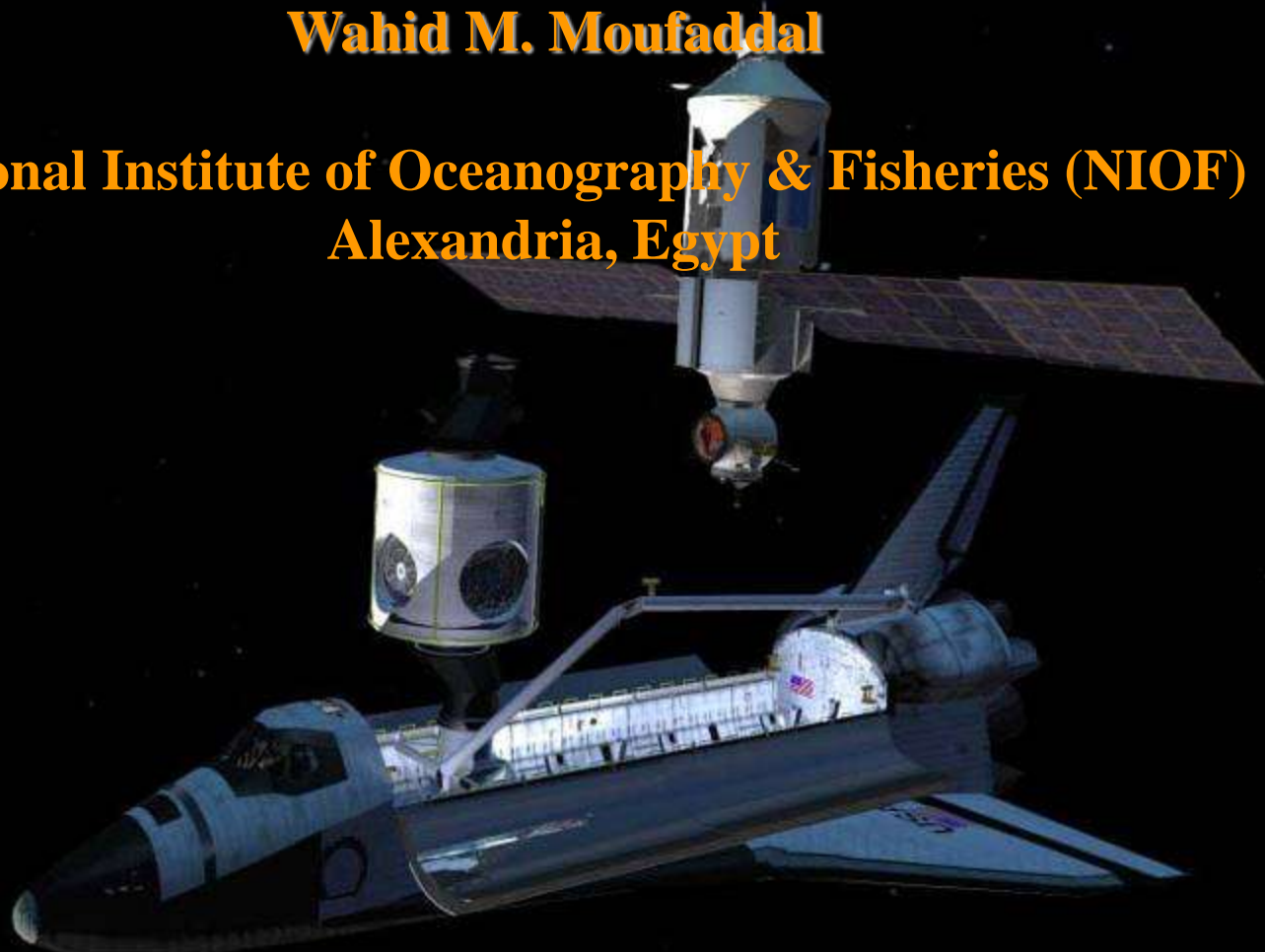


Potentialities and difficulties of application CoastColour data to the Egyptian Coastal Waters

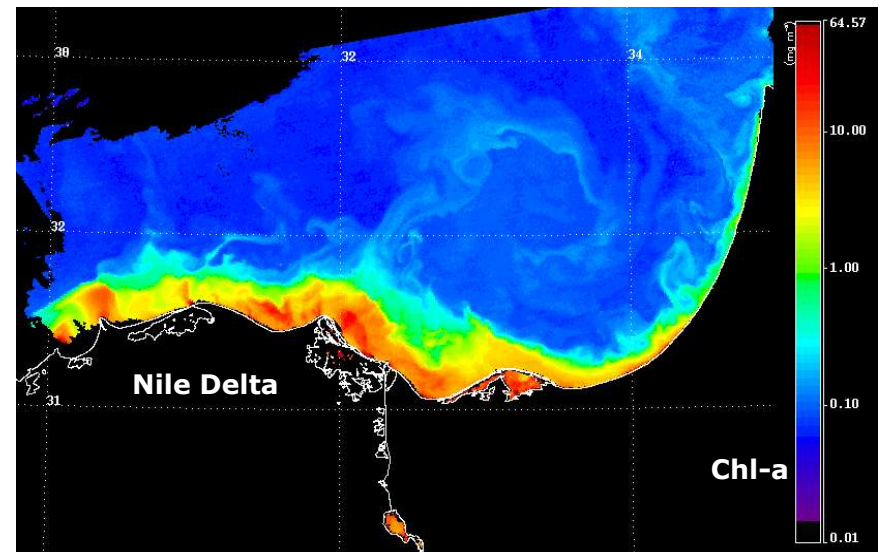
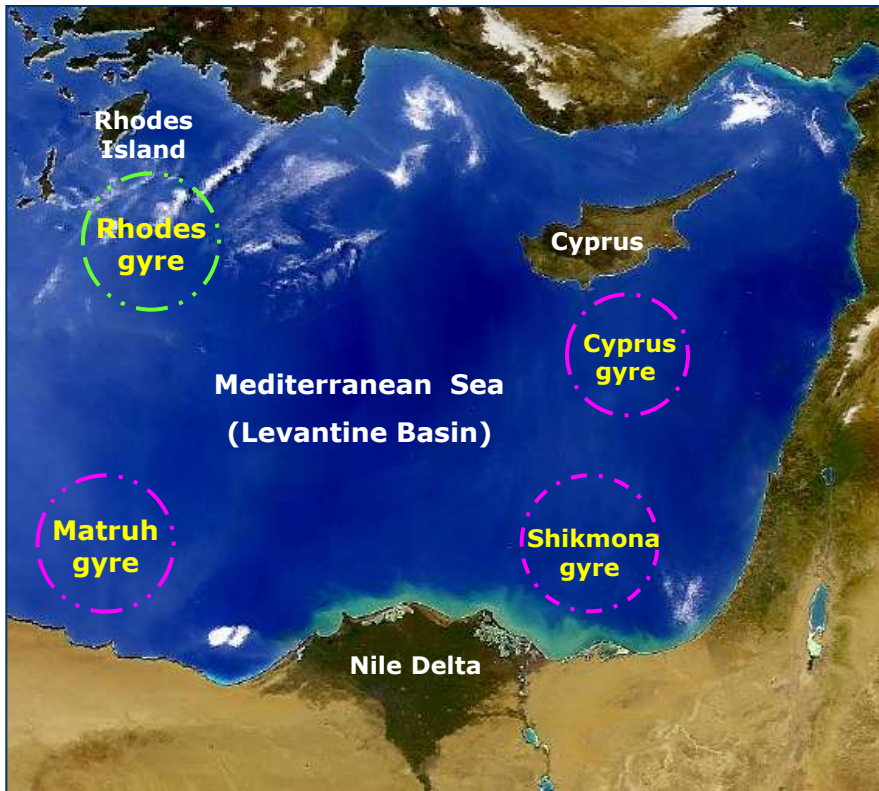
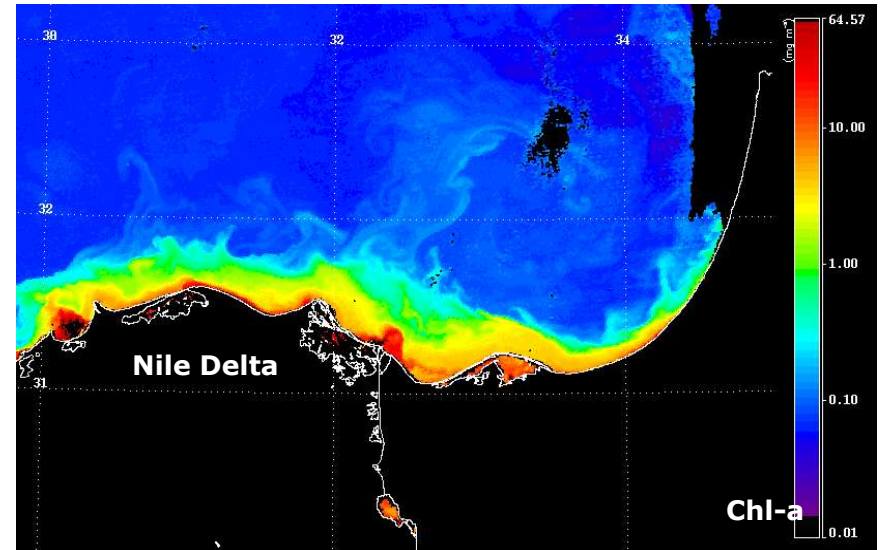
Wahid M. Moufaddal

**National Institute of Oceanography & Fisheries (NIOF)
Alexandria, Egypt**



**Why CoastColour (and other OC) data are
very important for the Egyptian Coastal
Waters (Sites 3 and 13)?**

1. Egyptian Mediterranean (Nile delta and SE Levantine, Site 3):



The Nile Phytoplankton Bloom

MODIS image taken in Feb. 2003 (courtesy of NASA)



The Nile Phytoplankton Bloom



Major outfalls / land-based sources along the delta coast and quantities of effluents discharged each day (in million m³)

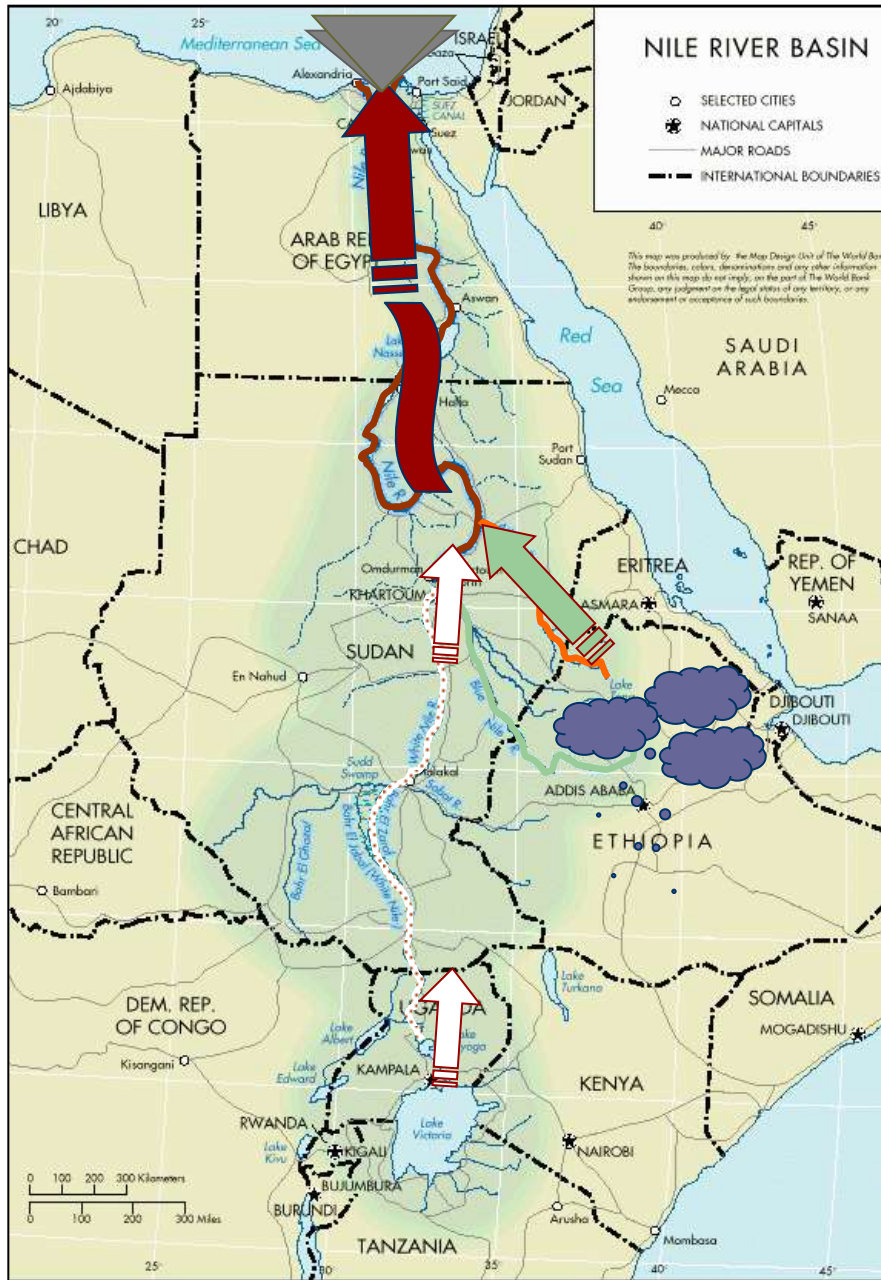
The Modern Nile Bloom



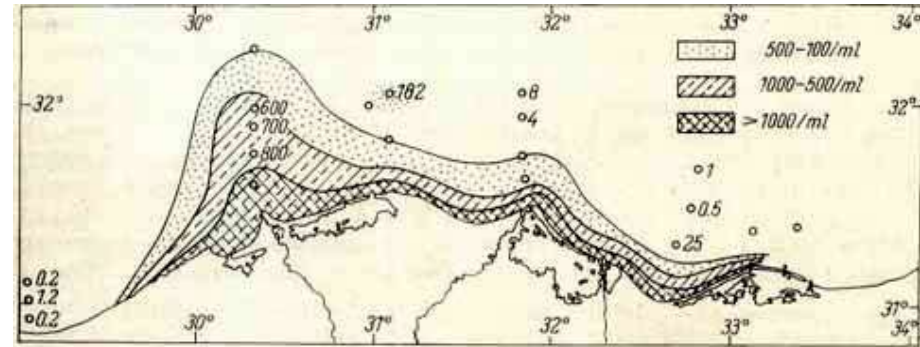
The Nile bloom in Feb. 2003 (MODIS Image, courtesy of NASA)

Post-High Dam > early 1980s ??

Anthropogenic, multispecies (dinoflagellates and diatoms), and extensive in time and space (winter and spring).



The Classic Nile Bloom

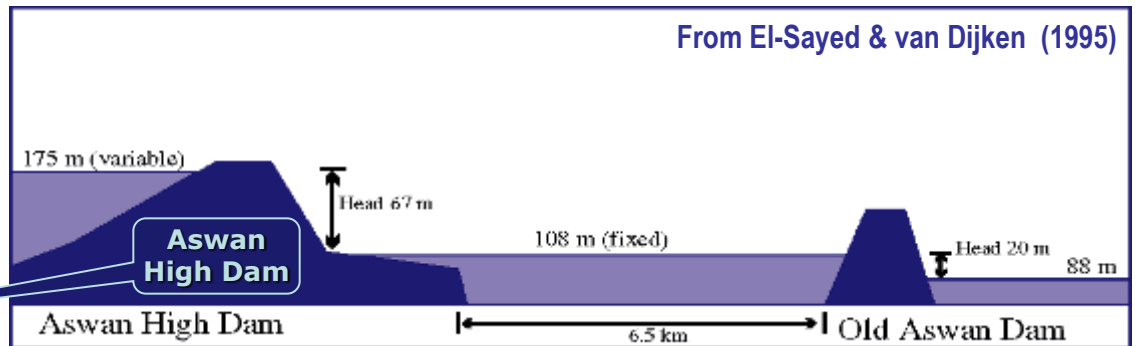
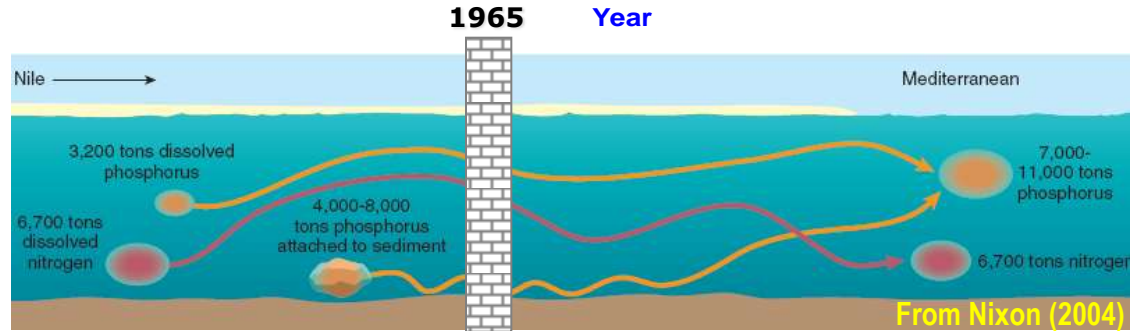
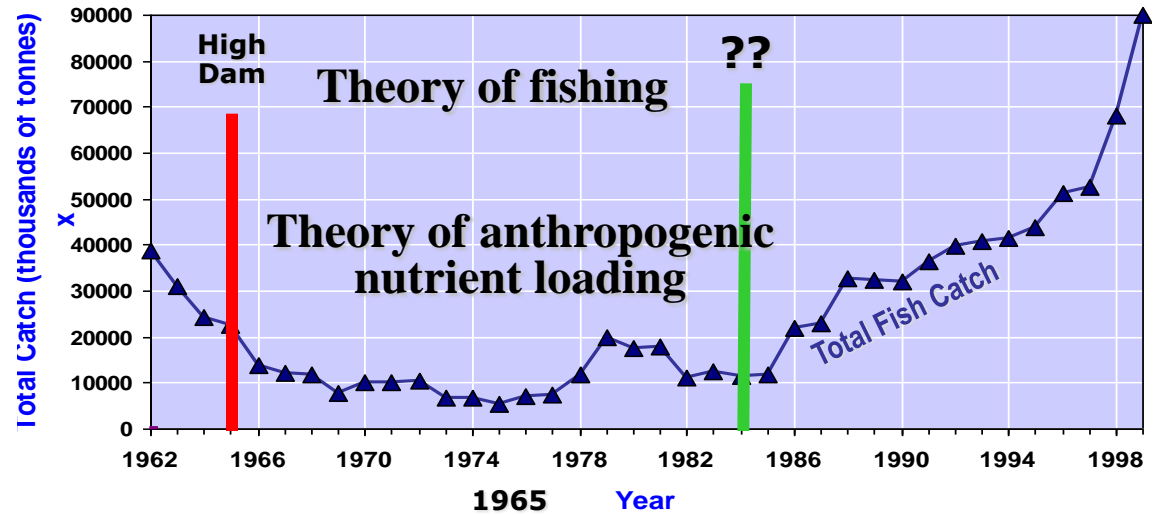
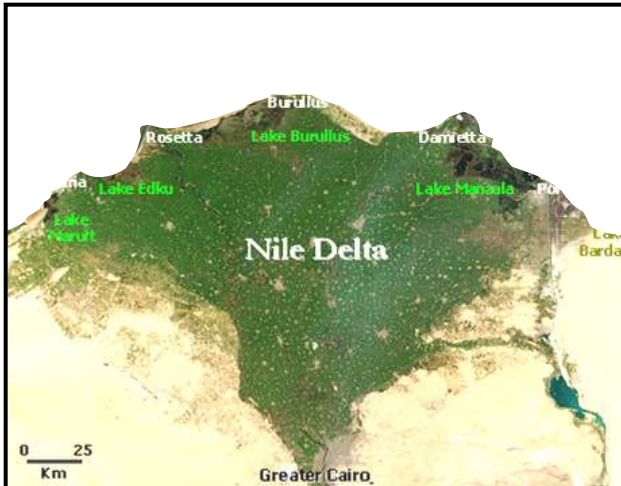


The Nile bloom in October 1964 (Halim 1967).

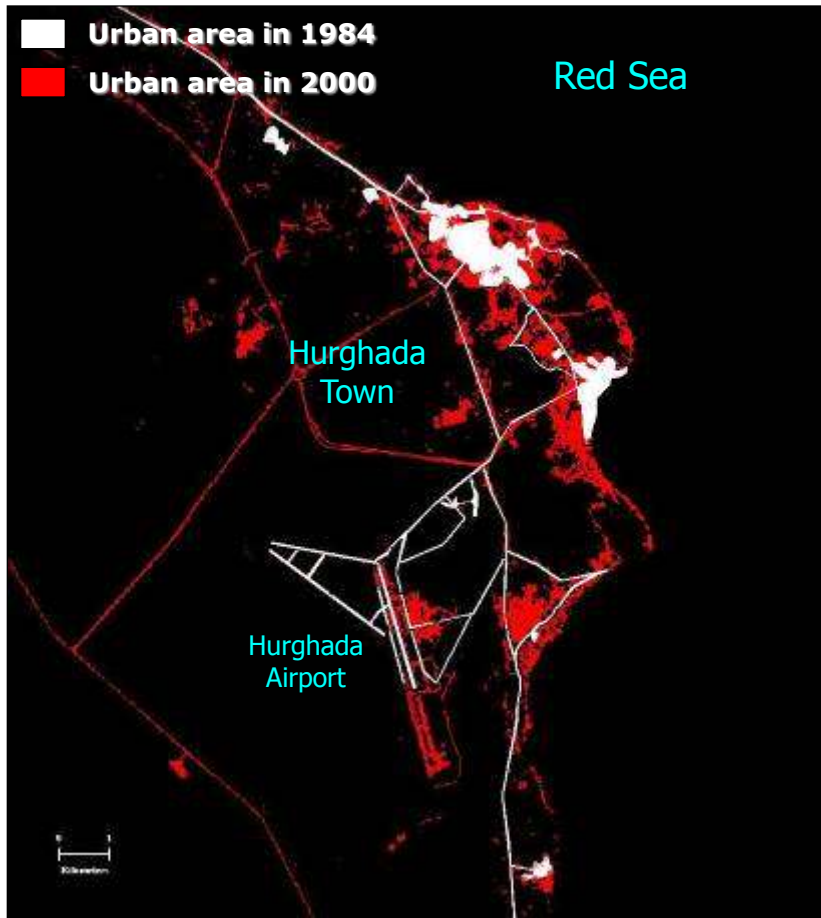
Pre-High Dam < mid 1965

Natural, monospecific (diatomic), variable in magnitude, and timely in autumn only.

Impacts of Aswan High Dam on coastal Fisheries



2. Egyptian Red Sea (Site 13):



Moufaddal (2005)

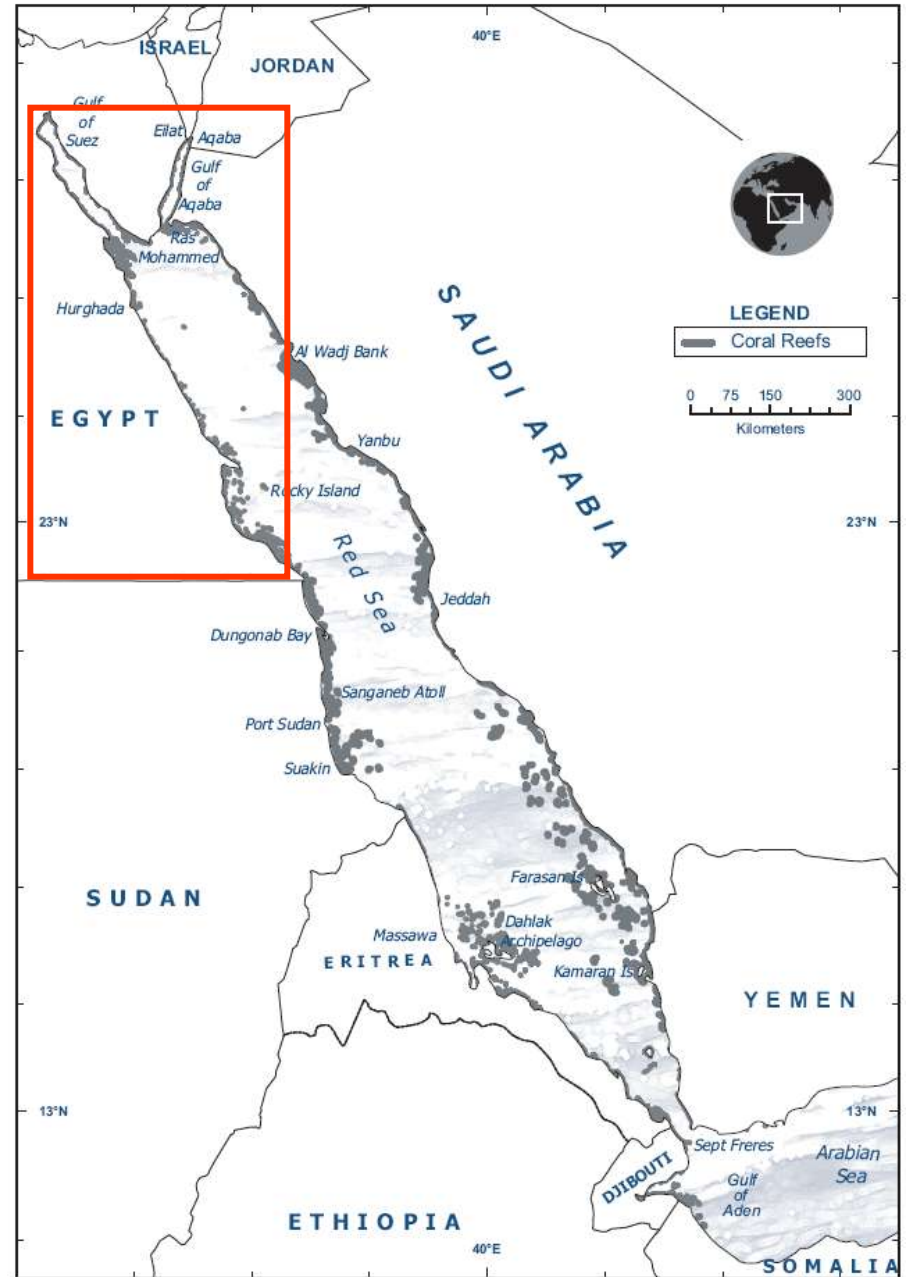
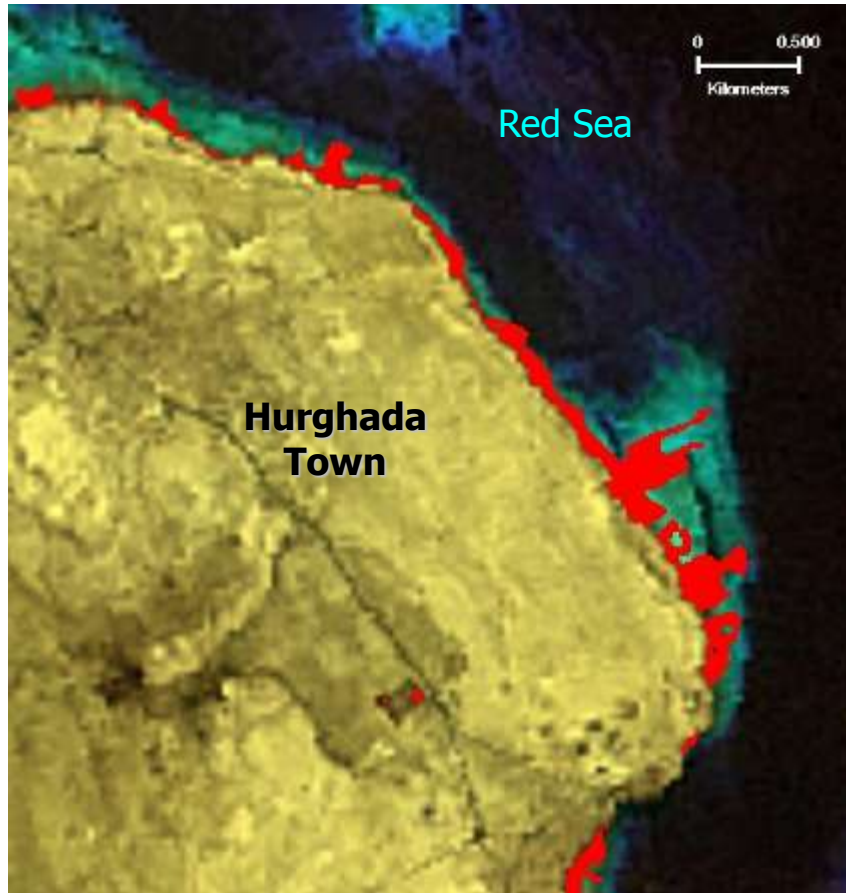


Figure from Status of the World's Coral reef (2008)

2. Egyptian Red Sea (Site 13):



■ Areas of coral reefs subjected to dumping in a 16-years period (1984-2000)

Moufaddal (2005)

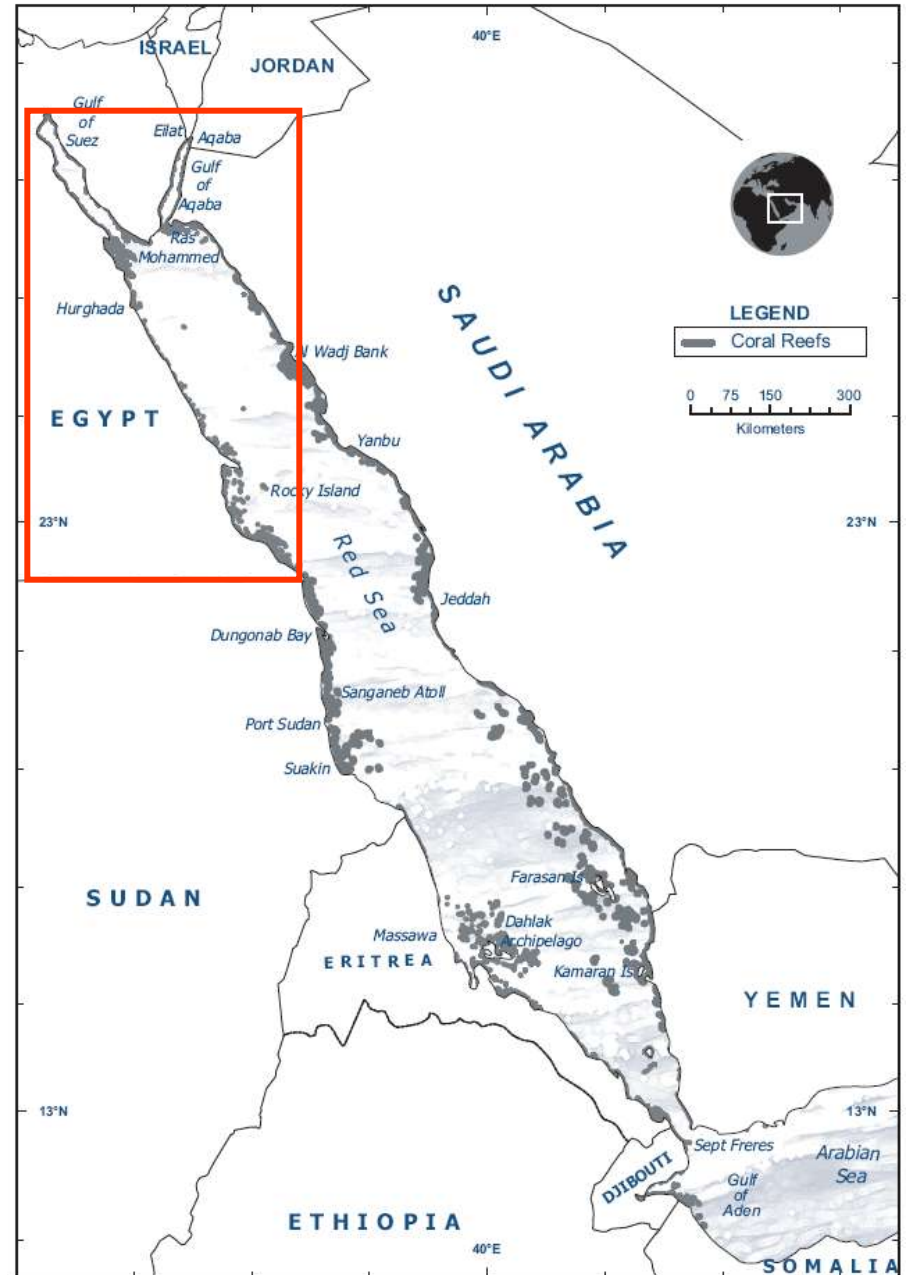


Figure from Status of the World's Coral reef (2008)

Why CoastColour (and other OC) data are very important for the Egyptian Coastal Waters (Sites 3 and 13)?

1. Egyptian Mediterranean (Nile delta and SE Levantine, Site 3):

- **Very dynamic**
- **Very high biological variability**
- **Subjected to historical changes & regime shifts (off the Nile delta coast)**

2. Egyptian Red Sea (Site 13):

- **Host some of the most diverse and productive ecosystems (coral reefs, seagrass, etc)**
- **Receiving very high pressure from rapid tourism development, urbanization and other human activities**

Previous & Current Contributions from Regional & EU Initiatives

➤ GlobColour (ESA-DUE Project)

- ✓ Lavender, S., *Moufaddal, W. M.*, & Pradhan, Y., 2009. Assessment of temporal shifts of chlorophyll levels in the Egyptian Mediterranean shelf and satellite detection of the Nile bloom. *Egy. J. of Aquatic Research*, 35(2): 121-135
- ✓ *Moufaddal, W. M.* & Lavender, S., 2009. Biogeochemical response to mesoscale circulation features and the high levels of the Nile flood in the SE Levantine basin, as revealed by ocean-color remote sensing. *Egy J. of Aquatic Research*, 35(4): 431-443.
- ✓ *Moufaddal, W. M.* & Lavender, S., 2009. Use of satellite ocean colour data and fish landings in examining the fall and rise of the Egyptian Mediterranean fisheries off the Nile Delta, *ICES Journal of Marine Sciences*: Special Issue on Remote sensing Applications in Fisheries, *In press*.

➤ EAMNet (Europe-Africa Marine Network)

➤ CoastColour

Potential Applications of CoastColour (and other OC) Data to Egyptian Coastal Waters

Development and calibration of a good local algorithm for the Egyptian Mediterranean and Red Seas will be very useful for:

- **Mapping mesoscale and submesoscale features prevailing in the SE Levantine Basin**
- **Assessment pattern & variability of chl-a distribution in the Nile delta shelf**
- **Revealing long-term trend of growth of chl-a**
- **Proper management of coastal and marine fisheries**
- **Management and protection of sensitive habitats of the Red Sea**
- **Other coastal applications**

“Champion” Problems of a “Champion” User .. !!

- **Local and sparse in-situ measurements**
- **Limited to coastal inshore area (not offshore)**
- **Limited to Chla, TSM and Transparency (no more)**
- **Sometimes with no date of sampling, no coordinates ..!!**
- **Sometimes not accurate and their results can't be trusted**
- **Rare regular long-term monitoring sampling programs**
- **Data collected from short-term programs are either not available or difficult to obtain !!**
- **No local algorithm**
- **...What else ?!**

Available in-situ data (my contribution to CoastColour)



Chl-a, TSM, & Transparency

- April, June, August & October 2007

- August 2009

Available in-situ data (my contribution to CoastColour)



Chl-a, TSM, & Transparency
- **Sept. 2004 & Sept. 2006**
- **August 2009**



Egyptian Red Sea

What's Next ??

Have to wait till Feb. 2011 ..!

Thank You!