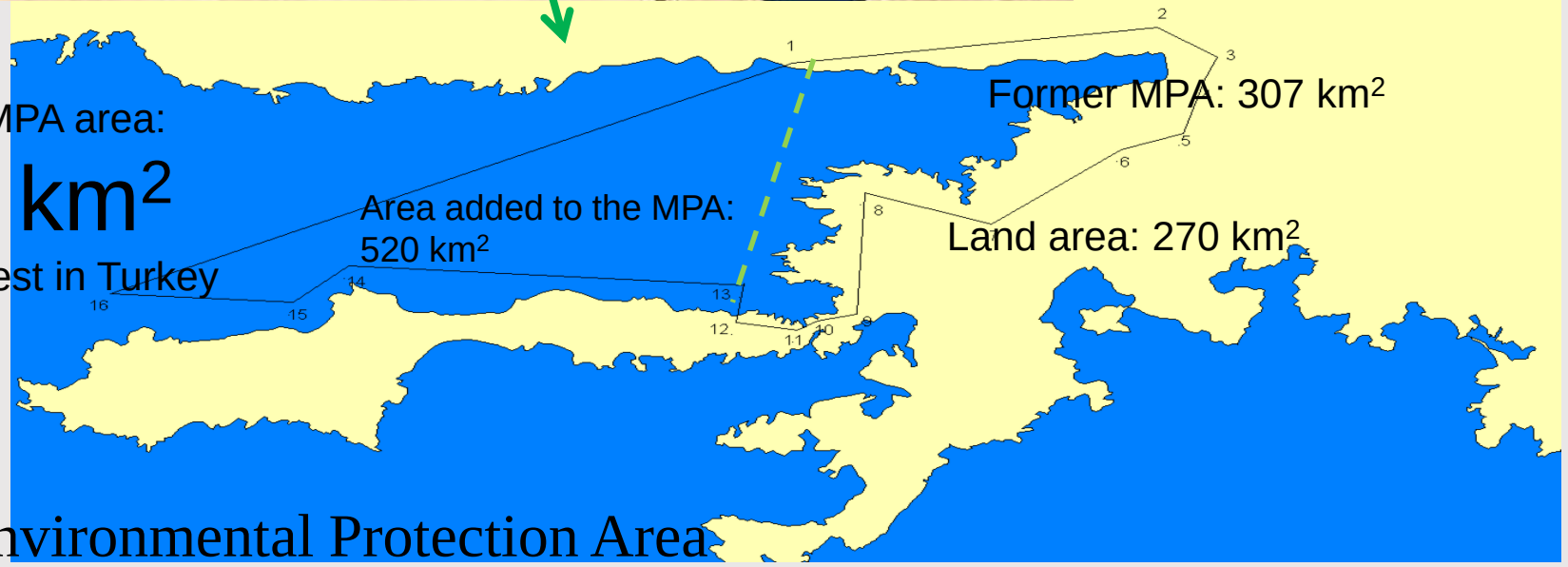

© Z. Kizilkaya


Photo: E. Sala

Gökova was declared a SEPA in 1988 on account of its natural, historical and cultural characteristics.

Gökova SEPA
1 097 km²

Recent MPA area:
827 km²
The largest in Turkey



Borders of Gökova Special Environmental Protection Area

Economy depends on Tourism, Agriculture, Fishing…

After designation of the MPA

Great progress on

- Overall economy and social life…
- Sustainable tourism; slow city, eco-tourism…
- Sustainable agriculture; organic farming…
- Socio-cultural level; projects to increase awareness, exhibitions, festivals...
- **But for the SSFs;** it is needed more than the establishment of the MPA…

Fisheries management in Gökova MPA

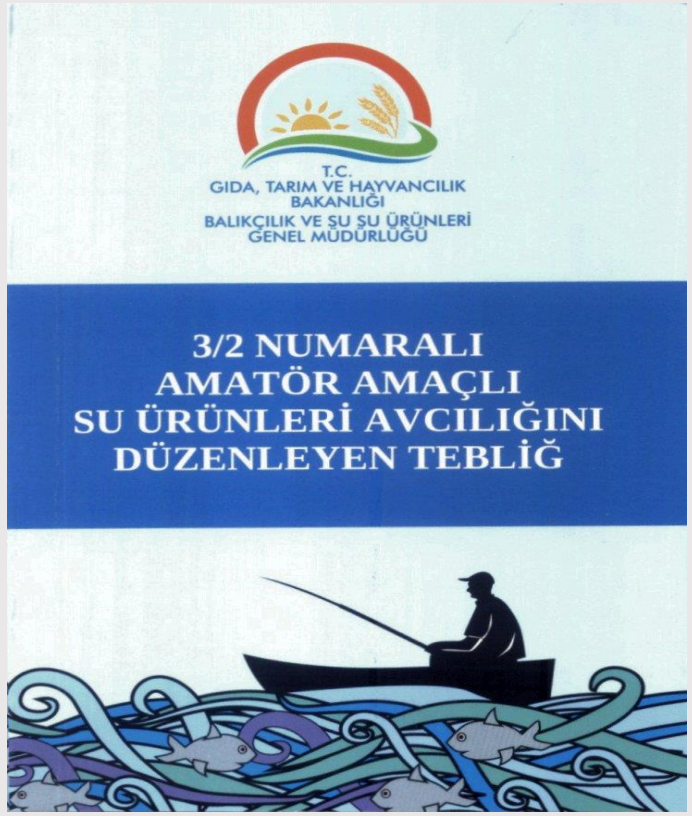
Fisheries Management Plan: ☹

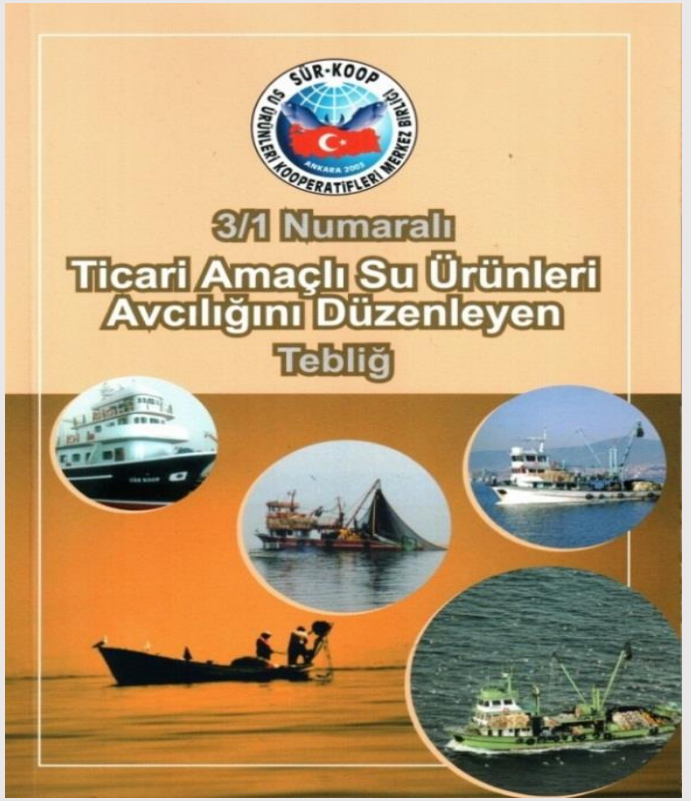
- **Input based FM:** ☺
- **Local level or right based FM**: ☹
- **Closed season** for SSF: ☹
- **Closed areas** for SSF by July, 2010: ☹
- **Capacity or effort limitation:** ☹
- **Council Reg. (EC) No 1967/2006:** ☹

Conventional fisheries management was in practice

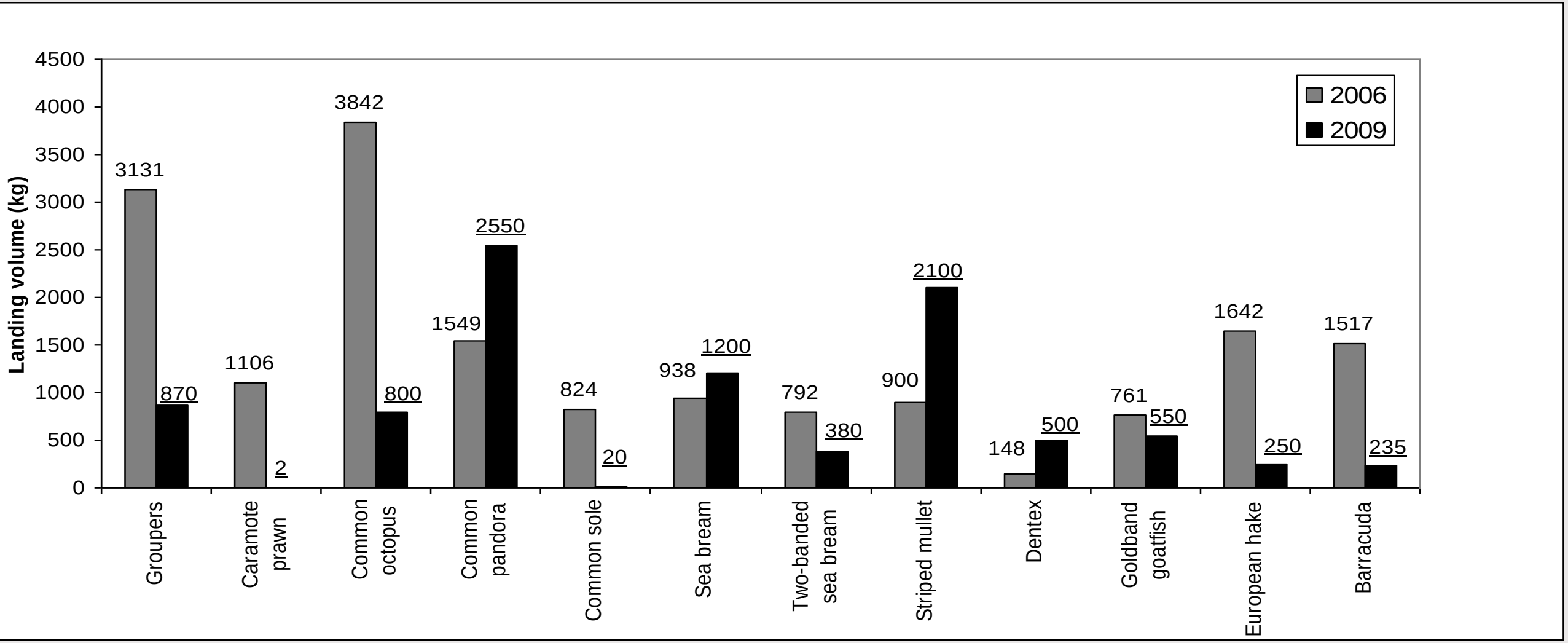
- Spatial and temporal (closed areas and closed seasons)
- Technical (gears, mesh size, MLS)
- Input controls (fishing effort…)

Neither MPA nor management measures were sufficient for sustainable SSF…





Data shows that doesn’t go like this!



Comparison of catch amount in Gökova MPA by year (2006-2009)

Landing volume and values in Gökova Bay, 2006.

Common name	Latin name	Landing volume (kg)	Landing volume (%)	Landing value (TRL)*	Landing value (%)
Goldblotch grouper	***Epinephelus costae***	170	**1**	3729	**1**
White grouper	***Epinephelus aeneus***	2905	**11**	100782	**31**
Dusky grouper	*Epinephelus marginatus*	56	0.2	1038	0.3
Caramote prawn	***Penaeus kerathurus***	1106	**4**	33516	**10**
Common octopus	*Octopus vulgaris*	3842	15	27762	9
Common pandora	*Pagellus erythrinus*	1549	6	24778	8
Common sole	*Solea solea*	824	3	24643	8
Sea bream	*Sparus aurata*	938	4	23295	7
Two-banded sea bream	*Diplodus vulgaris*	792	3	10113	3
Striped mullet	*Mugil spp.*	900	3	10499	3
Dentex	*Dentex dentex*	148	1	5036	2
Goldband goatfish	*Upaneus molluccensis*	761	3	7538	2
European hake	*Merluccius merluccius*	1642	6	5711	2
Barracuda	*Sphyraena sp.*	1517	6	5084	2
Other species		8901	33.5	40636	12
Total		**26051**	100	324160	100

Landing volume and values in Gökova Bay, 2009

Common name	Latin name	Landing volume (kg)	Landing volume (%)	Landing value (TRL)*	Landing value (%)
Goldblotch grouper	***Epinephelus costae***	95	**0.8**	3390	**1.4**
White grouper	***Epinephelus aeneus***	755	**6**	33975	**11.8**
Dusky grouper	*Epinephelus marginatus*	20	0.2	600	0.2
Caramote prawn	***Penaeus kerathurus***	**2**	**0**	**90**	**0**
Common octopus	*Octopus vulgaris*	800	6.3	12000	4.2
Common pandora	*Pagellus erythrinus*	2550	20.2	63750	22.1
Common sole	*Solea solea*	20	0.2	600	0.2
Sea bream	*Sparus aurata*	1200	9.5	42000	14.6
Two-banded sea bream	*Diplodus vulgaris*	380	3	5700	2
Striped mullet	*Mugil spp.*	2100	16.7	63000	21.9
Dentex	*Dentex dentex*	500	4	20000	6.9
Goldband goatfish	*Upaneus molluccensis*	550	4.4	13750	4.8
European hake	*Merluccius merluccius*	250	2	3750	1.3
Barracuda	*Sphyraena sp.*	235	1.9	3525	1.2
Other species		3152	25	21434	7.4
Total		**12609**	100	287564	100

Journal of Fish Biology (2005) **66**, 1183–1186
doi:10.1111/j.1095-8649.2005.00667.x, available online at http://www.blackwell-synergy.com

First confirmed record of *Lagocephalus sceleratus* (Gmelin, 1789) in the Mediterranean Sea

O. AKYOL*, V. ÜNAL, T. CEYHAN AND M. BILECENOGLU

Faculty of Fisheries, Ege University, Bornova 35100, Izmir, Turkey

(Received 2 April 2003, Accepted 10 December 2004)

One specimen of the Indo-Pacific silverstripe blaasop *Lagocephalus sceleratus* (Gmelin, 1789) (Tetraodontidae) is recorded from the Aegean coast of Turkey and is confirmed for the Mediterranean. Dispersal of the species to the Mediterranean is due to migration from the Red Sea *via* the Suez Canal.

Key words: *Lagocephalus sceleratus*; Lessepsian migration; Mediterranean; Tetraodontidae.

Photo: Cover page of EASTMED Report

OPEN ACCESS Freely available online

PLoS one

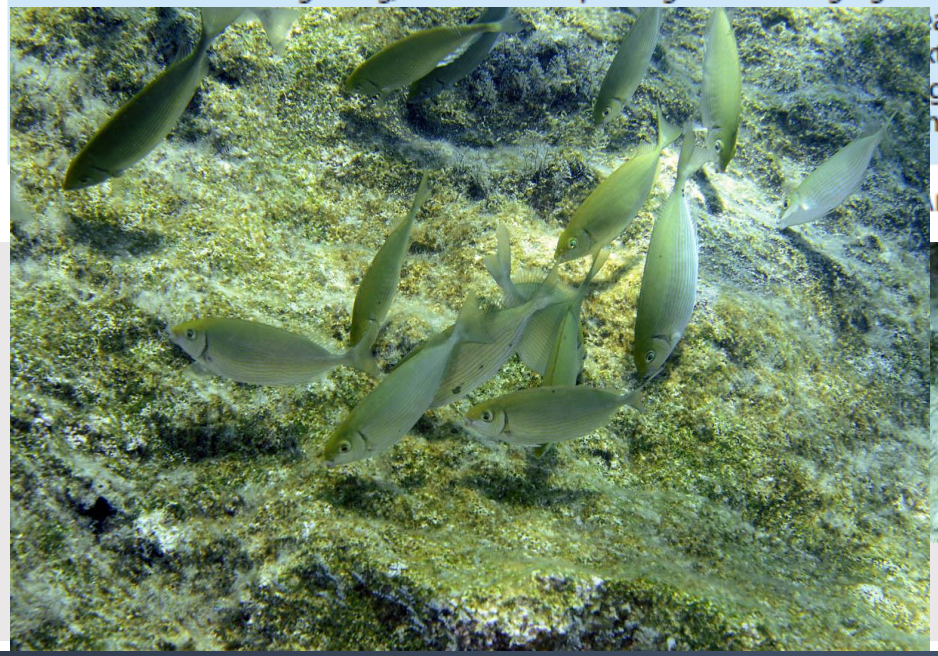
Alien Marine Fishes Deplete Algal Biomass in the Eastern Mediterranean

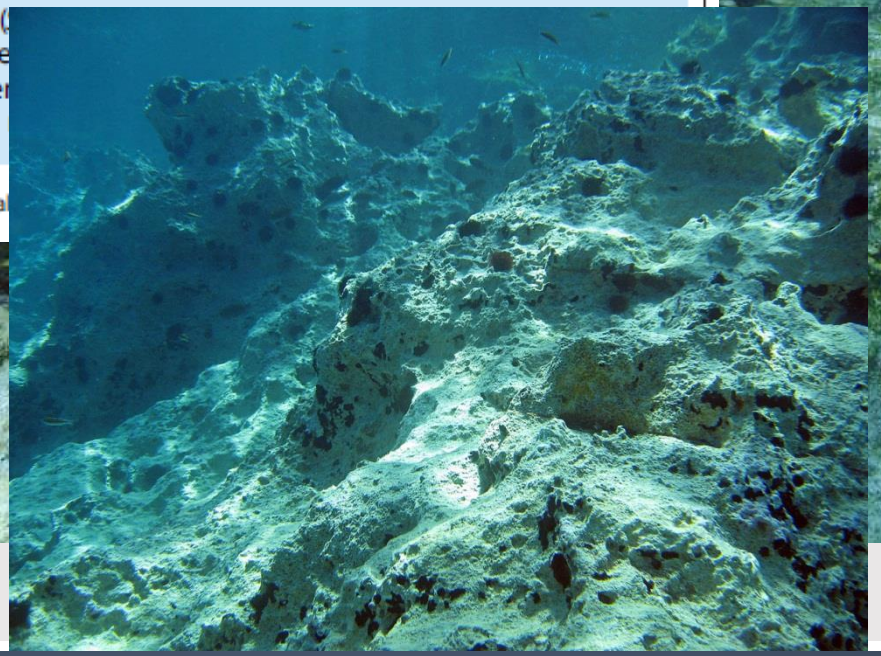
Enric Sala[1,2]*, Zafer Kizilkaya[3], Derya Yildirim[3], Enric Ballesteros[1]

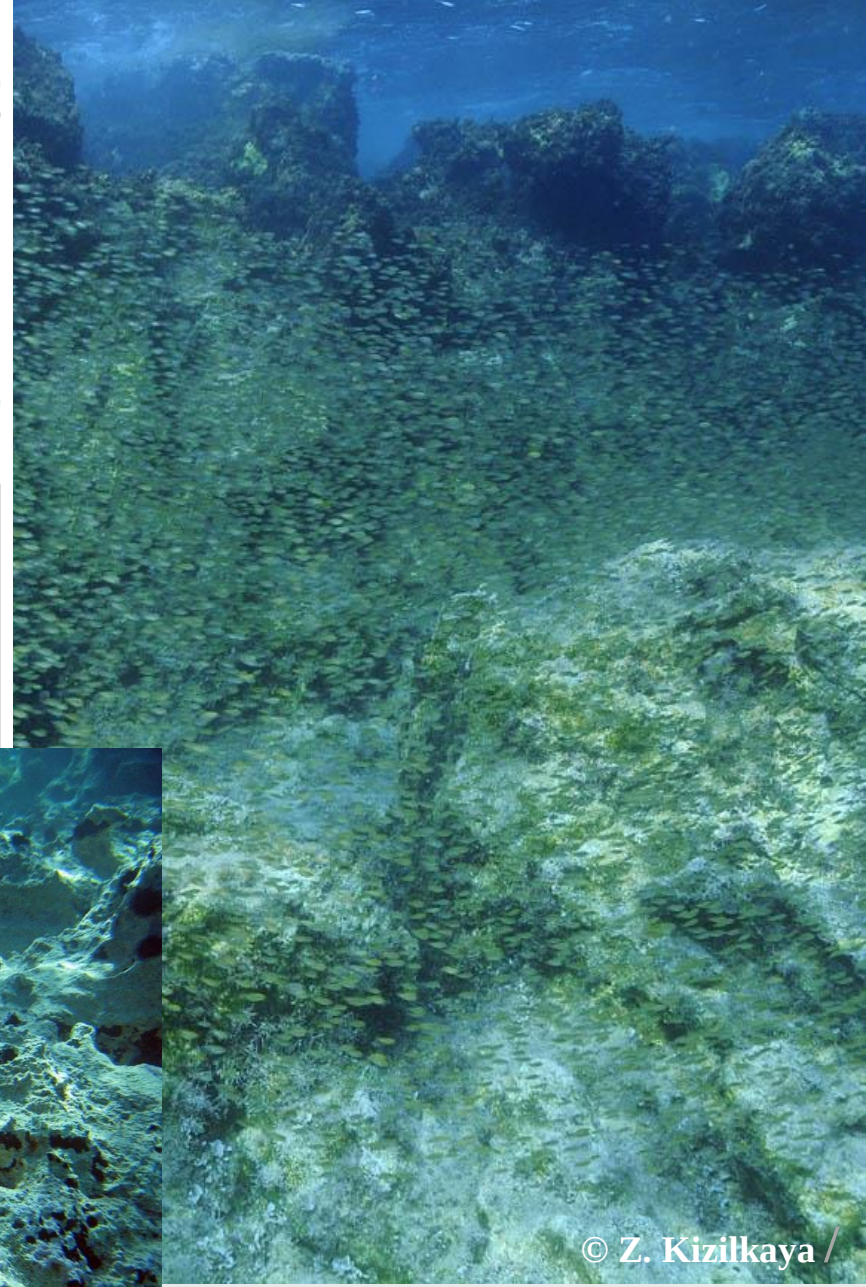
1 Centre d'Estudis Avançats de Blanes, Consejo Superior de Investigaciones Científicas, Blanes, Spain, **2** National Geographic Society, Washington, D. C., United States of America, **3** SAD-EKOG, Maltepe, Ankara, Turkey

Abstract

One of the most degraded states of the Mediterranean rocky infralittoral ecosystem is a barren composed solely of bare rock and patches of crustose coralline algae. Barrens are typically created by the grazing action of large sea urchin populations. In 2008 we observed extensive areas almost devoid of erect algae, where sea urchins were rare, on the Mediterranean coast of Turkey. To determine the origin of those urchin-less 'barrens', we conducted a fish exclusion experiment. We found that, in the absence of fish grazing, a well-developed algal assemblage grew within three months. Underwater fish censuses and







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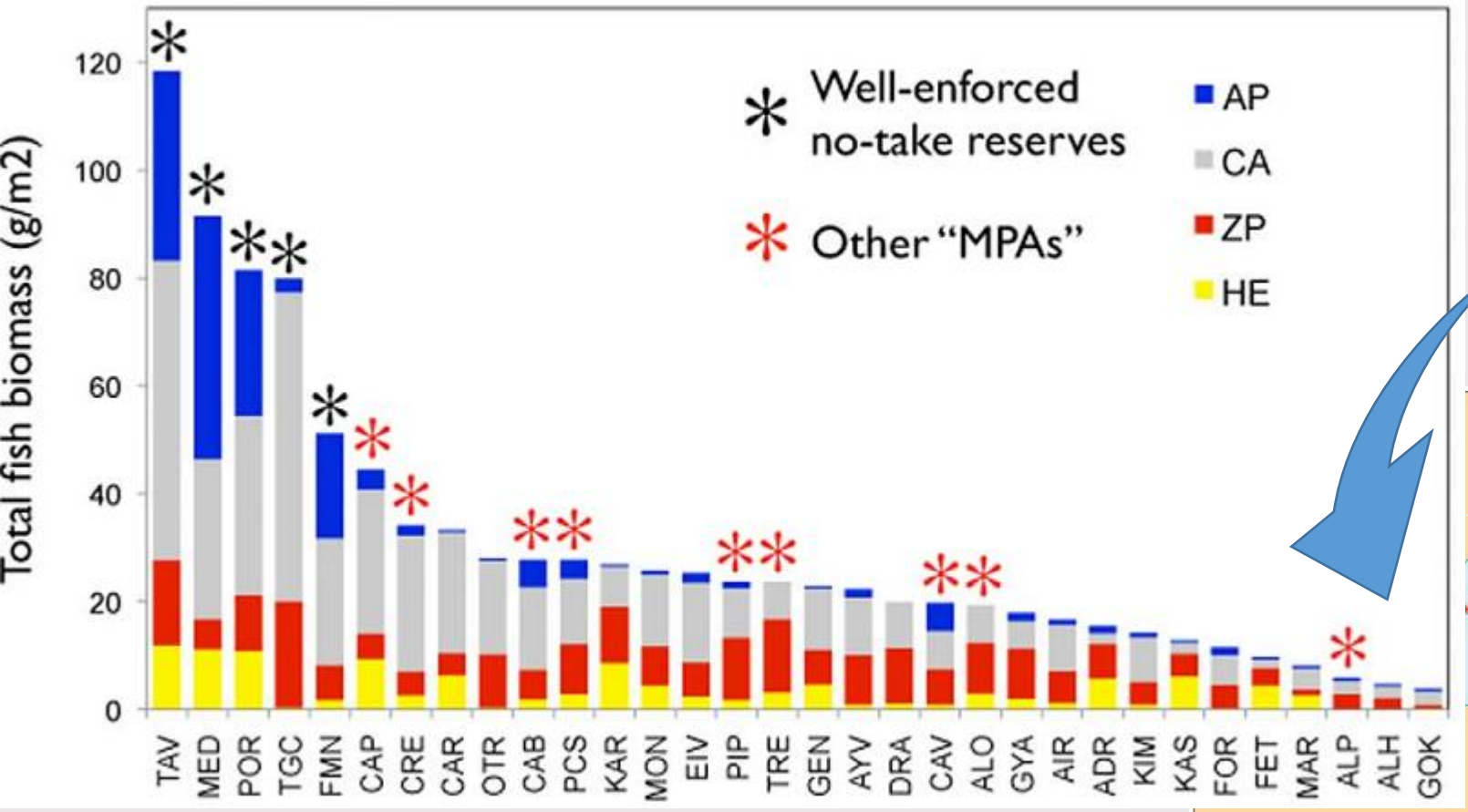
PLoS one

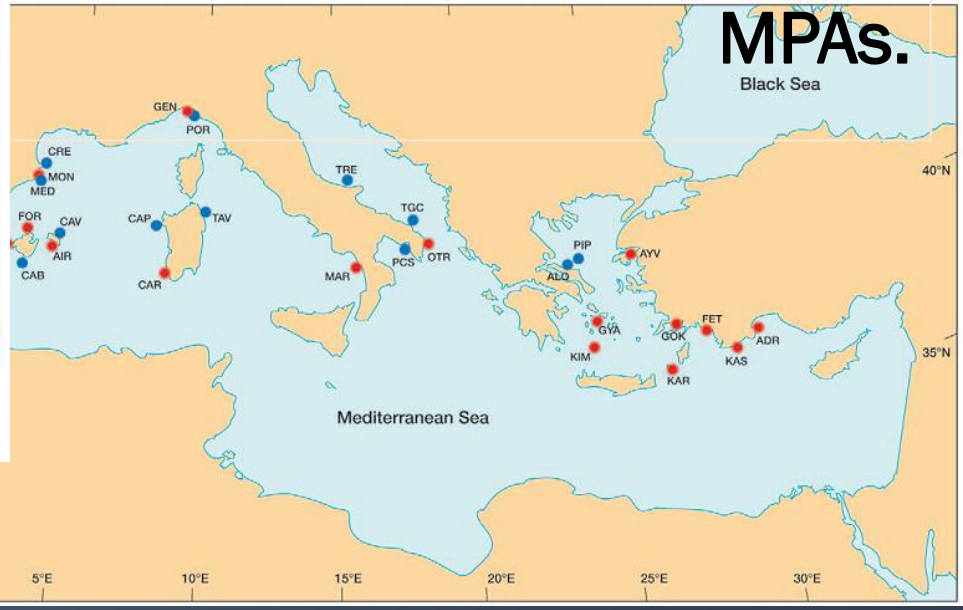
The Structure of Mediterranean Rocky Reef Ecosystems across Environmental and Human Gradients, and Conservation Implications

Enric Sala[1,2*], Enric Ballesteros[2], Panagiotis Dendrinos[3], Antonio Di Franco[4], Francesco Ferretti[5], David Foley[6,7], Simonetta Fraschetti[4], Alan Friedlander[8], Joaquim Garrabou[9], Harun Güçlüsoy[10,11], Paolo



Sala et al., 2012

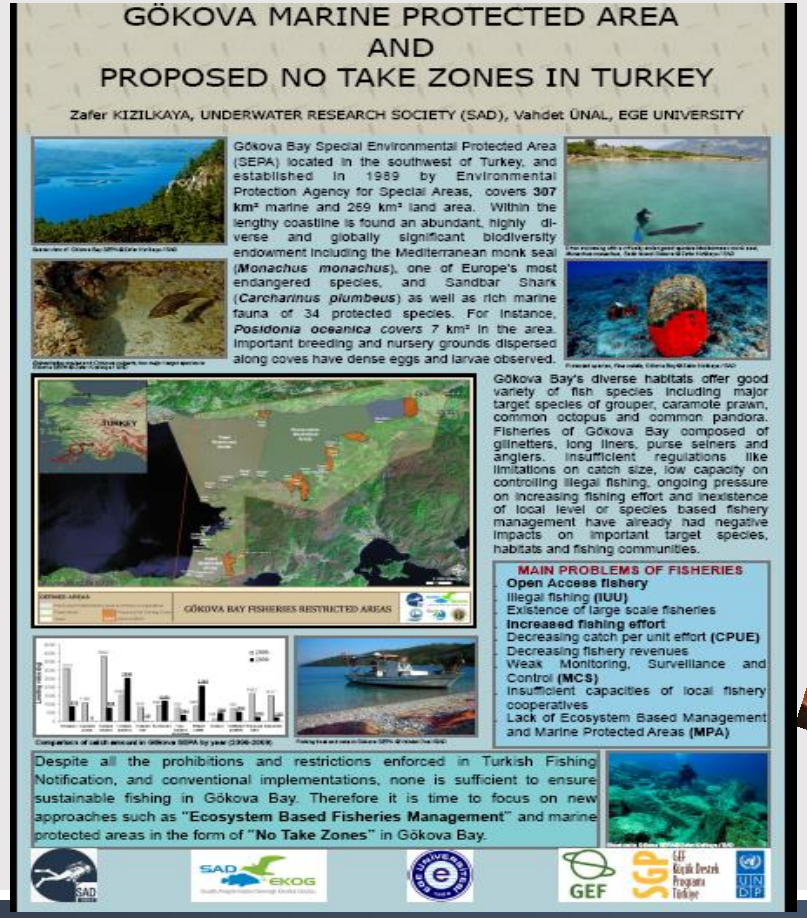
- Fish biomass survey of northern Mediterranean coast in 2008 show Gökova Bay had the least fish with **4gr/m²** among all Mediterranean MPAs.



How could we increase the efficiency of the MPA to support sustainable SSF

Getting consultancy from international scientific community

- Advanced course on ***"Establishment and Management of Marine Protected Areas for Fisheries"*** Organized by CIHEAM-IAMZ



GÖKOVA MARINE PROTECTED AREA
AND
PROPOSED NO TAKE ZONES IN TURKEY

Zafer KIZILKAYA, UNDERWATER RESEARCH SOCIETY (SAD), Vahdet ÜNAL, EGE UNIVERSITY

Gökova Bay Special Environmental Protected Area (SEPA) located in the southwest of Turkey, and established in 1989 by Environmental Protection Agency for Special Areas, covers **307 km²** marine and 269 km² land area. Within the lengthy coastline is found an abundant, highly diverse and globally significant biodiversity endowment including the Mediterranean monk seal (***Monachus monachus***), one of Europe's most endangered species, and Sandbar Shark (***Carcharinus plumbeus***) as well as rich marine fauna of 34 protected species. For instance, ***Posidonia oceanica*** *covers 7* km² in the area. Important breeding and nursery grounds dispersed along coves have dense eggs and larvae observed.

Gökova Bay's diverse habitats offer good variety of fish species including major target species of grouper, caramote prawn, common octopus and common pandora. Fisheries of Gökova Bay composed of gillnetters, long liners, purse seiners and anglers. Insufficient regulations like limitations on catch size, low capacity on controlling illegal fishing, ongoing pressure on increasing fishing effort and inexistence of local level or species based fishery management have already had negative impacts on important target species, habitats and fishing communities.

MAIN PROBLEMS OF FISHERIES

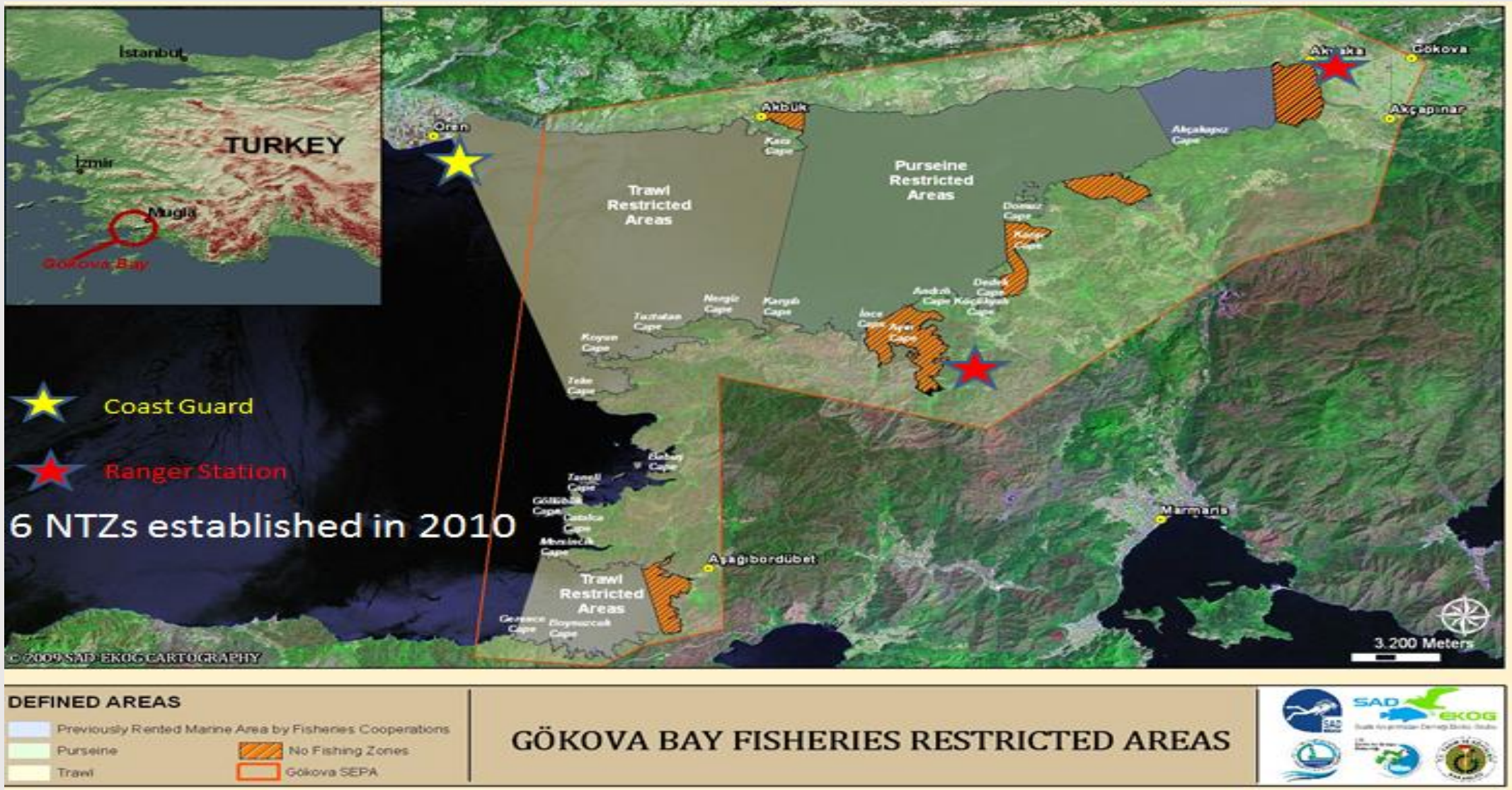
Open Access fishery
Illegal fishing **(IUU)**
Existence of large scale fisheries
Increased fishing effort
Decreasing catch per unit effort **(CPUE)**
Decreasing fishery revenues
Weak Monitoring, Surveillance and Control **(MCS)**
Insufficient capacities of local fishery cooperatives
Lack of Ecosystem Based Management and Marine Protected Areas **(MPA)**

Despite all the prohibitions and restrictions enforced in Turkish Fishing Notification, and conventional implementations, none is sufficient to ensure sustainable fishing in Gökova Bay. Therefore it is time to focus on new approaches such as **"Ecosystem Based Fisheries Management"** and marine protected areas in the form of **"No Take Zones"** in Gökova Bay.

Visited Columbretes Marine Reserve

Many meetings with fishers: days and nights!

We established No Fishing Zones to increase the efficiency of the MPA to support sustainable SSF



Official Journal

10 Temmuz 2010
CUMARTESİ

Resmî Gazete

Sayı : 27637

TEBLİĞ

Tarım ve Köyişleri Bakanlığından :

2/1 NUMARALI TİCARİ AMAÇLI SU ÜRÜNLERİ AVCILIĞINI DÜZENLEYEN TEBLİĞDE DEĞİŞİKLİK YAPILMASINA DAİR TEBLİĞ (TEBLİĞ NO: 2010/25)

MADDE 1 – 21/8/2008 tarihli ve 26974 sayılı Resmi Gazete'de yayımlanan, 2/1 Numaralı Ticari Amaçlı Su Ürünleri Avcılığını Düzenleyen Tebliğ'de yapılan değişiklik gereğince;

"(16) Gökova körfezinde;

(a) Akbük limanında; (37° 01, 431' N - 28° 06,863' E) ile (37° 02,108' N - 28° 06,915' E) koordinat noktalarını birleştiren hattın batısında,

(b) Akyaka'da; (37° 03,041' N - 28° 18,600' E) ile (37° 01,540' N - 28° 18,600' E) koordinat noktalarını birleştiren hattın doğusunda,

(c) Çamlı limanında; Çapa burnu (37° 00,044' N - 28° 13,250' E) ile (37° 00,240' N - 28° 14,731' E) koordinat noktasını birleştiren hattın güneyinde,

(ç) Boncuk koyu- Karaca limanında; (36° 59, 016' N - 28° 11,828' E) koordinat noktası ile Dedek burnunu (36° 56, 967' N - 28° 11,618' E) birleştiren hattın doğusunda,

(d) İngiliz limanında (Değirmen Bükü) (36° 56, 170' N - 28° 08,358' E) ile (36° 56,812' N - 28° 09,542' E) koordinat noktalarını birleştiren hattın güney-doğusunda,

(e) Bördübet limanında; (36° 49, 800' N - 28° 02,649' E) ile (36° 48,156' N 03,176' E) koordinat noktalarını birleştiren hattın doğusunda,

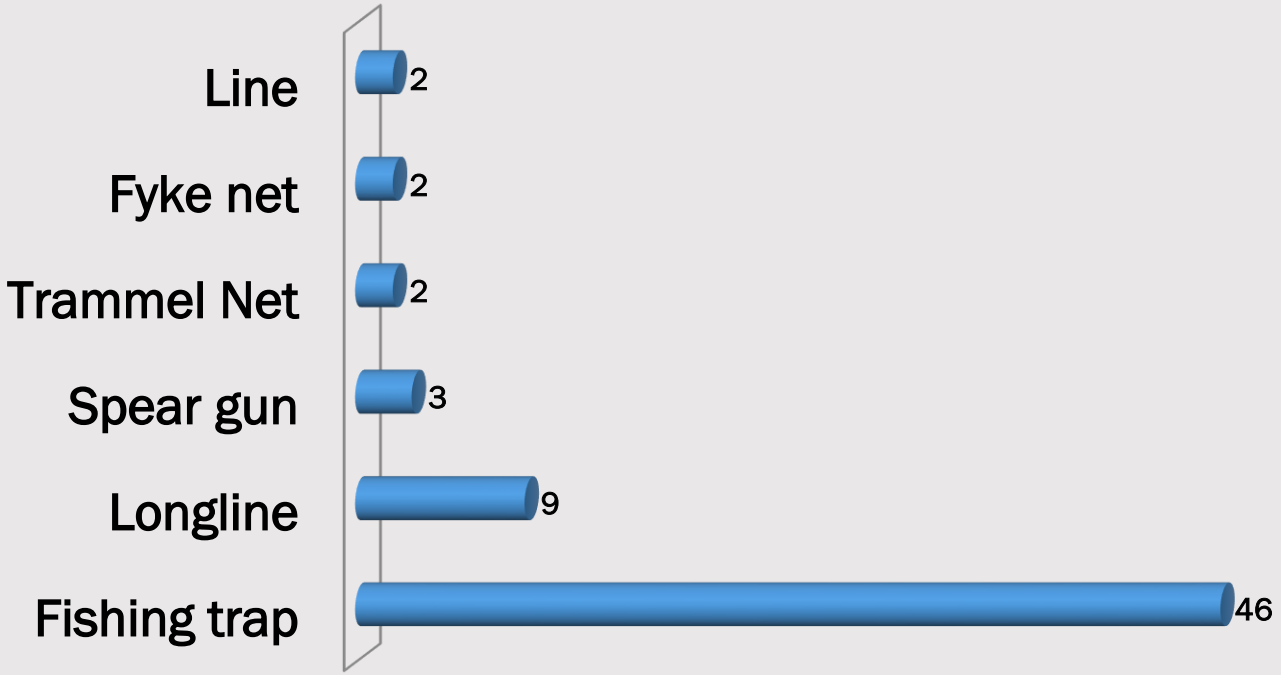
her türlü istihsal vasıtası ile su ürünleri avcılığı yasaktır."

What else we can do?

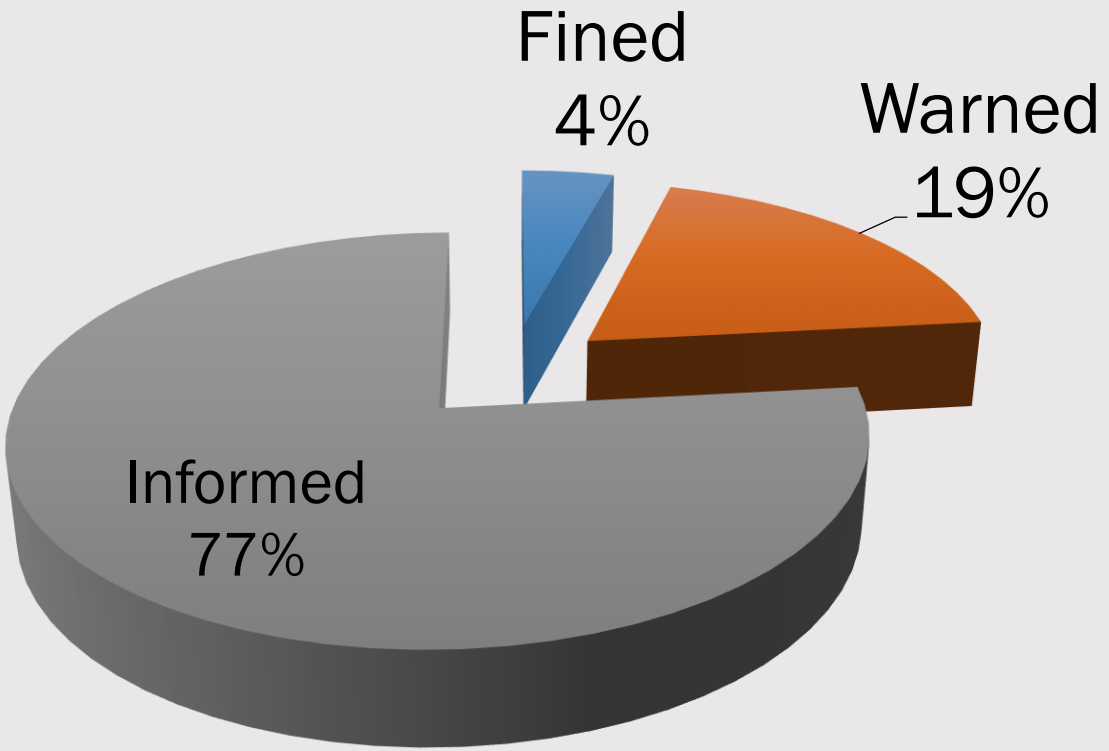
Started our own ranger system

Patrolling...Surveillance...Control...Inspection...

Confiscated fishing gears



Ranger activities

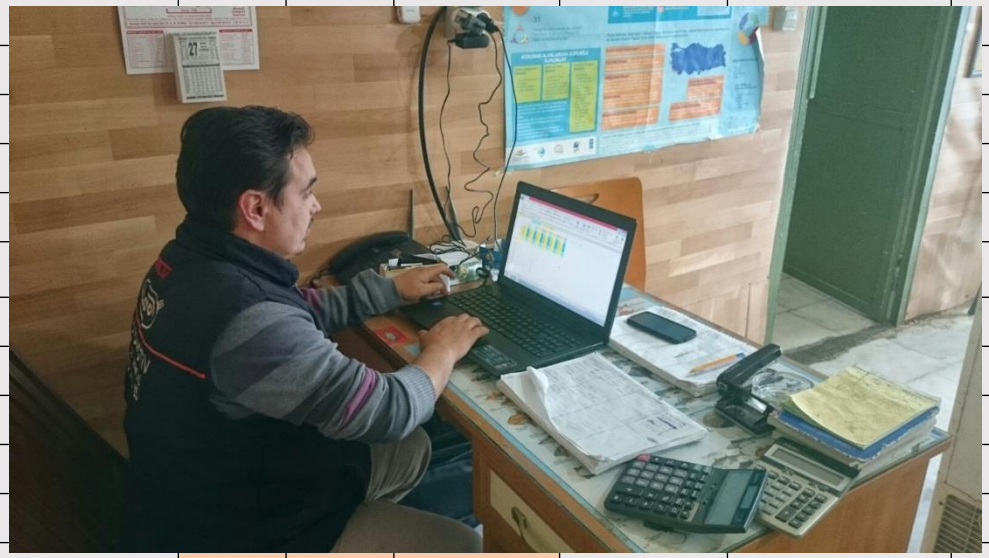


Number of patrolling in Gökova MPA is 1687 in 2015

Monitoring by fishers...Monitoring...

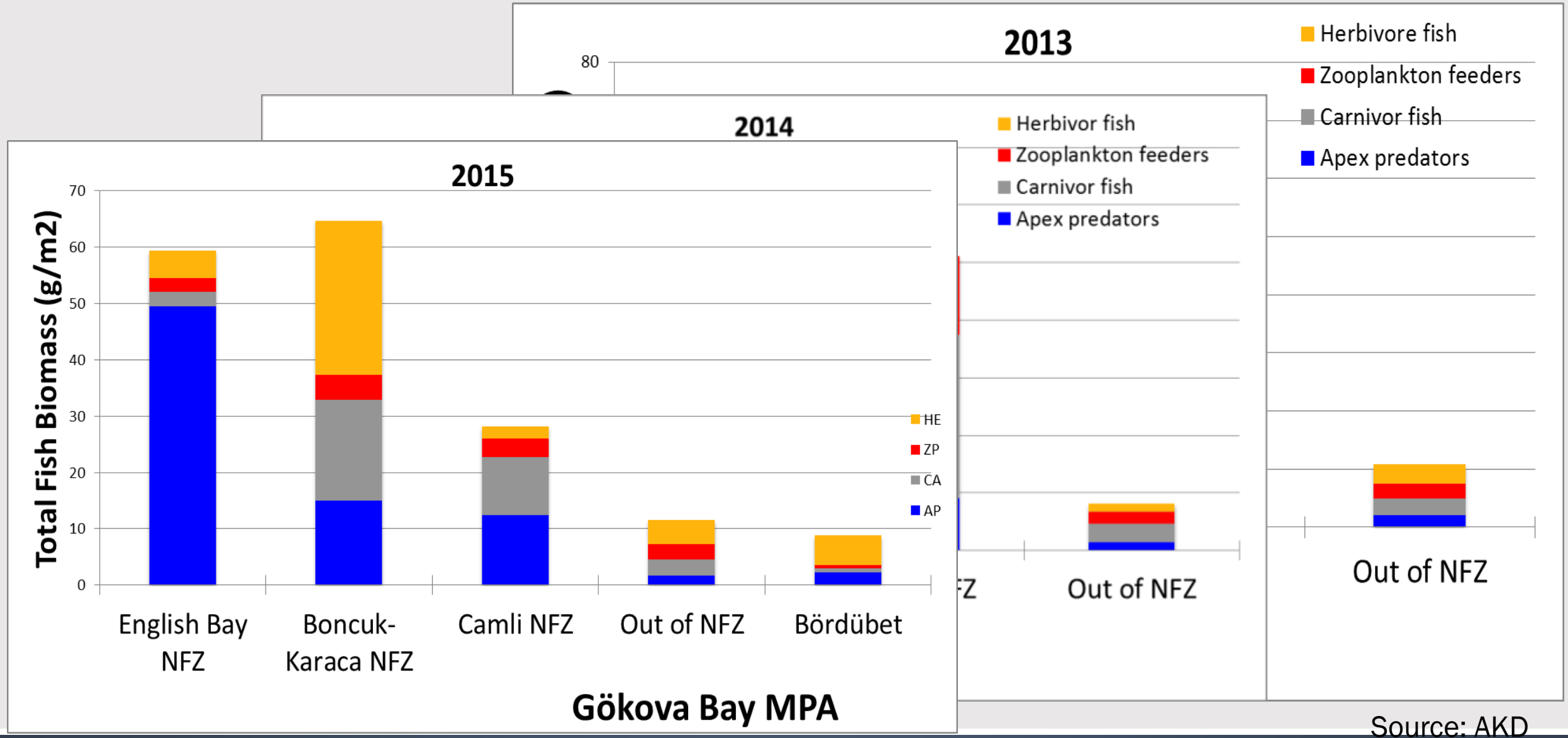
Landing volume and values in Gökova Bay before and after NFZs Comparison of three years (2006, 2009, 2015)

Latin name	Landing volume (kg)			Landing volume (%)			Landing value (TRL)*			Landing value (%)		
	2006	2009	2015	2006	2009	2015	2006	2009	2015	2006	2009	2015
E. costae	170	95	282.9	1	0.8	1.2	3729	3390	11110	1	1.4	2.3
E. aeneus	2905	755	1763	11	6	7.7	100782	33975	90893	31	11.8	18.8
E. marginatus	56	20	7.1	0.2	0.2	0.0	1038	600	259	0.3	0.2	0.1
Penaeus kerathurus	1106	2							1905.55	10	0	0.4
Octopus vulgaris	3842	800							10089	9	4.2	2.1
Pagellus erythrinus	1549	2550							82183	8	22.1	17.0
Solea solea	824	20							10863.1	8	0.2	2.2
Sparus aurata	938	1200							56614	7	14.6	11.7
Diplodus vulgaris	792	380							8393	3	2	1.7
Mugil spp.	900	2100							13720	3	21.9	2.8
Dentex dentex	148	500							10896	2	6.9	2.3
Upaneus molluccensis	761	550							6254	2	4.8	1.3
Merluccius merluccius	1642	250							6835	2	1.3	1.4
Sphyraena sp.	1517	235							7277.1	2	1.2	1.5
Other species	8901	3152	12181	33.5	25	53.1	40636	21434	166564	12	7.4	34.4
Total	**26,051**	**12,609**	**22,934**	**100**	**100**	**100**	**324,160**	**287,564**	**483,856**	**100**	**100**	**100**



Source: Akyaka Fishery Cooperative records

Total Fish Biomass Monitoring in Gökova Bay Marine Protected Areas From 2013 to 2015



Source: AKD

Journal of Applied Ichthyology

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doi: 10.1111/jai.12187

Short communication

Record of *Nemipterus randalli* Russell, 1986 from the southern Aegean Sea (Gökova Bay, Turkey)

By A. Gülşahin[1] and A. Kara[2]

[1]*Mugla Sitki Kocman University Fisheries Faculty, Mugla, Turkey;* [2]*Ege University ... Turkey*

Introduction

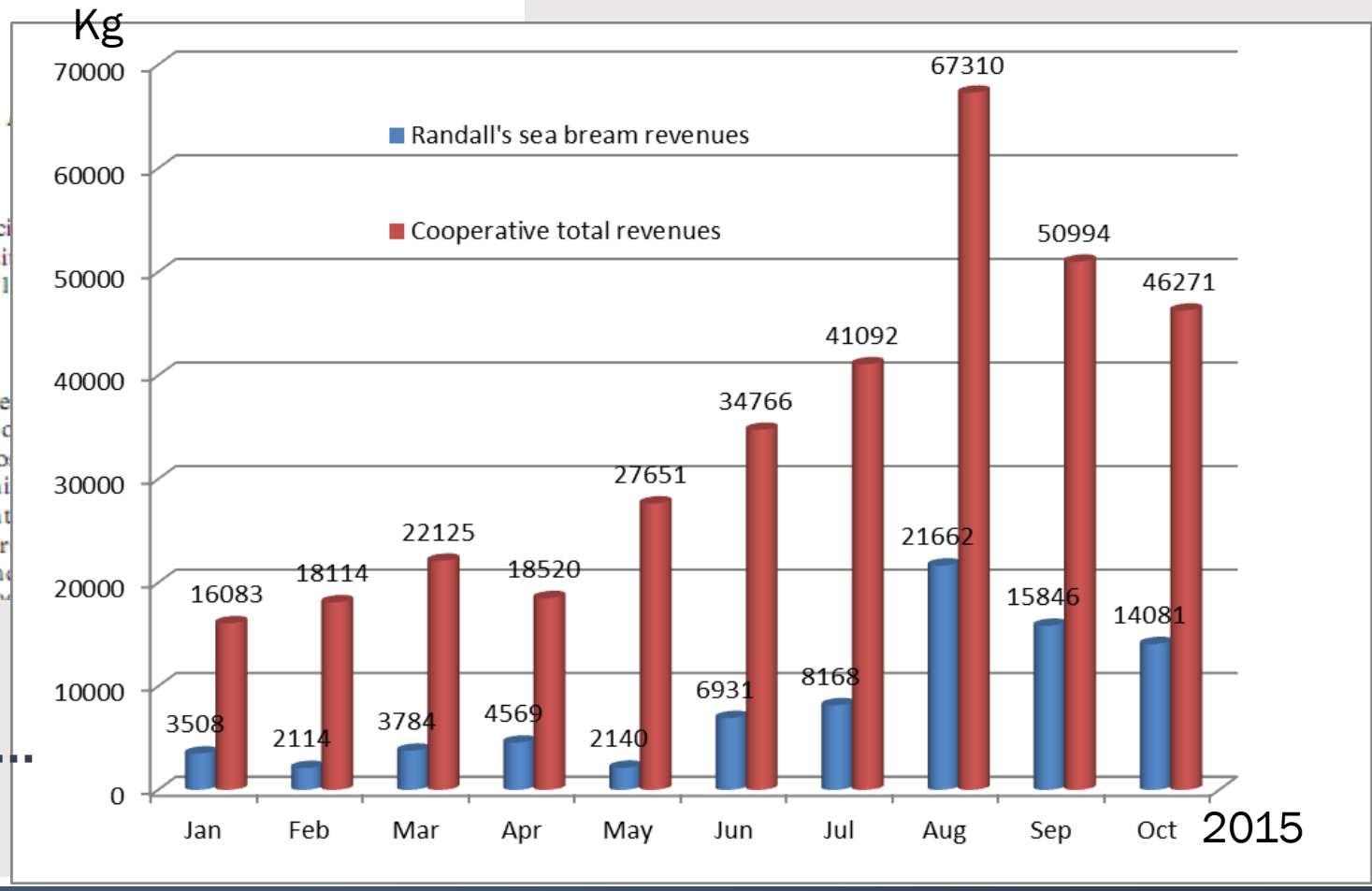
With the opening of the Suez Canal in 1869, many species of Indian Ocean origin migrated through the canal, entering the eastern Mediterranean Sea. A variety of such migrant fish species spread across the Mediterranean to form self-sustaining populations (Erguden et al., 2009). This phenomenon is called Lessepsian migration, named after Ferdinand de Lesseps, the engineer and developer of the canal. One of these Lessepsian species is *Nemipterus randalli* (Nemipteridae). Originally restricted to the Indo-West-Pacific region, the Nemipteridae include five genera consisting of 62 species (Russell, 1990).

Nemipterus randalli is widely spread throughout the Western Indian Ocean region, covering the east and west coasts of

solution. The speci... of Muğla Universi... (MUSUM/PIS/201...

Results

The three specime... captured north ... Province). Diagno... presented as mini... Numbers in parent... ples. These measur... of Bilecenoglu an...



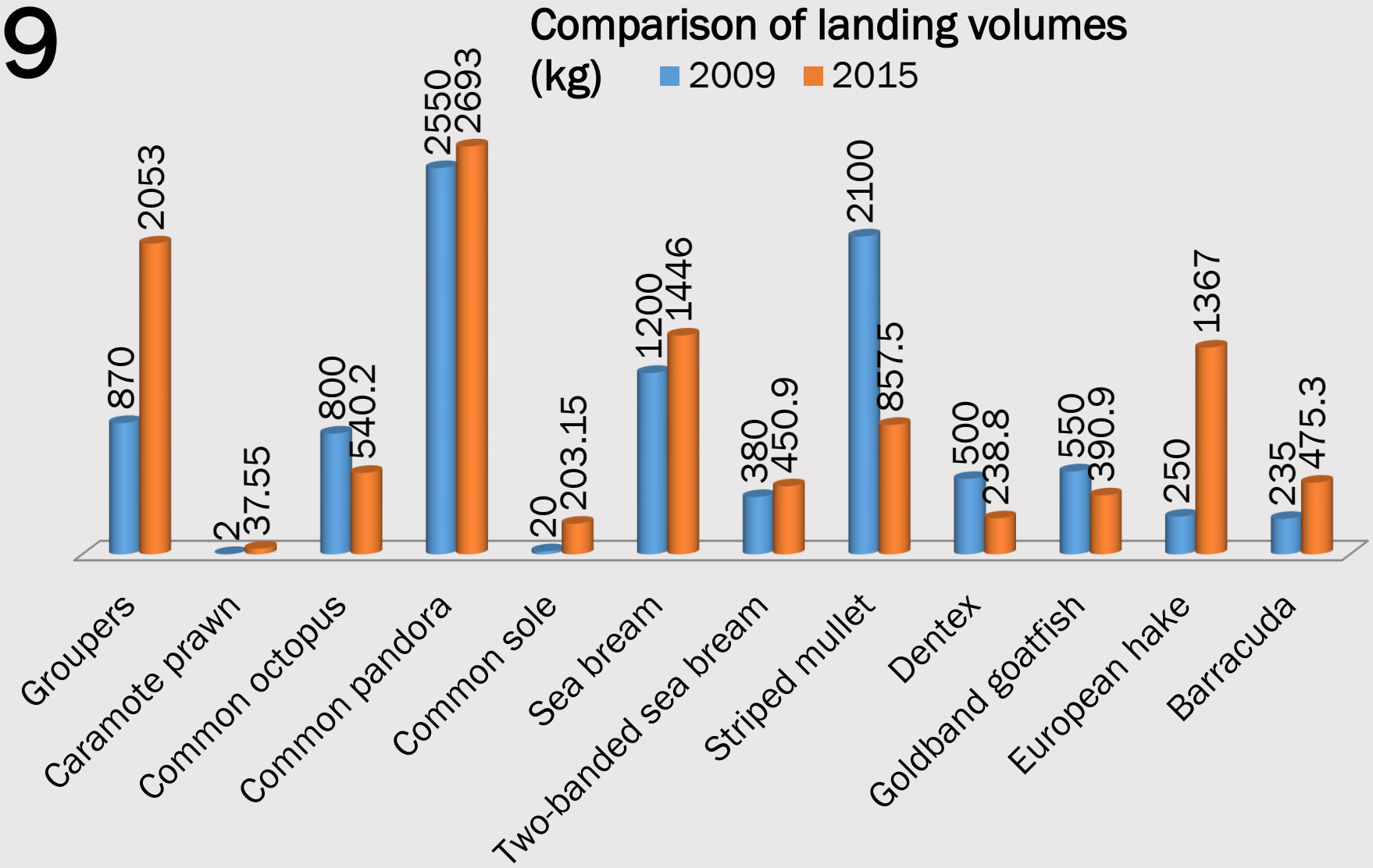
Dynamism and monitoring is going on...

Total landing volume increased in 2015 compare to 2009

%81.9

Total landing value increased in 2015 compare to 2009

%33



Source: Akyaka Fishery Cooperative

Benefits of improvement efficiency in Gökova MPA

Increase in:

- the catch volume (82%)
- fishing income (33%)
- adding value of invasive species (MedPAN-SGP)
- appearence of endangered species (*Monachus monachus*)
- better protection of sandbar shark (*Carcharhinus plumbeus*)
- new job opportunities (Marine rangers, pesca turismo (?))
- numbers of projects and interest of NGOs in Gökova MPA

Today; fishers are happy and fishes are plenty in Gökova MPA…

Last month, we (together with FAO-EastMed) started a pilot project in the area to develop FMP according to the EAF…

In our case in Gökova;

MPA with No Fishing Zones and strong enforcement created socio-economic benefits for SSF while protecting resources.

- **Success in sustaining the resource and environment in Gökova MPA while rising the economic benefits to SSF is the results of:**

  - working together with fishers and other stakeholders

  - using traditional knowledge besides scientific information

  - organizing many meetings and informing fishers on the results of researches

- MPAs should be supported with NTZs , MCS and MPs.
- Involvement of all stakeholders should be ensured.

Panel 3 : "Improve the efficiency of Marine Protected Areas (MPAs) as fisheries management tools and benefits from involving the small scale fisheries sector"

Thank you

Merci

شكرا جزيلا

Gracias

*Special thanks to Mediterranean Conservation Society and Akyaka Fishery Cooperative…