



General Fisheries Commission for the Mediterranean
Commission Générale des Pêches pour la Méditerranée

LaMed-2 Project



Egypt country report

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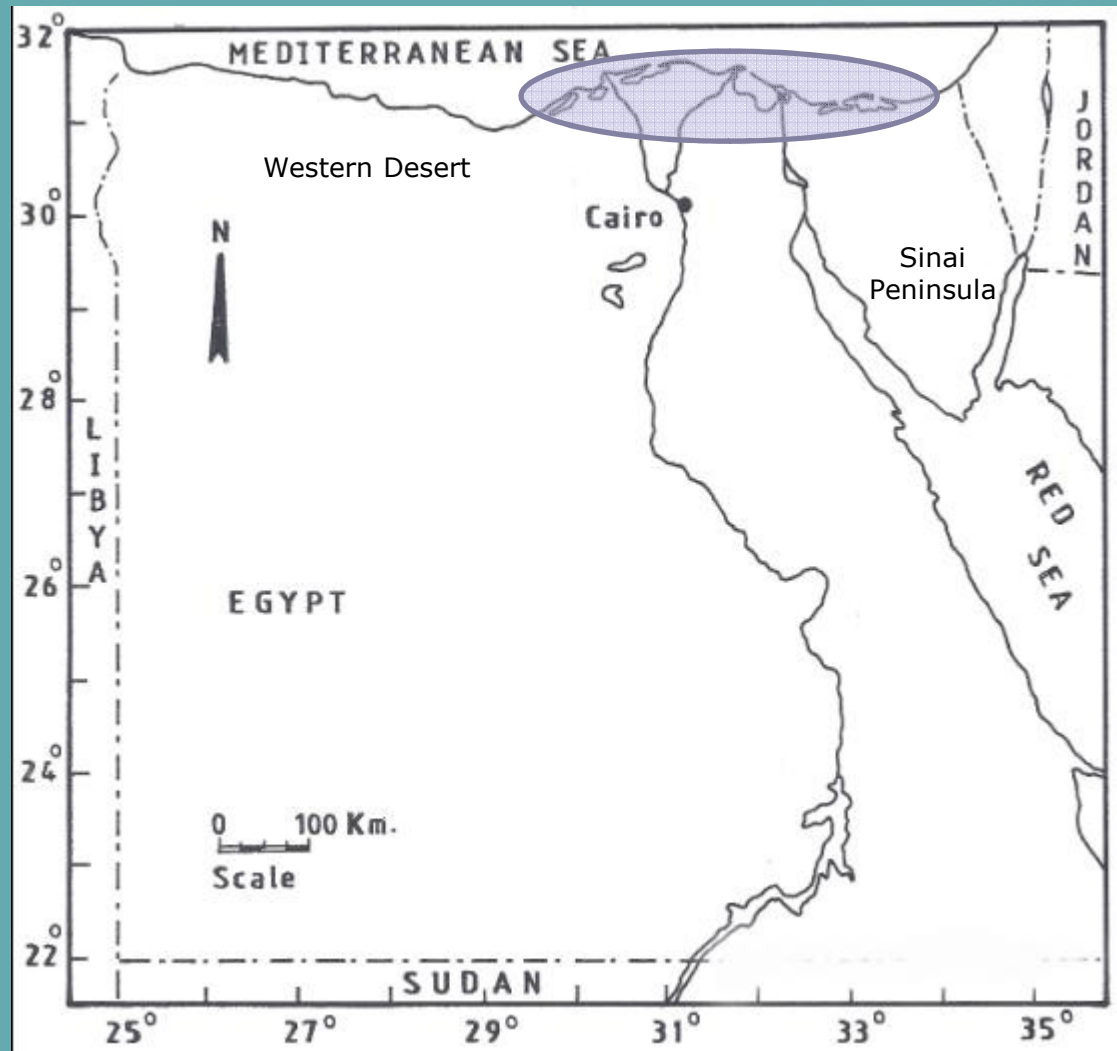
Meeting on

Mediterranean coastal lagoons management:
interaction between aquaculture and capture
fisheries

Cagliari, Italy, 28-30 June 2011



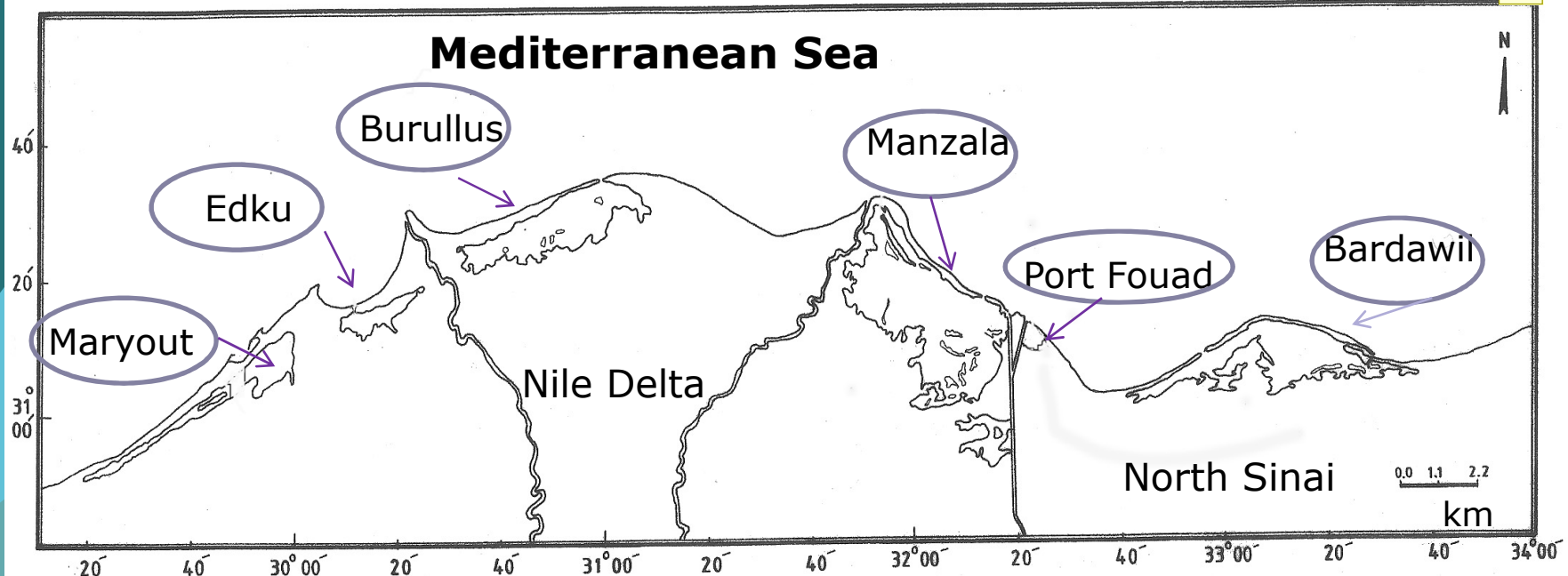
Locations of coastal lagoons in Egypt





Number and distribution of coastal lagoons in Egypt

U2



Inland lagoon	Delta Lagoons	Hypersaline Lagoons
No connection to sea	Connected to sea through inlet (s)	Connected to sea through inlet (s)
Receive freshwater	Receive freshwater	No freshwater input

Slide 3

U2

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Surface area and typology of coastal lagoons in Egypt

	Maryout	Edku	Burullus	Manzala	Port Fouad	Bardawil
Area (km ²)	50	80	410	780	60	660
Water salinity	Fresh water	Brackish water	Brackish water	Brackish water	Hyper saline	Hyper saline
Drainage Input (m ³ x10 ⁹)	2.2	1.4	4.0	3.7	-	-
Depth (m)	0.4 – 0.8	0.3 – 2.0	0.4 – 2.4	0.4 – 3.0	0.0 – 2.0	0.0 – 2.20



Ownership and management of costal lagoons of Egypt

Lagoon Name	Ownership	Water Input	Management	Notes
Maryout	▪ Government	Drainage water + Sewage + industrial effluents (no seawater input), (limited aquaculture activities)	GFRD*	
Edku	▪ Government	Drainage water + seawater + aquaculture	GFRD	
Burullus	▪ Government	Drainage water + seawater + huge aquaculture activities	GFRD	Ramsar
Manzala	▪ Government	Drainage water + seawater + sewage water + industrial water + aquaculture + mariculture	GFRD	
Port Fouad	▪ Public Company	Seawater only + ?? aquaculture	ECFE**	
Bardawil	▪ Government	Seawater + groundwater?? + no aquaculture	GFRD	Ramsar

* *General Fisheries Resource Development*

** *Egyptian Company for Fishing and Equipment*



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Maryout lake





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Edku lagoon



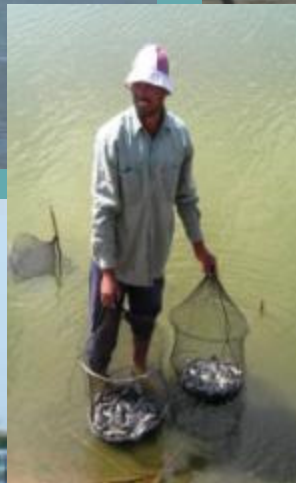


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Burullus lagoon





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Manzala lagoon



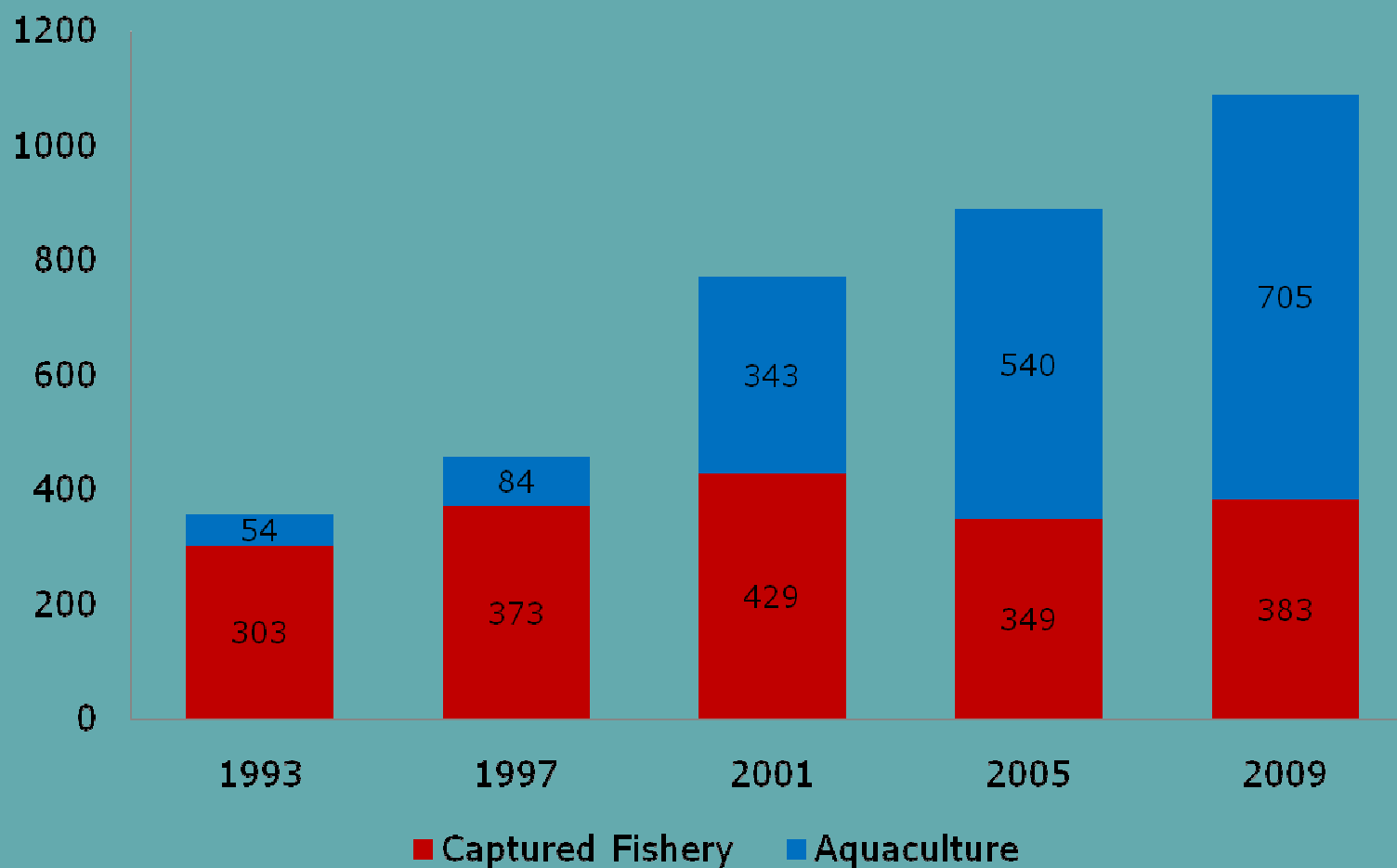


Fish production in Egypt from 1993 to 2009 (tonnes x 10³)

	1993	1997	2001	2005	2009	1993/ 2009
Sea Fisheries						
• Mediterranean	44.7	52.7	59.6	56.7	78.8	1.76
• Red Sea	50.9	57.1	73.5	50.7	49.0	0.96
Coastal lagoons						
• Maryout	3.7	4.5	6.2	5.3	5.5	
• Edku	8.3	10.8	10.9	9.6	6.2	
• Burullus	48.0	58.7	59.2	53.9	53.4	
• Manzala	63.6	63.1	68.4	40.0	48.0	
• Port Fouad	0.2	0.2	0.2	0.2	0.2	
• Bardawil	2.2	2.2	3.1	3.5	5.4	
	126.4	139.5	148.0	112.5	118.9	0.94
Inland lakes	31.2	56.1	37.4	45.9	47.2	1.51
River Nile & canals	50.0	65.5	110.1	83.8	87.3	1.75
Fish farming	54.0	83.8	342.9	539.7	705.0	12.74
Total fish production	356.7	457.0	771.5	889.0	1070	



Fish production in Egypt by sector from 1993 to 2009 (tonnes x 10³)

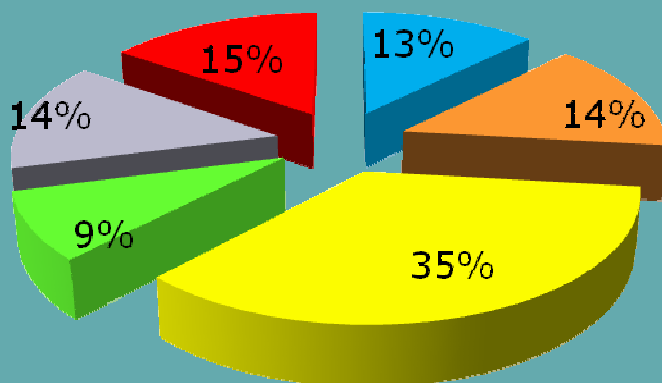




Fish production in Egypt by sector in 1993 and 2009

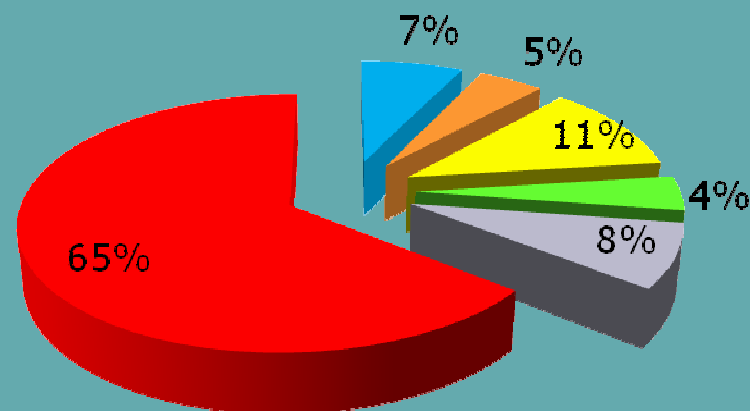
1993


- Mediterranean
- Red Sea
- Costal lagoons
- Inland lakes
- River Nile
- Fish Culture



2009

- Mediterranean
- Red Sea
- Costal lagoons
- Inland lakes
- River Nile
- Fish culture





Does this mean that coastal lagoons lost their role as main fish production sector in Egypt?



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Fish production from aquaculture and captured fishery from coastal lagoons in **Egypt** during 2009 (tonnes x 10³)

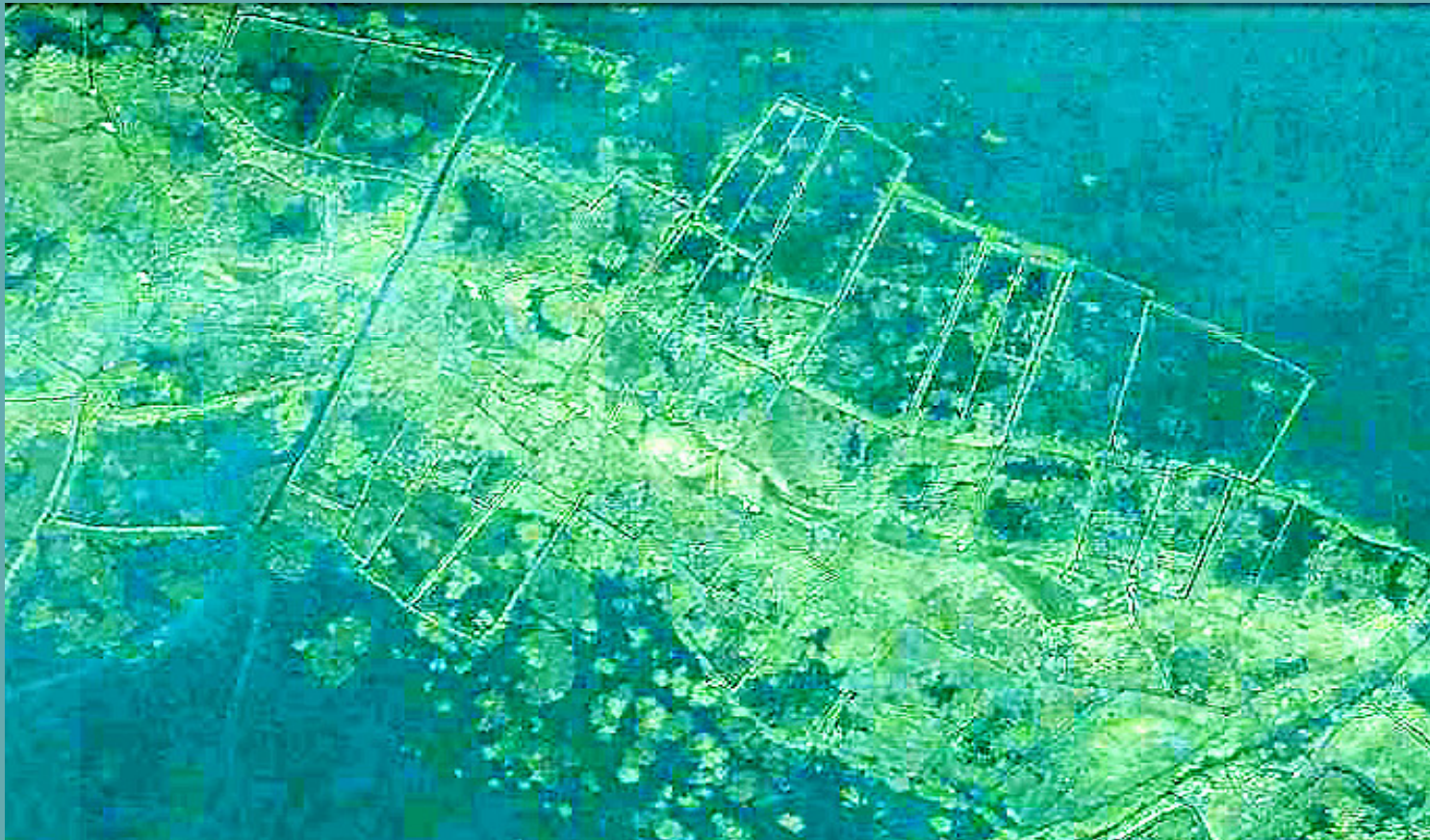
Lagoon	Aquaculture fish production	Captured fish production	Aquaculture/ captured
Maryout	?	5.5	-
Edku	29.7	6.2	4.8
Burullus	324.5	53.4	6.1
Manzala	142.6	48.0	3.0
Port Fouad	?	0.2	-
Bardawil	-	5.4	-
Total	496.8	118.7	4.2
(%) of total fish production in Egypt*	45.5	10.9	

* Total fish production of Egypt = 1 070 000 tonnes in 2009, GAFRD Statistics

Activities carried out in coastal lagoons (other than fisheries and aquaculture)

	Maryout	Edku	Burullus	Manzala	Port Fouad	Bardawil
Reed harvesting	+++	+++	+++	+++	-	-
Bird hunting	+	++	+++	+++	+	++
Salt production	-	+	++	++	++	+++
Livestock breeding	+	++	+++	+++	-	+
Tourism	-	+	++	++	-	++
Shipyard	-	-	+	+	-	+

Hosha aquaculture in Manzala lagoon



Mariculture activities in El Diba Triangle (Manzala lagoon)





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Reed harvesting

Inhabitants regularly harvest *Phragmites australis* reeds for: as fodder for livestock, mat making, wind breaks, building material, fishing nets, and bird catching.





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Salt production in Burullus lagoon





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Livestock grazing





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Emerging Problems

- **Pollution**

It is mainly caused by industrial and untreated or partially treated sewage flow into Manzala and Maryout lagoons.

- **Environmental impacts of aquaculture**

Aquaculture expansion, land reclamation, destruction of natural resources, fry collection, live fish used as food for cultured fish, use of hormones and other chemicals, release of nutrients and eutrophication , social impacts on livelihood of fishermen



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Exhausting natural resources



Mullet fry
collection





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Introducing new species

The red swamp crayfish, *Procambrus clarkii*, that was introduced to Egypt about 30 years ago, is now causing a lot of problems





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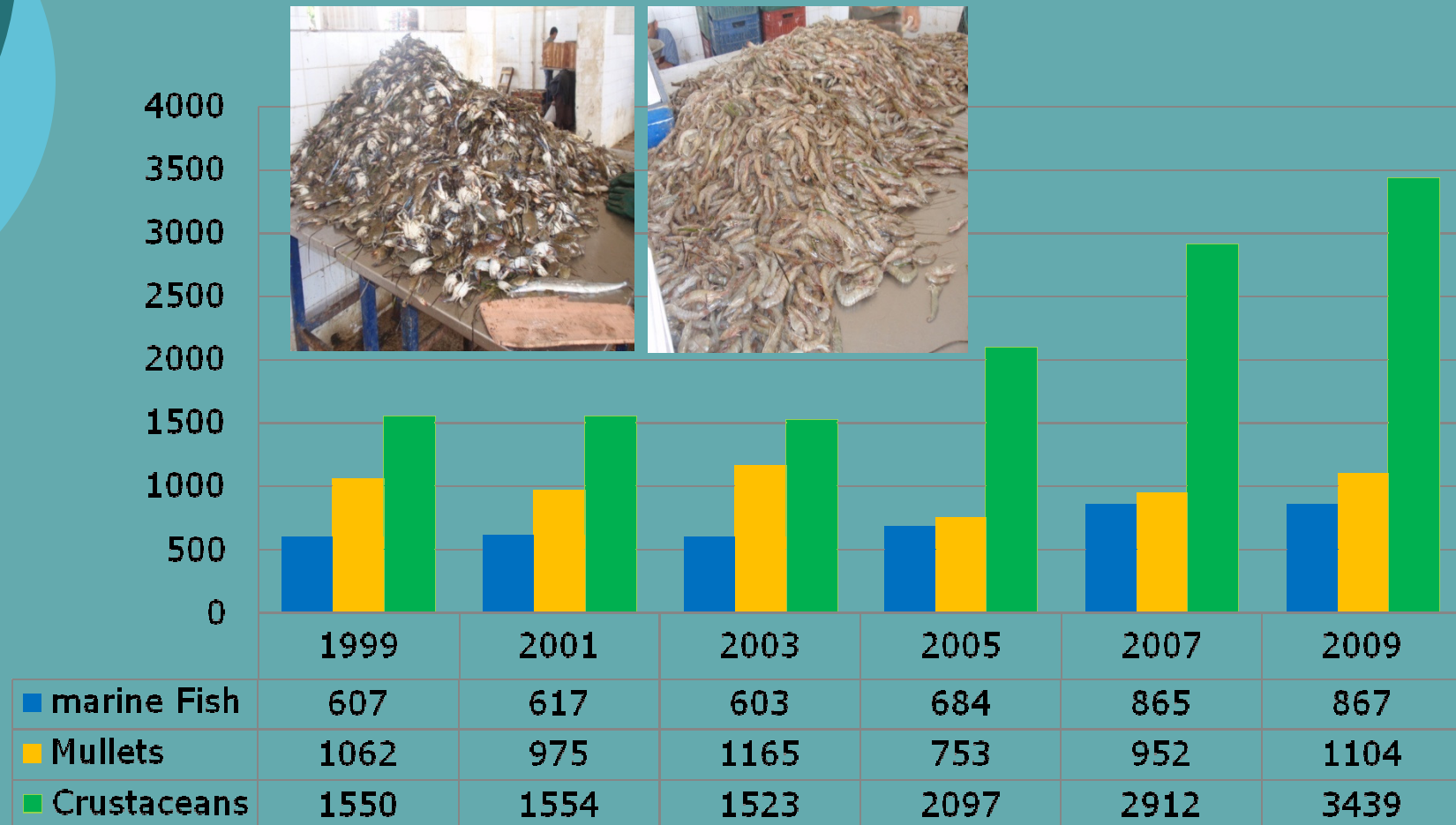


Other natural problems

- Change in fish species composition
- Ichthyophagous birds
- Disease transfer by migrating birds

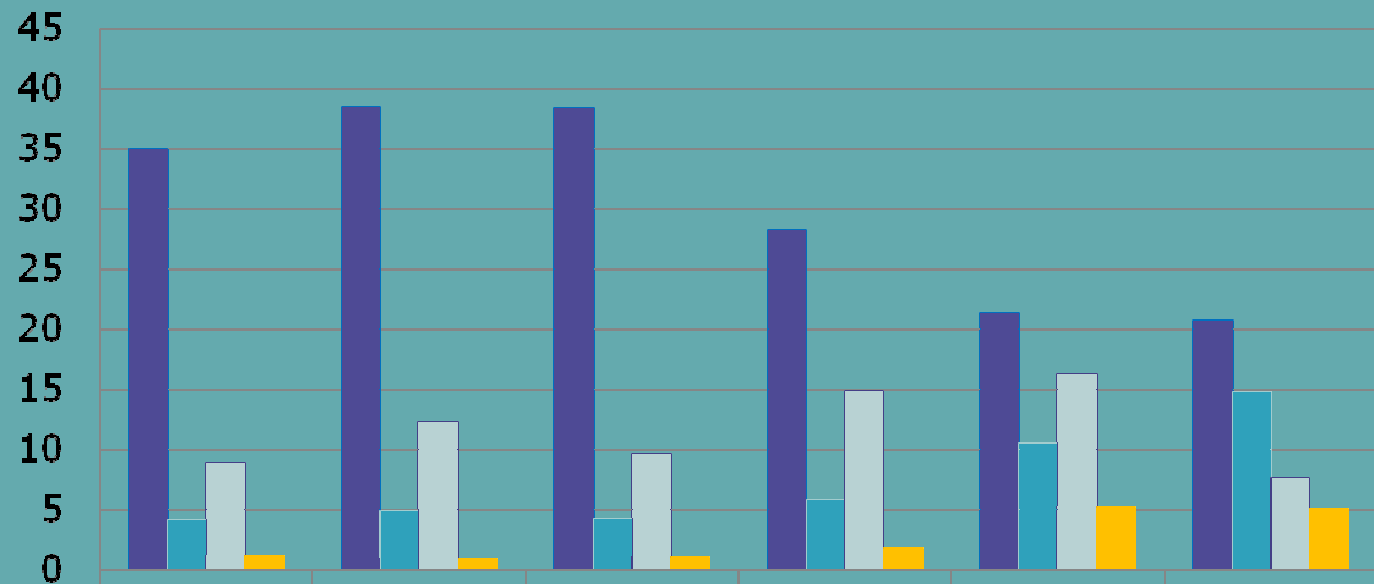


Fish Catch from Bardawil Lagoon (tonnes) from 1999 - 2009





Fish Catch from Burullus Lake (tonnes) from 1999 - 2009



	1999	2001	2003	2005	2007	2009
■ Tilapia	35	38.5	38.4	28.3	21.35	20.7
■ Other Freshwater	4.1	4.9	4.3	5.8	10.5	14.8
■ Mullet	8.9	12.3	9.7	14.9	16.3	7.7
■ Marine Fishes	1.2	1	1.1	1.8	5.2	5.1



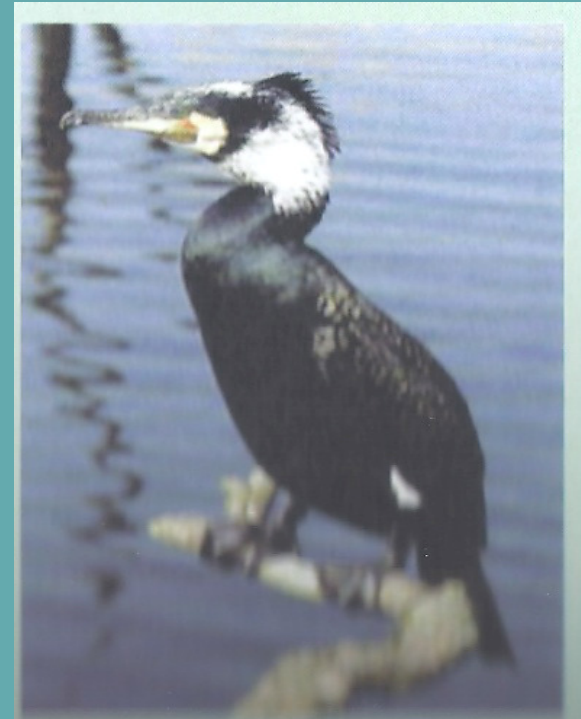
Disease transfer by migrating birds

- Many migratory birds visit Egypt from late autumn up to the end of winter seasons. This kind of migration cannot be controlled.
- Cloacal swabs of quail and king fisher contained different pathogenic microorganisms (*Salmonella sp.*, *Escherichia coli* and *Staphylococcus sp.*).
- Ectoparasitic infestation is one of the most important parasitic diseases of birds. It was found that migratory quails are infected with six species of acarina. These parasites caused losses of poultry industry, house dust allergy, topic dermatitis, and human scabies.
- In Egypt, during the year 2005, there was proof that the spread of avian influenza is promoted by migratory birds. It caused a huge loss for poultry industry in Egypt.



Ichthyophagous migrating birds

- The Great Cormorant, *Phalacrocorax carbo*, causes substantial damage to fisheries in coastal lagoons.
- One estimate suggested that 6% of Bardawil fish production was lost to this bird species in the winter of 1989/90.
- Up to 30,000 of the former species were estimated to be present at Bardawil in winter (2001) and it appears that the numbers are increasing.





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Development perspectives and interventions by the public administration

- Establishment of large Sewage treatment projects in Cairo and Alexandria and zoning of wet lands
- Proposed Project for recycling drainage water for new reclaimed agricultural land. This will allow more clean seawater to enter the lagoons.



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Remaining untouched problems

Environmental impacts of expanded aquaculture activities on environment, and impact of environment on aquaculture future development??





Thanks for your attention