



General Fisheries Commission for the Mediterranean
Commission Générale des Pêches pour la Méditerranée
LaMed-2 Project



Tunisia country report

Meeting on

**Mediterranean coastal lagoons management:
interaction between aquaculture and capture fisheries**

Cagliari, Italy, 28-30 June 2011



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Tunisia country report

by Salem HADJ ALI

*Professor
SIPAM regional coordinator*

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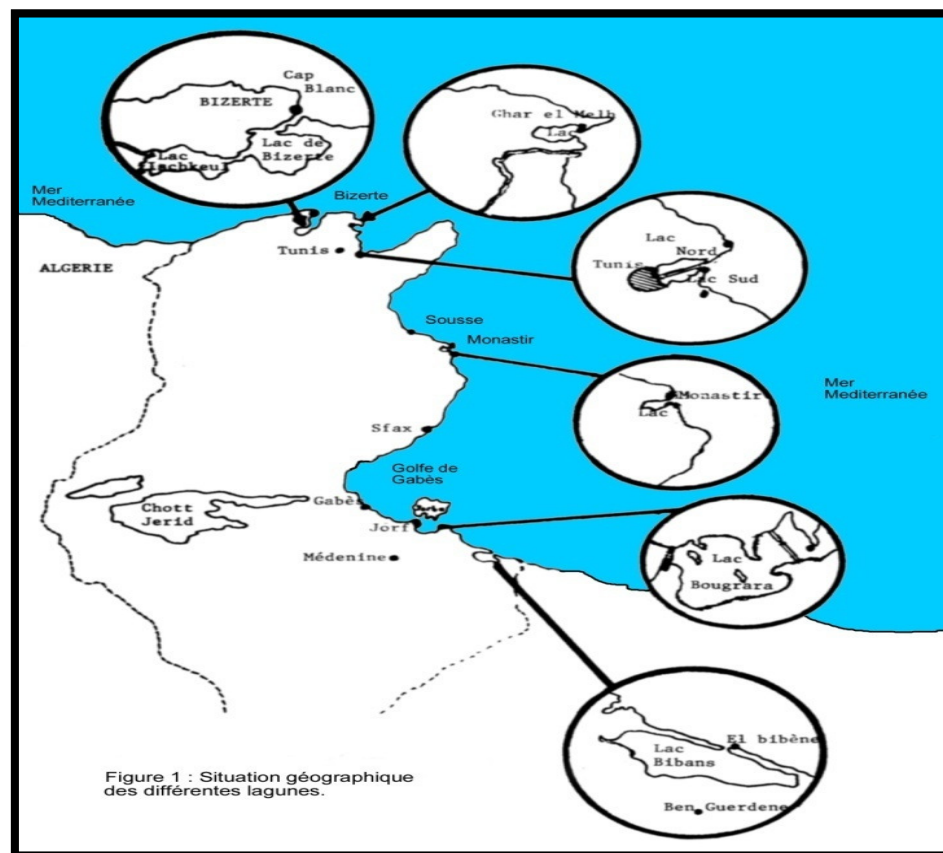


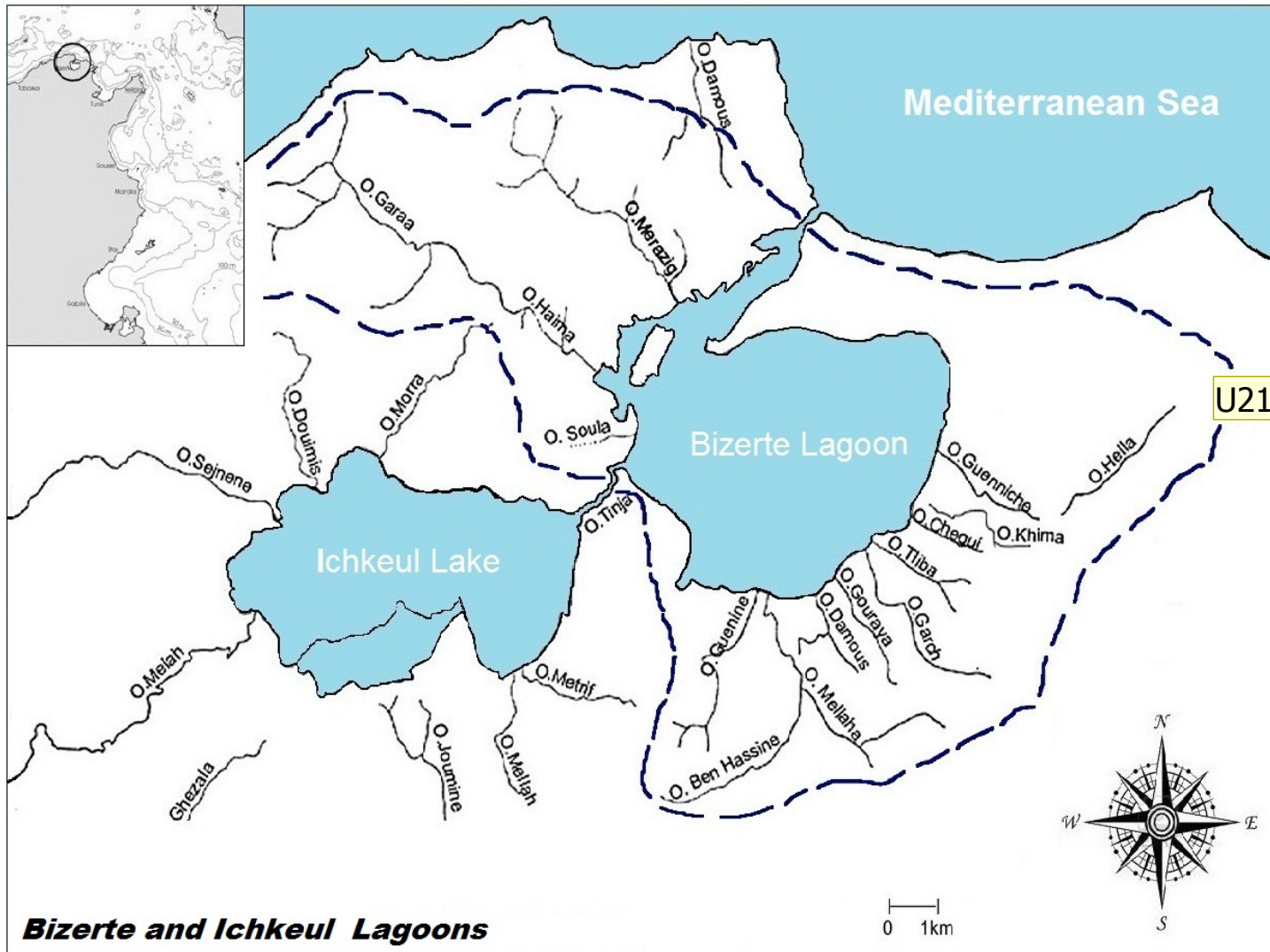
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LAGOON	LOCATION	SURFACE (ha)	ENVIRONMENT
ICHKEUL	NORTH	9,800	FRESH+BRACKISH
BIZETRE	NORTH	12,800	MARINE
GHAR el MELH	NORTH	3,000	MARINE
TUNIS-NORD	NORTH	2,500	MARINE
MONASTIR	EAST	0,150	MARINE
EL BIBANE	SOUTH	23,000	MARINE
TOTAL		51,250	

TUNISIA LAGOONS LOCATION





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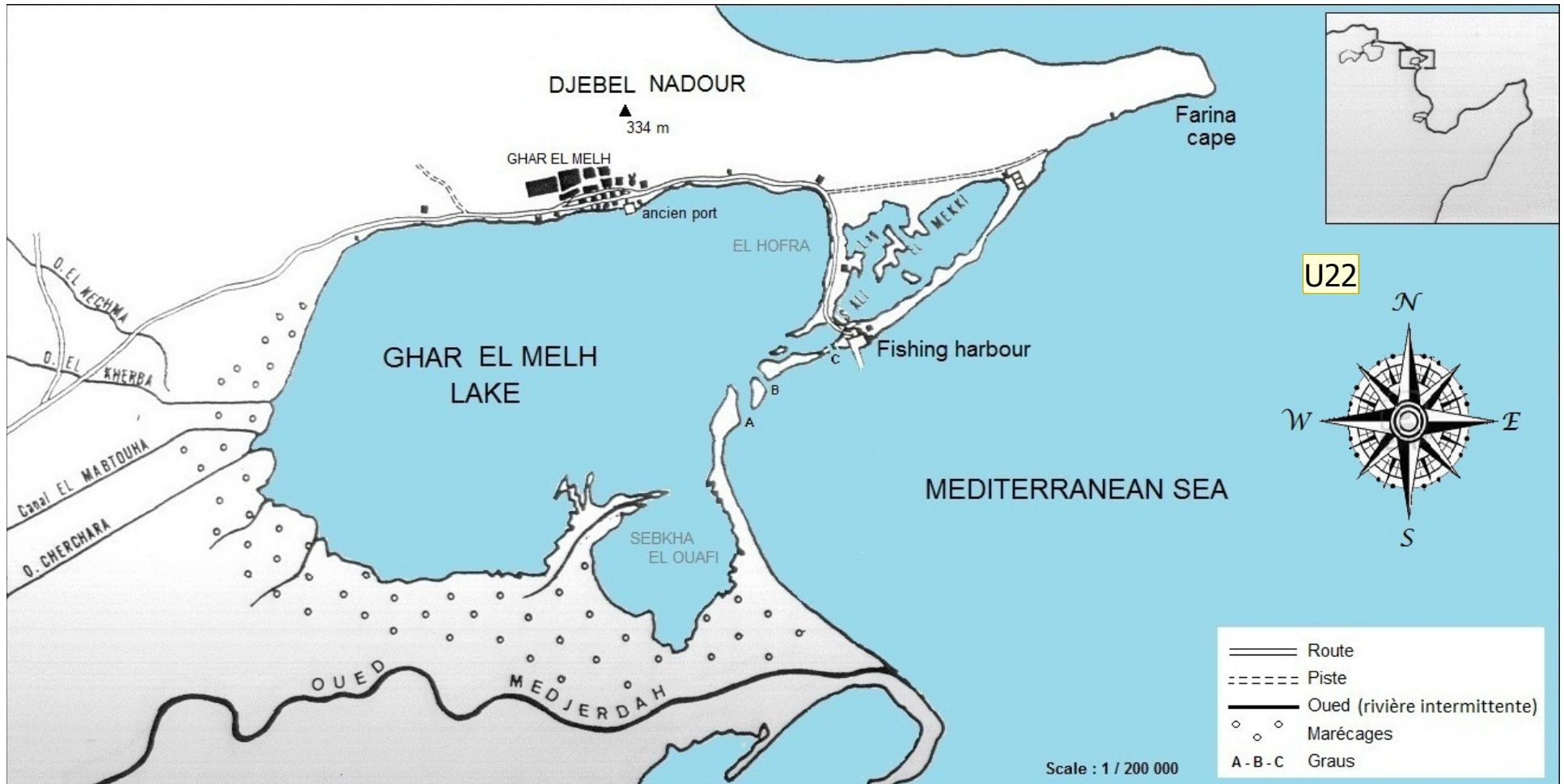
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GHAR EL MELH Lake



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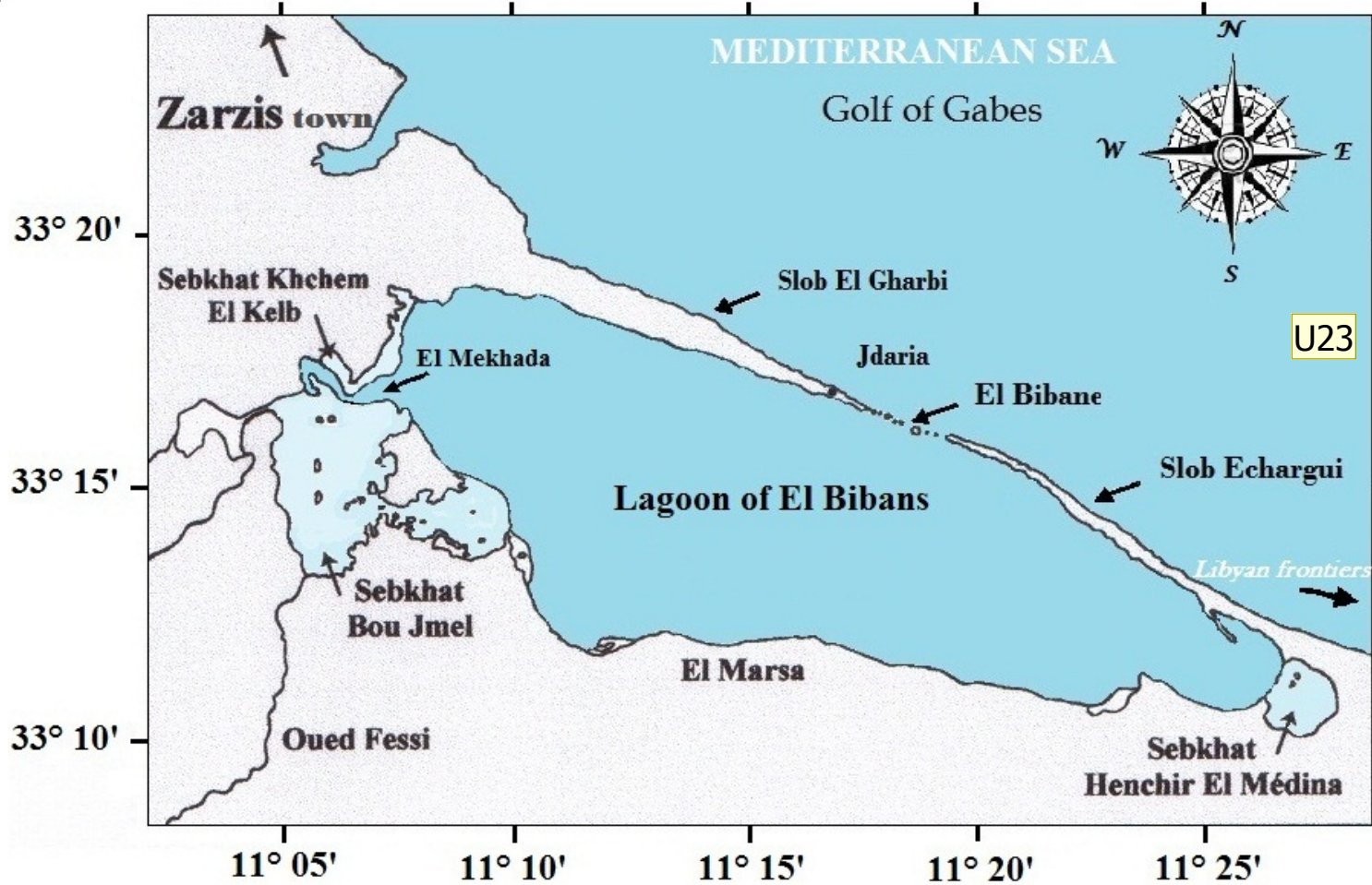
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TUNIS LAKE





El Bibans lagoon



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Main typologies of Tunisia coastal lagoons

LAGOON	TPOLOGY	OWNERSHIP	MANAGEMENT	USER(S)
ICHKEUL	Ovoïdal form; Belongs to a lake-marsh system(wetland, Ramsar site; UNESCO MAB site) important birds colonies; high biodiversity. Brackish water fish species (anguilla, sea bass, mugillidae), endangered mammal species (otter)	Tunisian state (Hydraulic domain). The fishing licences are granted by the fisheries authority with some specifications, including the requirement of development plan; nobody is respecting this requirement.	Ministry of Agriculture/ Environment (water management plan)	Private company (fishing by nets + bordigue) +National environmental agency (water+ settlements management)
BIZERTE	Quasi circular form; Connected to the Ichkeul lagoon+sea; marine water; marine species +anguilla+ Shellfish culture (mussels+ ostrea)	Tunisian state (Public hydraulic domain)	Ministry of Agriculture and environment (General Directorate of Fisheries/ Aquaculture)	Shellfish culture (4 private companies) + artisanal fishermen
GHAR EL MELH	Connected to the sea through many passes frequently obstructed; marine species: eel, sea bass +sea bream+ mugilidae	Tunisian public domain	No management plan is available	Private fishermen (organized within a cooperative) and others

LAGOON	TYOLOGY	OWNERSHIP	MANAGEMENT	USER(S)
TUNIS	Quasi ovoidal form with east-west axis; great urban pressure; connected to the sea (through a narrow channel and a bordigue) and a channel Tunis-Goulette for navigation	State domain with a concession to 2 private companies (one for fisheries + one for quality management and control)	Disorder is prevailing and state control on fisheries is almost missing	Private company (through a 30 years concession)
MONASTIR	Flat small lagoon connected to the sea through a problematic pass; marine water and species	Tunisian State' concession to a research institute for testing and field investigation	Ministry of Agriculture	Public body
EL BIBANE	Quasi rectangular form (with a n-w s-e axis); the biggest lagoon in the country (25% of total lagoons surface); the most productive lagoon; marine environment and species: shrimp, sea bass sea bream and other sparidae, mugilidae and other marine fish species; very important bird colonies (wintering and migration)	(public domain). The licence granted to a private company for fishing is just suspended and transferred to a public agency, waiting for a better way of exploitation.	Ministry of Agriculture and Environment	Private company+private fishermen NGO's Public agency (Agence des Ports et Installations de Pêche)



Emerging problems

- ❑ ABSENCE (OR INSUFFFISANCE) OF MANAGEMENT PLANS
- ❑ POLLUTION (LAND-BASED SOURCES: WASTE WATERS AND INDUSTRIAL POLLUTANTS)
- ❑ USE OF ILLEGAL FISHING GEARS
- ❑ SETTLEMENTS MAINTEMANCE (BORDIGUE)
- ❑ MARKETING OF CERTAIN CAPTURED SPECIES (*Anguilla anguilla*)
- ❑ ABSENCE OF PROFESSIONAL ORGANISATION
- ❑ LIMITED REVENUES
- ❑ ABSENCE OF SPECIFIC LEGISLATION
- ❑ LACK OF RELEVANT AND FOCUSED RESEARCH/DEVELOPMENT PROGRAMMES



Development perspectives and interventions by the public administration

- THE TUNISIAN LAGOONS WERE EXPLOITED UNTIL FIFTEEN YEARS AGO BY A PUBLIC BODY NAMED *OFFICE NATIONAL DES PECHES*. SINCE THE MIDDLE OF THE 90S THIS BODY WAS DISSOLVED AND ITS ACTIVITIES TRANSFERRED TO PRIVATE COMPANIES, THROUGH LICENCES (GRANTED BY THE FISHERIES AUTHORITY), INCLUDING PROVISIONS ON THE NECESSITY TO PROVIDE THE ADMINISTRATION WITH PLANS OF DEVELOPMENT, PRODUCTION STATISTICS, USE OF PROPER GEARS AND PRACTICES, AVOID ILLEGAL DEVICES, ETC.
- ICHKEUL LAGOON IS SUBJECT TO A STUDY ON WATER MANAGEMENT WHICH CONSIDERS THE FISHERY COMPONENT
- TO DECONTAMINATE THE BIZERTE LAGOON A STUDY WAS REALIZED; THOUGH IT NEEDS FUNDS TO BE IMPLEMENTED
- FOR EL BIBANE LAGOON THE FISHERY AUTHORITY IS CURRENTLY SEEKING FOR A RELEVANT USER (WITH REAL COMMITMENTS AND RESPECT OF THE LICENCE PROVISIONS)



Ichkeul lagoon - FISH PRODUCTION (TONNES)



<i>year</i>	<i>eel (Anguilla anguilla)</i>	<i>gilthead sea bream (Sparus aurata)</i>	<i>European sea bass (D. labrax)</i>	<i>mulletts</i>	<i>sole (Solea solea)</i>
1995	24.581		0.327	112.862	0.024
1996	24.099		0.179	85.939	2.156
1997	35.947		0.006	54.178	1.493
1998	25.156	0.023	6.414	79.194	0.502
1999	38.828		7.005	52.591	0.855
2000	16.011		0.548	26.913	0.034
2001	6.000		0.978	75.500	0.034
2002	0.711		3.345	86.866	1.765
2003	10.110		12.180	51.410	
2004	7.000		11.512	52.854	0.118
2005	30.650		5.666	28.326	
2006	45.250		0.691	42.474	0.002
2007	57.394		1.496	50.782	
2008	41.700		1.370	46.882	
2009	19190		5.406	48.938	



BIZERTE LAGOON - FISH PRODUCTION (TONNES)



year	eel (<i>Anguilla anguilla</i>)	gilthead sea bream (<i>Sparus aurata</i>)	European sea bass (<i>D. labrax</i>)	mulletts	sole (<i>Solea solea</i>)	sand streenbras (<i>L. mormyrus</i>)	annular sea bream (<i>Diplodus sp.</i>)	<i>Pagellus sp.</i>	other species
1995	0.874	2.588	3.976	18.177	2.085	3.415	11.582		49.426
1996	0.864	7.785	3.982	18.177	2.156	5.891	11.582		49.426
1997	1.967	5.216	3.177	13.300	1.288	8.907	10.253	0.084	58.521
1998	2.926	4.544	2.000	7.914	2.075	19.213	8.406	0.476	42.674
1999	3.274	4.366	2.468	11.816	1.283	17.103	7.703	0.147	14.836
2000	2.104	4.130	4.186	11.038	1.637	21.774	60.511	0.021	60.511
2001	1.085	5.560	3.910	7.505	1.665	17.505	6.975	0	61.309
2002	1.280	4.540	3.230	8.010	1.765	9.900	4.850	0	43.985
2003	1.390	7.240	3.715	12.905	1.575	11.100	3.960	0	71.070
2004	0.110	5.580	3.465	6.880	2.985	7.500	10.715	0	78.290
2005	2.085	13.185	3.915	12.855	5.115	10.970	17.560	0	
2006	1.107	3.749	7.322	8.850	6.695	2.465	3.388	0.030	102.029
2007	0.855	3.360	7.460	12.594	5.125	2.290	2.975	0	102.498
2008	2.180	4.615	4.580	7.695	3.575	2.255	4.595	0	39.065
2009	0.602	4.515	3.480	7.203	2.873	1.376	2.105	0	48.581

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El Bibans lagoon - Fish production (tons)



year	eel (<i>Anguilla anguilla</i>)	gilthead sea bream (<i>Sparus aurata</i>)	European sea bass (<i>D. labrax</i>)	mulletts	sole (<i>Solea solea</i>)	sand streenbrass (<i>L. mormyrus</i>)	annular sea bream (<i>Diplodus sp.</i>)	<i>Pagellus sp.</i>	other species
1986	0.231	78.485	20.9/85	25.704	10.503	21.711	62.404		87.272
1987		38.568	23.803	23.788	10.424	24.570	37.036		54.160
1988	0.050	70.020	13.260	22.260	9.589	7.923	103.667		79.710
1989	0.010	50.113	13.172	31.279	14.930	4.690	114.407		49.847
1990		64.87	15.615	49.641	8.960	11.906	104.085		141.190
1991		54.469	15.468	11.152	7.662	15.540	54.776		77.924
1992		47.794	19.771	16.127	5.183	12.937	72.993		61.033
1993		51.830	19.221	3.176	9.576	6.927	47.759		31.020
1994									
1995		35.950	16.188	3.322	3.799	0.390	14.155	0.695	95.682
1996		85.830	15.304	3.341	4.251	2.168	100.546		16.208
1997		59.375	7.750	0.577	1.776	4.309	37.754		29.153
1998		65.564	15.429	9.608	0.734	2.270	88.419		43.077
1999		52.258	16.167	16.788	1.483	1.324	55.657		43.429
2000		46.415	13.703	12.989	2.949	2.233	84.504		35.899
2001		51.646	22.845	22.336	5.477	3.669	123.591		38.151
2002		57.654	21549	29.185	3.967	7.157	79.082		57.221
2003		62.600	15.862	11.902	3.325	8.682	110.722		38.107
2004	0.159	39.434	17.455	16.047	3.259	2.417	78.105		54.766
2005		66.992	16.230	32.647	3.576	5.529	93.835		48.993
2006		38.455	15.742	19.473	4.904	3.399	57.941		31.279
2007		49.346	12.664	3.596	1.266	1.130	31.429		31.564
2008		6.059	14.664	3.423	0.699	0.569	0.945		9.269
2009		57.566	11.269	15.426	1.149	4.473	84.196		45.478



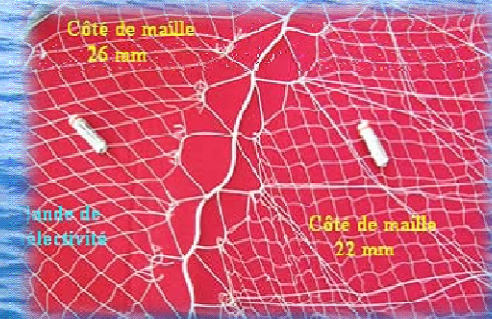
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Examples of fishing nets
(three categories: trammel nets, netted gear and combined) used in the lagoon el Bibane



Incidental fish species caught with shrimp (improved net)



Example of nets used to fish shrimp (*Penaeus kerathurus*) in the lagoon el Bibane (on the left the current net , on the right a proposed one with larger mesh size)



Fish species incidentally caught with shrimp in the lagoon el Bibane (net currently used)
Penaeus kerathurus 68%,
Solea vulgaris 15%,
Salpa salpa 8, 5%,
Sargus sargus: 2, 5%,
Sparus aurata 2, 5%
(horse mackerel and mullets 3%)



Incidental fish species caught with shrimp (*Penaeus kerathurus*) by trammel nets in the lagoon El Bibane.



**THANK YOU FOR
YOUR ATTENTION**