

# GIS of Maritime jurisdiction and GFCM GSAs in the Mediterranean Sea

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# United Nations Convention on the Law of the Sea

The UNCLOS (1982) provides rights and duties of every state about the management and conservation of marine resources

The Convention defines the areas where each country is responsible for the sustainable exploitation exercising its sovereign rights

States bordering an enclosed or semi-enclosed sea should cooperate with each other in the exercise of their rights and in the performance of their duties under this Convention [...] directly or through an appropriate regional organization (Art. 123 of UNCLOS)



# Geographical Information System

Classification of all the national legislations, international claims and bilateral agreements provided by the official documents of UNCLOS for each Mediterranean Country

UN represents the official depository of the charts and geographical coordinates for the maritime boundaries to be internationally recognized.

GIS implementation by:

- the database containing the coordinates and geographical references describing the jurisdiction of each area
- Available GFCM Task 1 data and UNEP-MAP-RAC/SPA information (2010)

# UNCLOS - sovereign rights on living resources

- **Territorial Sea (Art. 2)** – All living resources in adjacent belt of sea, its bed and subsoil
- **Continental Shelf (Art. 77)** - Seabed and subsoil together with living organisms belonging to sedentary species
- **Exclusive Economic Zones (Art. 56)** or Ecological and Fisheries Protection Zones – All living resources, of the waters superjacent to the seabed and of the seabed and its subsoil

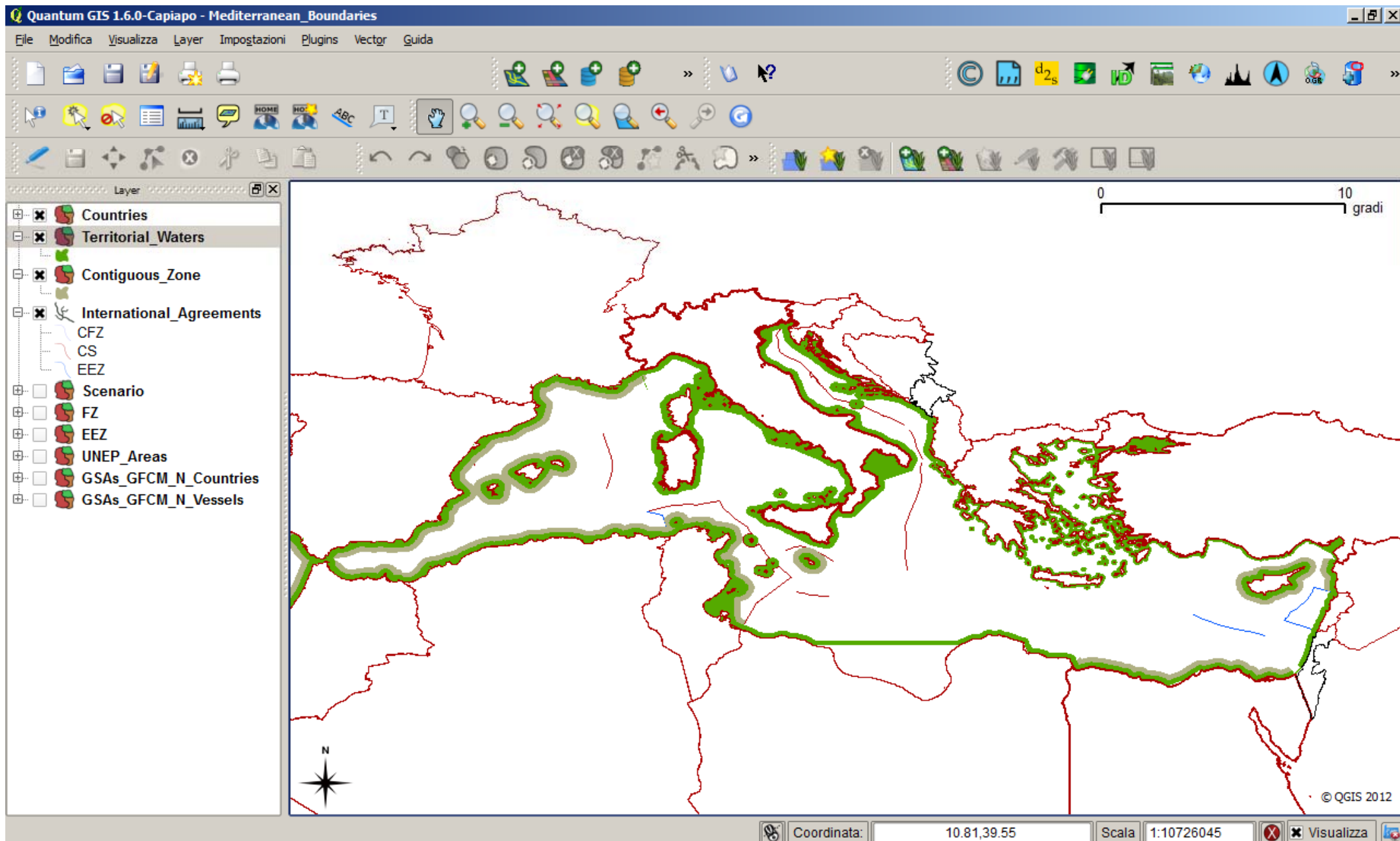
# International Agreements

The majority of the international agreements concerns the Continental Shelf

The rights of the coastal State over the continental shelf do not depend on occupation, effective or notional, or on any express proclamation (Art. 77 UNCLOS)

“The natural resources referred to in this Part consist of the mineral and other *non-living resources of the seabed and subsoil together **with living organisms belonging to sedentary species***, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed or are unable to move except in constant physical contact with the seabed or the subsoil.”

# Territorial Waters and Bilateral Agreements



# Linked Tables of Legislation References

## Territorial Waters

The screenshot displays the Quantum GIS 1.6.0 interface. The main map shows the Mediterranean region with various boundary layers. A red arrow points to a specific area on the map. A pop-up window titled "Informazioni sui risultati" (Information on results) is open, showing details for a selected feature.

**Layer List:**

- Countries
- Territorial\_Waters
- Contiguous\_Zone
- International\_Agreements
  - CFZ
  - CS
  - EEZ
- Scenario
  - FZ
  - EEZ
- UNEP\_Areas
- GSAs\_GFCM\_N\_Countries
- GSAs\_GFCM\_N\_Vessels

**Pop-up Window: Informazioni sui risultati**

Geometria	Valore
0	Territorial_Waters
(Azioni)	
(Derivato)	
Boundary TW	
Desk	FR
Nat_Ref	Law No. 1060 of 14 December 1971
UN_Ref	No. 76_2011_Bulletin

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Coordinata: 10.81,39.55    Scala: 1:10726045    Visualizza

# Linked Tables of Legislation References International Agreements

The screenshot displays the Quantum GIS 1.6.0 interface. The main map shows the Mediterranean region with several layers: Countries (red outline), Territorial Waters (green outline), Contiguous Zone (green outline), International Agreements (green outline), Scenario (red outline), FZ (green outline), EEZ (green outline), UNEP Areas (green outline), GSAs\_GFCM\_N\_Countries (green outline), and GSAs\_GFCM\_N\_Vessels (green outline). A red arrow points to a specific area on the map. A metadata window titled "Informazioni sui risultati" is open, showing the following table:

Geometria	Valore
0	International_Agreements
(Azioni)	
(Derivato)	
BL Post	NO
Boundary	CS
Desk	IT_GR
Nat. Ref.	1977 BA
UN Ref.	No. 9_1999_Feb_Losic

The interface includes a menu bar (File, Modifica, Visualizza, Layer, Impostazioni, Plugins, Vector, Guida), a toolbar with various GIS tools, and a layer list on the left. A scale bar at the top right indicates 0 to 10 gradi. A north arrow is located in the bottom left corner. The status bar at the bottom shows the coordinates 10.81,39.55 and the scale 1:10726045.



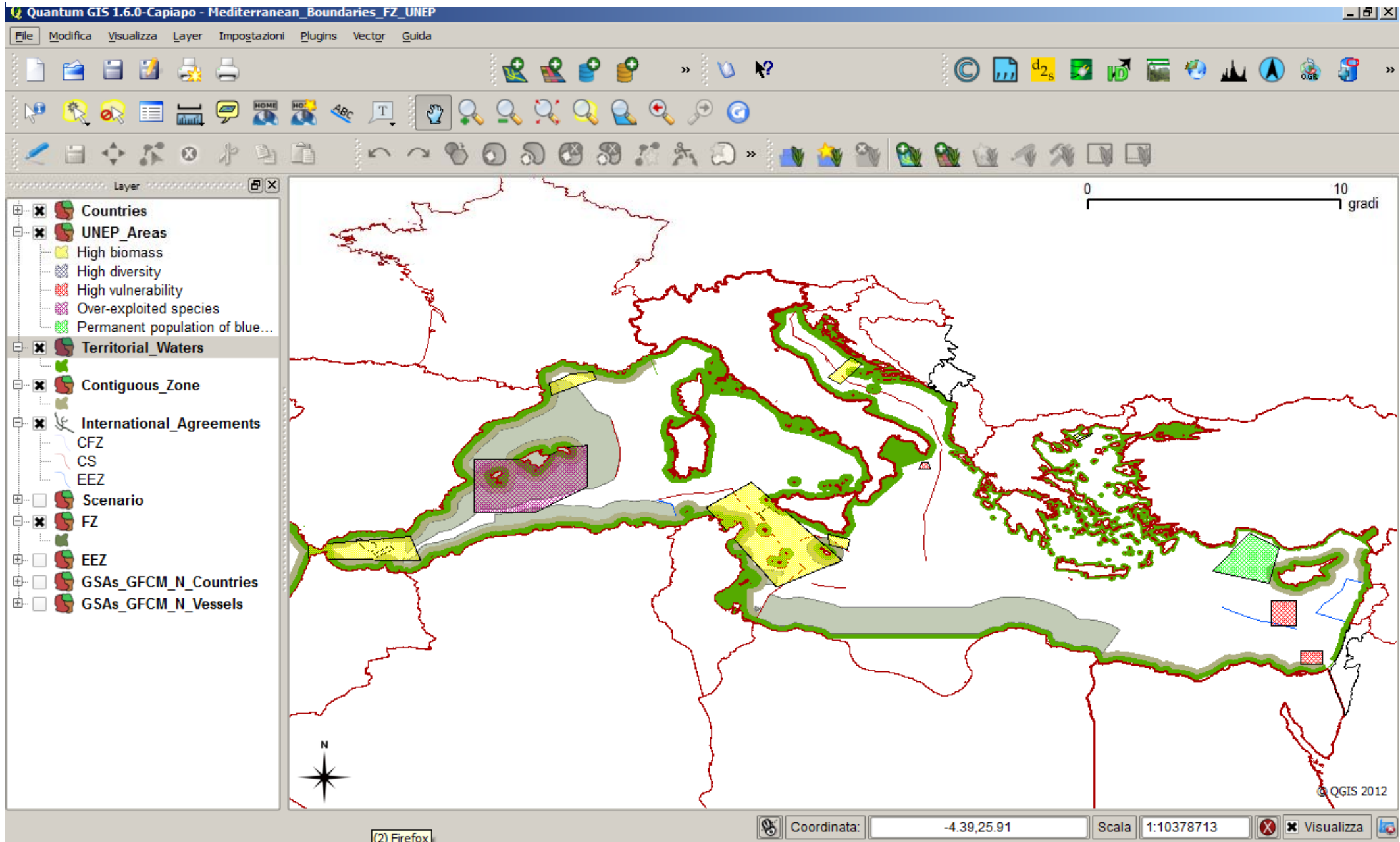
# Ecological Fisheries and Protection Zones

Some coastal States have established beyond the Territorial Sea *sui generis* Zones

They include some of the rights of the EEZ, as the fishing rights.

Country	Boundary	Nat. Ref.	UN Ref.
Algerie	Reserved Fishing Zone	Legislative Decree of 28 May 1994	Maritime Claims
Libya	Fisheries Protection Zone	Decision No. 105 of 2005	No. 59_2005_Bullettin
Malta	Fisheries Zone	Act No X of 2005	Maritime Claims
Spain	Fisheries Protection Zone	Decree 1313/1997 of 1 August 1997	No.43_2000_Bullettin
Tunisie	Fisheries Zone	Law No 63-50 of 30 Dec 1963	Maritime Claims

# Claimed Fisheries Zones and UNEP-MAP-RAC/SPA Areas



# Linked Table of Fisheries Zones and UNEP-MAP-RAC/SPA Areas

The screenshot shows the Quantum GIS 1.6.0 interface with the following layers in the legend:

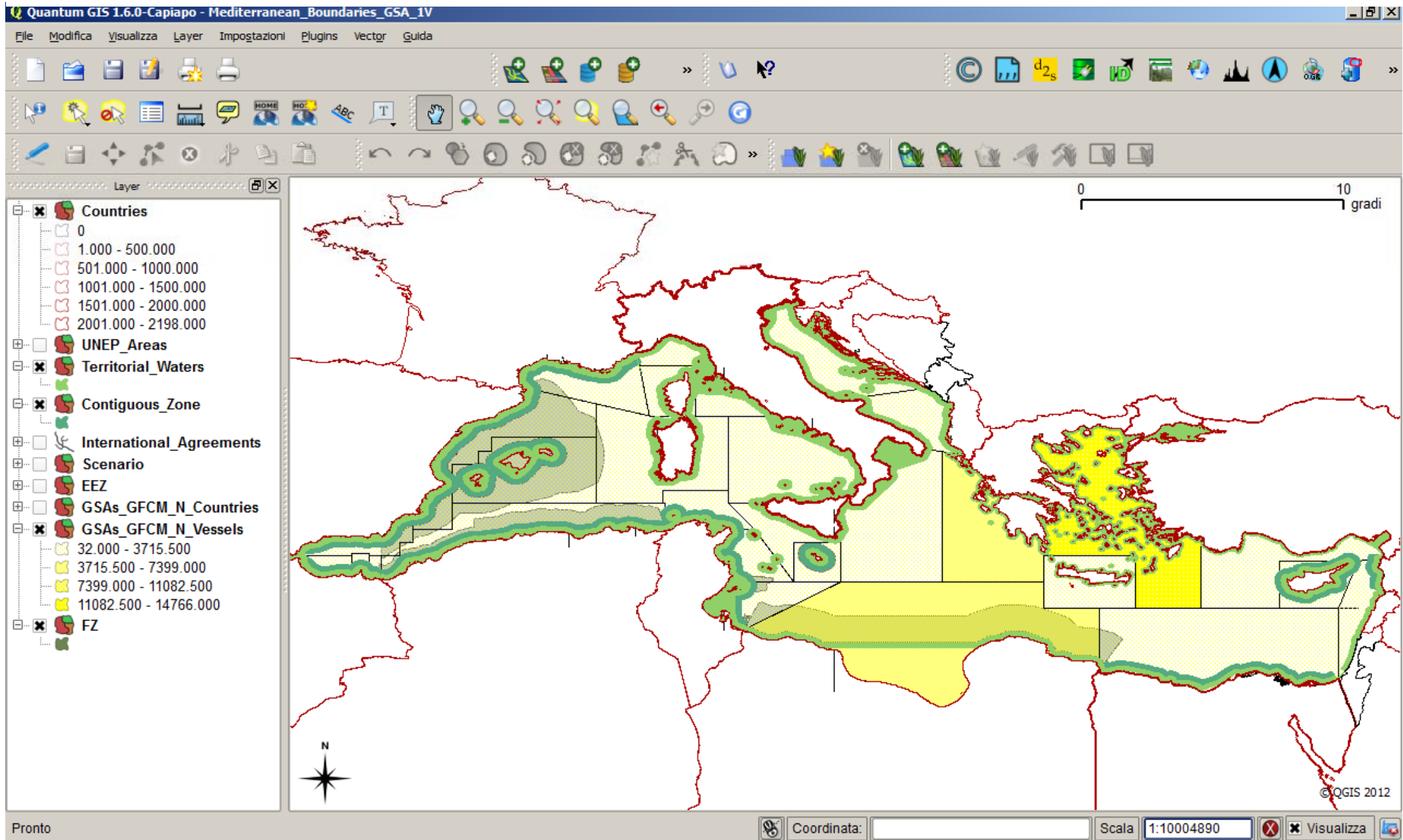
- Countries
- UNEP\_Areas
  - High biomass
  - High diversity
  - High vulnerability
  - Over-exploited species
  - Permanent population of blue...
- Territorial\_Waters
- Contiguous\_Zone
- International\_Agreements
  - CFZ
  - CS
  - EEZ
- Scenario
- FZ
- EEZ
- GSAs\_GFCM\_N\_Countries
- GSAs\_GFCM\_N\_Vessels

The map displays the Mediterranean region with various colored zones. A red arrow points to a specific area in the Gulf of Lions. A pop-up window titled "Informazioni sui risultati" provides the following details:

Geometria	Valore
0	UNEP_Areas
(Azioni)	
(Derivato)	
Environment	Demersal
Name	Gulf of Lions Slope
Priority	spawning area
Relevance	High biomass
Species	hake - monkfish - blue and red shrimp

Scale: 0 to 10 gradi. © QGIS 2012

# GSA and Number of fishing Vessels



# Linked Tables of GSAs and Number of fishing Vessels (Task 1)

Quantum GIS 1.6.0-Capiapo - Mediterranean\_Boundaries\_GSA\_1V

File Modifica Visualizza Layer Impostazioni Plugins Vector Guida

Layer

- Countries
  - 0
  - 1.000 - 500.000
  - 501.000 - 1000.000
  - 1001.000 - 1500.000
  - 1501.000 - 2000.000
  - 2001.000 - 2198.000
- UNEP\_Areas
- Territorial\_Waters
- Contiguous\_Zone
- International\_Agreements
- Scenario
- EEZ
- GSAs\_GFCM\_N\_Countries
- GSAs\_GFCM\_N\_Vessels
  - 32.000 - 3715.500
  - 3715.500 - 7399.000
  - 7399.000 - 11082.500
  - 11082.500 - 14766.000
- FZ

Pronto

Coordinata:  Scala 1:10004890 Visualizza

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**Informazioni sui risultati**

Geometria	Valore
0	GSAs_GFCM_N_Vessels
(Azioni)	
(Derivato)	
Countries	2
Environment	Pelagic
Name	South Tyrrhenian Sea
Number_Ves	2930
Priority	spawning area
Relevance	High biomass
Species	albacore - bluefin tuna - swordfish

Close Help

# Linked Tables of GSAs and Number of National fishing Vessels

Quantum GIS 1.6.0-Capiapo - Mediterranean\_Boundaries\_GSA\_1V

File Modifica Visualizza Layer Impostazioni Plugins Vector Guida

Layer

- Countries
  - 0
  - 1.000 - 500.000
  - 501.000 - 1000.000
  - 1001.000 - 1500.000
  - 1501.000 - 2000.000
  - 2001.000 - 2198.000
- UNEP\_Areas
- Territorial\_Waters
- Contiguous\_Zone
- International\_Agreements
- Scenario
- EEZ
- GSAs\_GFCM\_N\_Countries
- GSAs\_GFCM\_N\_Vessels
  - 32.000 - 3715.500
  - 3715.500 - 7399.000
  - 7399.000 - 11082.500
  - 11082.500 - 14766.000
- FZ

Informazioni sui risultati

Geometria	Valore
0	Countries
(Azioni)	Form vista geometria
(Derivato)	Fishing Gears
ISO	FRA
NAME_ENGLI	France
N_Ves>15m	152
No_Ports	25
TotNoVes	7900

Regional fleet by Registered Main Fishing Gear

GFCM Authorised Vessel List (AVL) - Dataset updated on: 17 January 2012

France

- [24] Bottom otter trawls
- [41] With purse lines (purse seines)
- [81] Midwater otter trawls
- [5] Set gillnets (anchored)
- [1] Driftnets

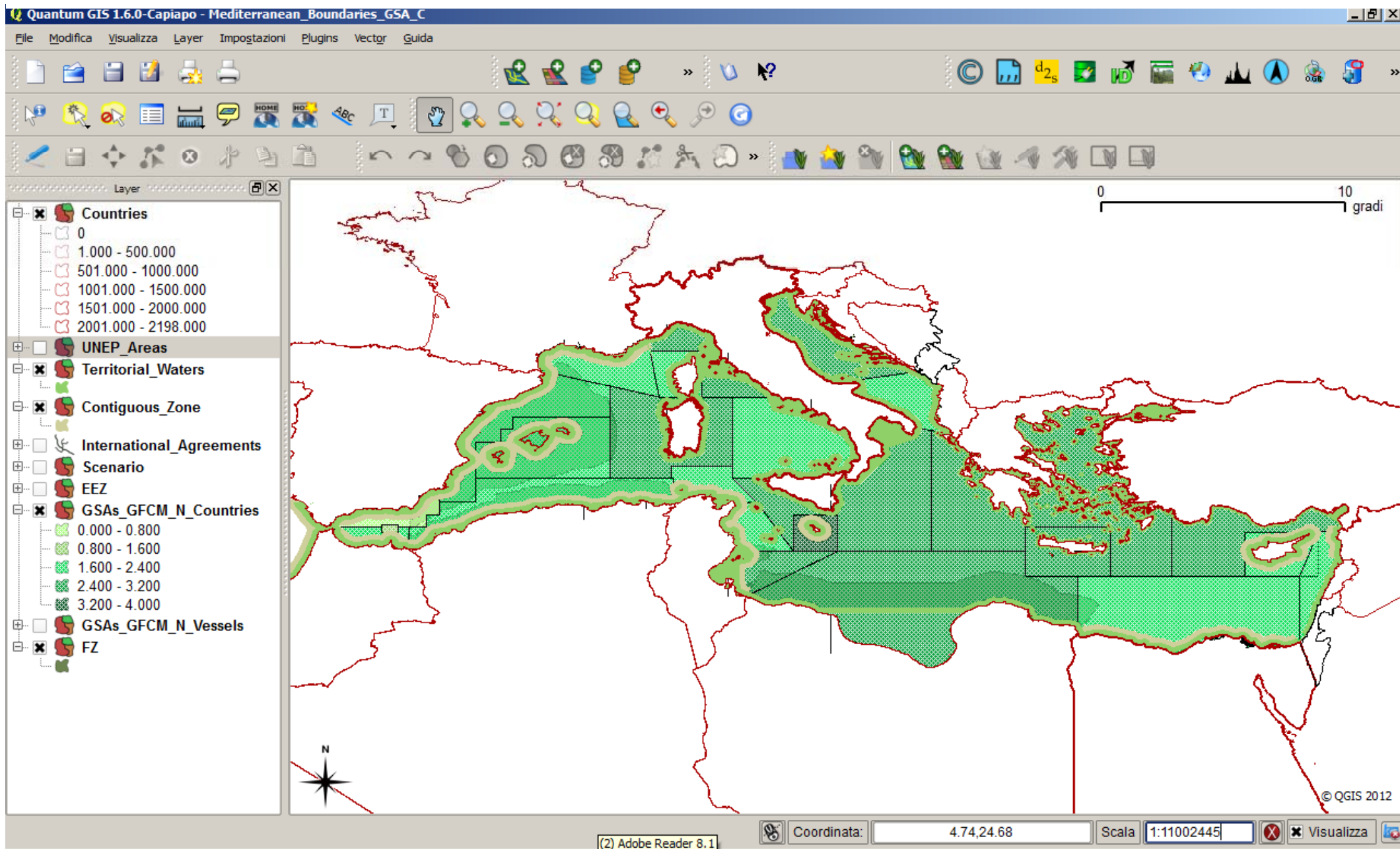
Pronto

Close Help

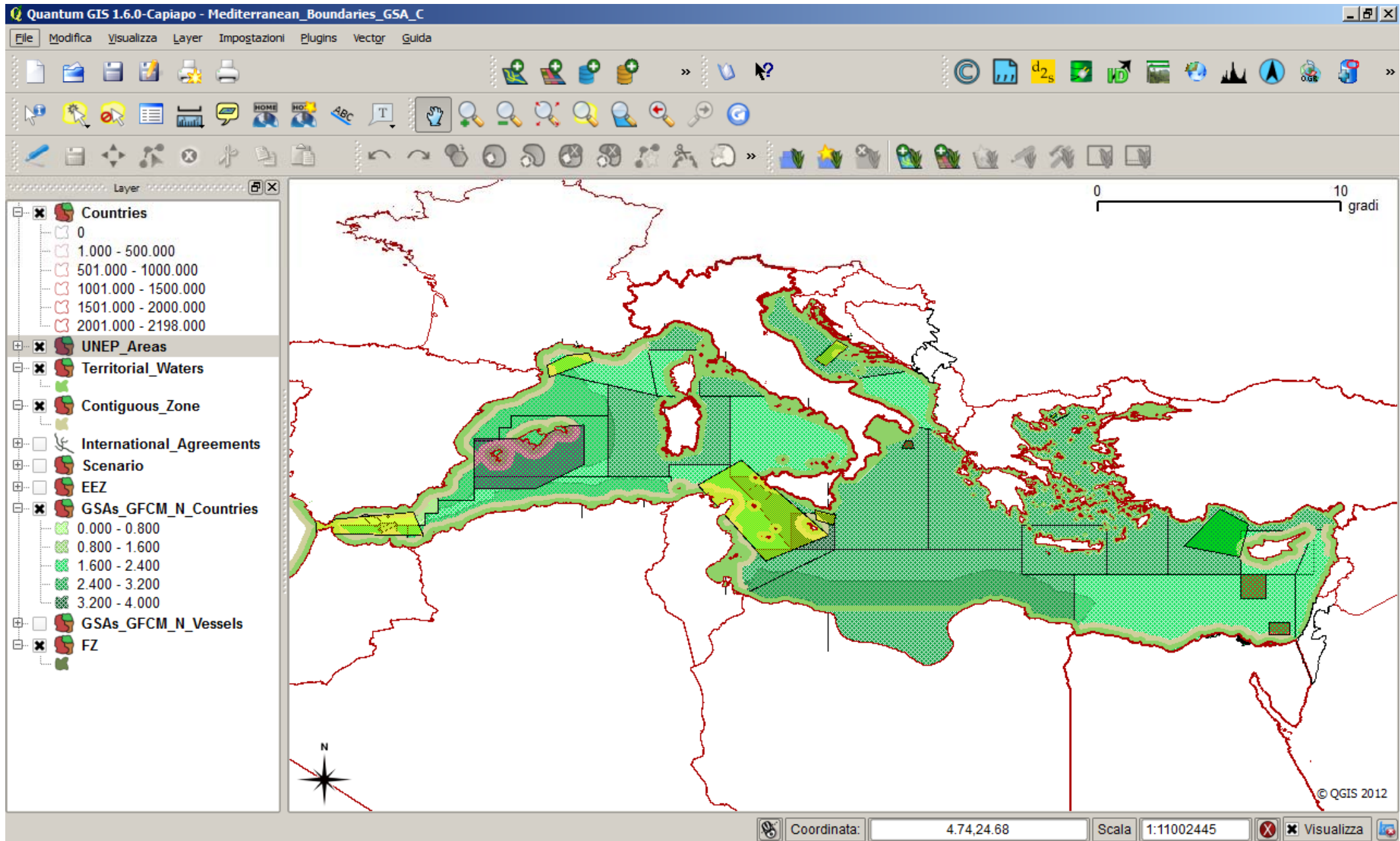
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Visualizza

# Number of Countries operating in the GSAs



# Number of Countries operating in the GSAs and UNEP-MAP-RAC/SPA Areas





# Conclusions

- Defining the maritime boundaries of each country allows to obtain the area for which each country is responsible for the exploitation and conservation of the marine resources.
- Results the area still not covered by national maritime boundaries, the high sea, where the international responsibility for the exploitation is in force.
- **The cartography resulted by the GIS allows to obtain an integrated description between the jurisdiction and fishery management aspects.**
- **The GIS can be implemented through further data collection and elaboration provided by Task 1, VMS and log-book and it can be displayed on the web.**

**The GIS implementation would improve the level of detail and it would facilitate to identify: the priorities management actions, the areas of intervention and the involved countries.**