



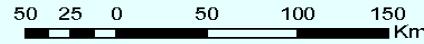
# Implementation of the WFD in Greece

**P. Panagopoulos, ECOS Consulting S.A.**



14 RB Districts  
(5 international)

45 River Basins



**Υπόμνημα**  
Λεκάνες Απορροής  
GR02  
Υδατικά Διαμερίσματα  
Κρήτης

# ADMINISTRATIVE STRUCTURE

Inter- Ministerial,  
for formulation of  
national water  
policy & approval  
of first RBMPs

NATIONAL  
WATER  
COMMITTEE

NATIONAL  
WATER  
COUNCIL

Stakeholders

MINISTRY OF  
ENVIRONMENT  
ENERGY AND  
CLIMATE CHANGE

SPECIAL  
SECRETARIAT  
FOR WATER

Responsible for the  
implementation of the national  
water policy and RBMP at  
National Level

REGIONAL  
ADMINISTRATION

13 WATER  
DIRECTORATES

Responsible for the implementation of  
the RBMPs at Regional Level & approval  
of subsequent RBMPs

REGIONAL WATER COUNCIL

Stakeholders



# Available data

- **Surface waters:**
  - monthly & annual river flow (previous study cycle)
  - chemical & physico-chemical water quality data, special pollutants & priority substances [Chemical Lab of the State]
  - biological water quality data: mainly benthic invertebrate fauna (for ~40% of surface water bodies) & phytoplankton [Hellenic Center for Marine Research, HCMR & Greek Biotope/Wetland Center, EKBY]
  
- **Groundwater quantity and quality data [Institute for Geology and Mineral Exploration, IGME]**



# Legislative actions

## ➤ Threshold values for groundwater, national level:

- physico-chemical: pH & conductivity
- metals: As, Cd, Pb, Hg, Ni, Cr, Al
- ammonium, chlorides, sulphates, nitrates
- total & active pesticides
- man-made synthetic substances

### Notes:

- Higher values permitted where background values higher
- Additional/lower values required for (natural or human) uses

## ➤ Transposition of Directives 2006/118/EC, 2006/11/EC, 2007/60/EC, 2008/105/ EC, 2008/56/EC, 2009/90/EC etc



# Guidance documents

- Commission guidance documents
- Guidance documents issued for:
  - river typology ⇒ definition & characterisation of surface bodies
  - river classification incl. biological index (mHES) for benthic invertebrate fauna
  - definitions of heavily modified & artificial water bodies
  - criteria for the definition of groundwater bodies
  - methodology for classification of groundwater bodies
  - methodology for environmental & resource costs
  - definitions of basic measures (common to all RBDs)
  - projections of future financial resources
  - methodology for prioritisation of measures



## Public participation: main actions

- Establishment of interactive web site [wfd.opengov.gr](http://wfd.opengov.gr) (50% of households has internet access, 2010)
  - 1<sup>st</sup> level contains simplified information about main issues
  - 2<sup>nd</sup> level includes draft RBMPs & supp. documents for download

*Possibility of comments on all documents.*
- At least 2 open meetings in each RBDPress releases in the local media
  - Simplified documents prepared
  - Regional political & administrative structure involved
  - Special invitations sent to main stakeholders, NGOs, media
  - Local press conferences of the Special Secretary
  - questionnaires disseminated
- Specialised meetings with main stakeholders



## Public participation: feedback

- The average participation in the open meetings was ~180 persons – relatively high for the Greek standards.
- All submitted comments of the participants in the meetings were uploaded to the web site.
- Meetings are filmed to record all the comments of the participants so that they can properly be incorporated in the final RBMP
- Written comments in the site were classified/evaluated in view of their incorporation in the final RBMP
- Answers to the questionnaires are statistically elaborated for assessment of main public opinion trends





## Present state of RBMPs

6 contracts for the preparation of RBMPs in the 14 RBDs of the country; of these:

- ✓ 4 contracts for 10 RBDs concluded.
  - 5 RBMPs approved
  - 5 RBMPs to be approved asap
- ✓ 2 contracts (4 RBDs) pending; target for end of year



# Monitoring Network

- Design of a comprehensive program for water quality and quantity management
- Monitoring of all parameters required by WFD and Daughter Directives (biological, priority substances, quantity, etc.)
- Production of complete water status reports.



# Program of measures

Includes:

- basic measures: common for all RBMPs
- supplementary measures: for all water bodies with lower than good status with objective to achieve it
- measures prioritised depending on:
  - effectiveness and
  - (assumed) financial capabilities



## Program of measures: Basic measures

- Establish a sound water pricing policy by end 2013
- Promotion of efficient & sustainable water use e.g.:
  - measure leakage
  - renovation of the water supply networks
  - promote water saving in households
- Safeguard water quality for human consumption:
  - protection zones around water abstraction
  - control water use in RBs of inter-municipal water supply companies



## Program of measures: Basic measures

- Control abstraction of surface water & groundwater:
  - review of permitting regulations
  - establishment of register of abstraction
  - installation & operation of measuring devices.
- Measures for point source discharges liable to cause pollution:
  - review of permitting regulation
  - determination of acceptable pollution loads
  - review existing regulations for water pollution activities
  - enhancement of source monitoring programmes
  - determine sources of lower water quality status, where applicable

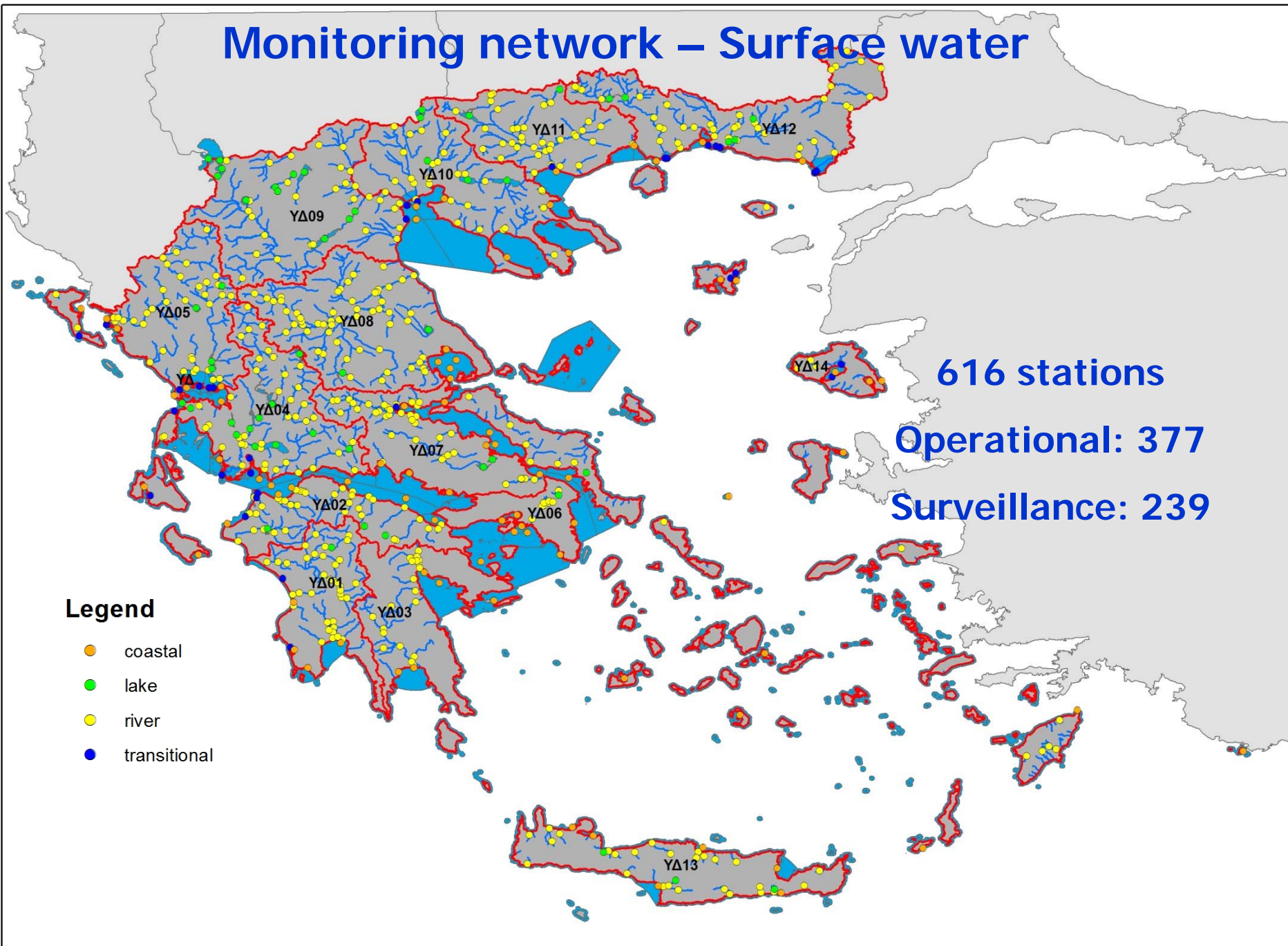


## Program of measures: Basic measures

- Measures for diffuse sources:
  - programmes for reduction of fertilizer use
  - review of legislation for reuse of urban sludge
- Control of hydromorphological alterations
- Establishment of registries for the abstraction works and activities, pollution activities, reuse of wastewaters
- Harmonisation of the accounting systems of water supply companies & associations

Total 40 actions

# Monitoring network – Surface water

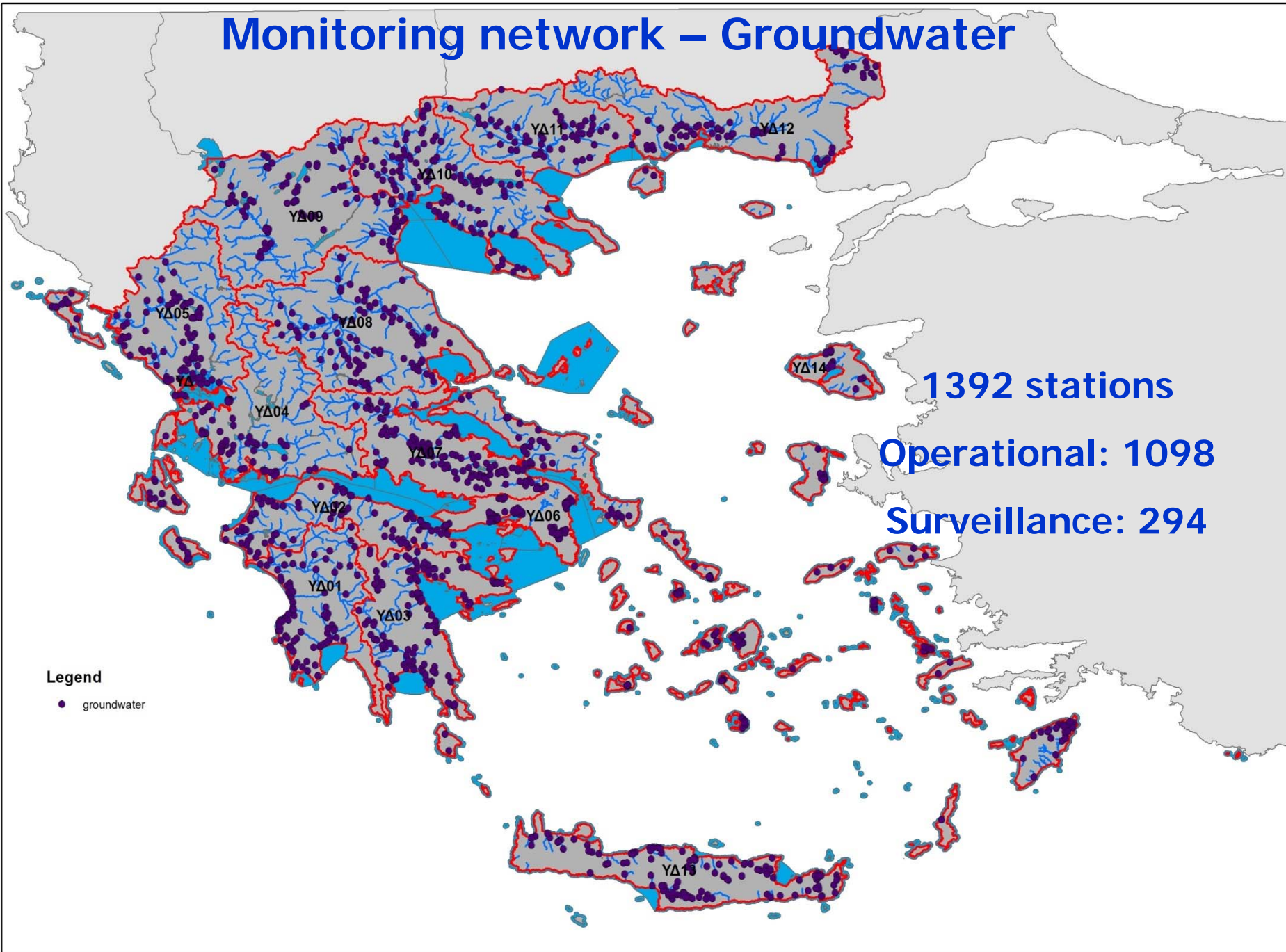


## Legend

- coastal
- lake
- river
- transitional



# Monitoring network – Groundwater







# Results for Thraki Water District

**P. Panagopoulos, ECOS Consulting S.A.**



# RBD GR12 Thraki

Total area: 11 243 km<sup>2</sup>,  
Evros River Basin (GR10): 4.080,9 km<sup>2</sup>





# RBMP Thraki – Pressures and Impacts

Main pressures:

- Agriculture – 28% of the total area of the RBD

Locally:

- Industrial: 3 medium-sized food industries in Evros RB
- Waste water from small agglomerations (under 2.000 e.p), especially in the central part of the RBD)



# RBMP Thraki - River classification

## **Ecological Status** - 85% of River water bodies assessed

- ~0.5% of water bodies in high ecological status
- ~41% of WB in good ecological status
- ~ 29% of WB in moderate ecological status
- ~15% of WB in poor ecological status

## **Chemical status**

- ~2% of WB in good status
- ~ 19% of WB fail to achieve good
- Only 20% of River water bodies assessed (lack of reliable data)



# RBMP Thraki-Lake Classification

## **Ecological Status**

91% of the total area of lakes (6 lakes) assessed

- ~82% of the total area of the WB in moderate ecological status (3 lakes)
- ~9 % of the total area in poor ecological status (1 lake)

## **Chemical status**

82% of the total area assessed and fail to achieve good status (3 lakes)



# RBMP Thraki - Transitional

## **Ecological Status**

All transitional water bodies (5) are in moderate status

## **Chemical status**

4 TWBs assessed and fail to achieve good status



# RBMP Thraki -Costal

## **Ecological Status**

3 CWBs (45% of the total area) in high status

5 CWBs (30% of the total area) in good status

2 CWBs (16% of the total area) in moderate status

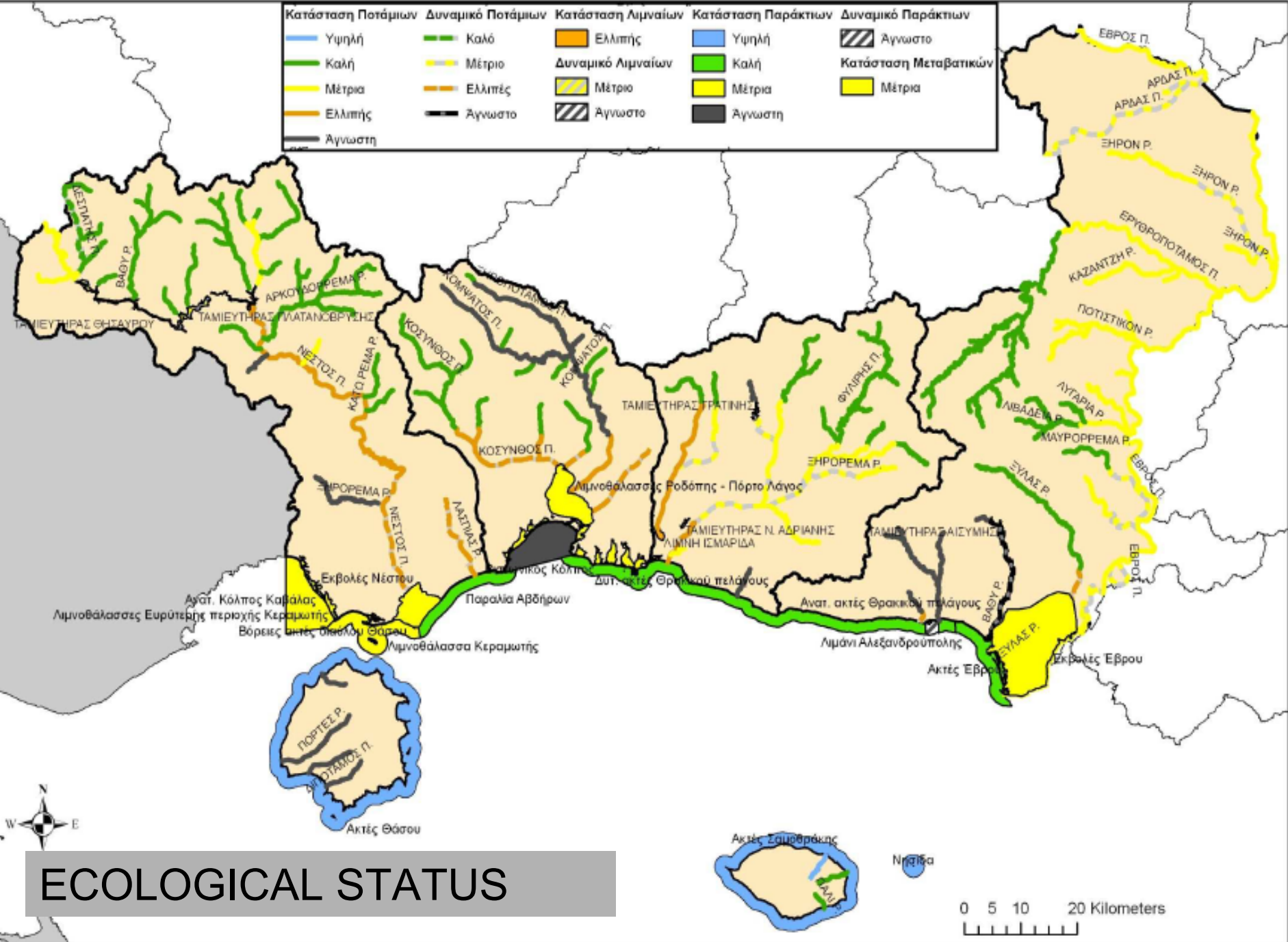
2 CWBs (9% of the total area) not assessed

## **Chemical status**

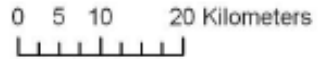
No data available



Κατάσταση Ποτάμιων	Δυναμικό Ποτάμιων	Κατάσταση Λιμναίων	Κατάσταση Παράκτιων	Δυναμικό Παράκτιων
Υψηλή	Καλό	Ελλιπής	Υψηλή	Άγνωστο
Καλή	Μέτριο	Δυναμικό Λιμναίων	Καλή	Κατάσταση Μεταβατικών
Μέτρια	Ελλιπής	Μέτριο	Μέτρια	Μέτρια
Ελλιπής	Άγνωστο	Άγνωστο	Άγνωστη	
Άγνωστη				

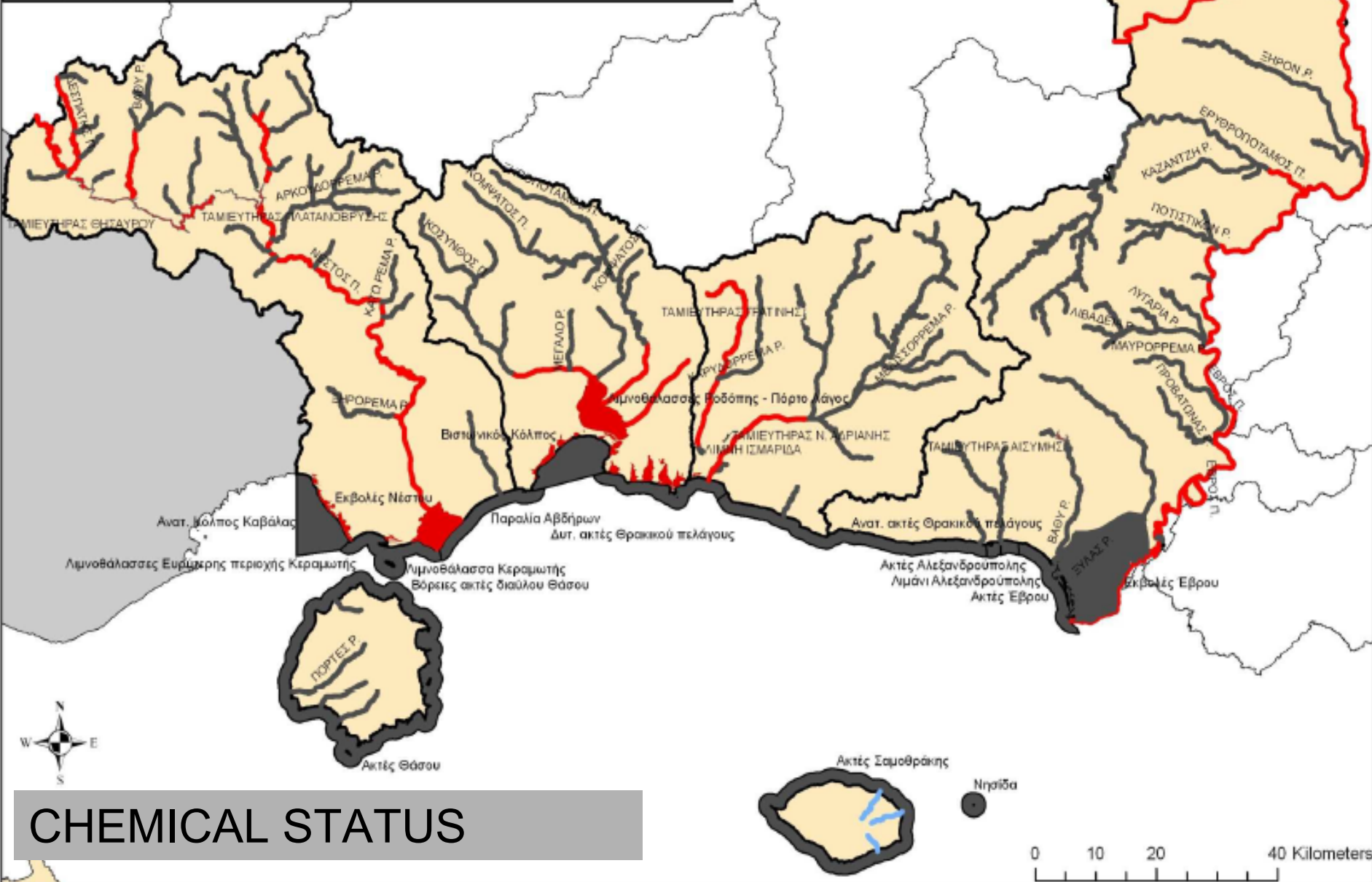


# ECOLOGICAL STATUS





<b>Ποτάμια ΥΣ</b>	<b>Λιμναία ΥΣ</b>	<b>Άγνωστη</b>	<b>Μεταβατικά ΥΣ</b>
Καλή	Κατώτερη της καλής	Άγνωστη	Κατώτερη της καλής
Κατώτερη της καλής	Άγνωστη	Άγνωστη	Άγνωστη
Άγνωστη			



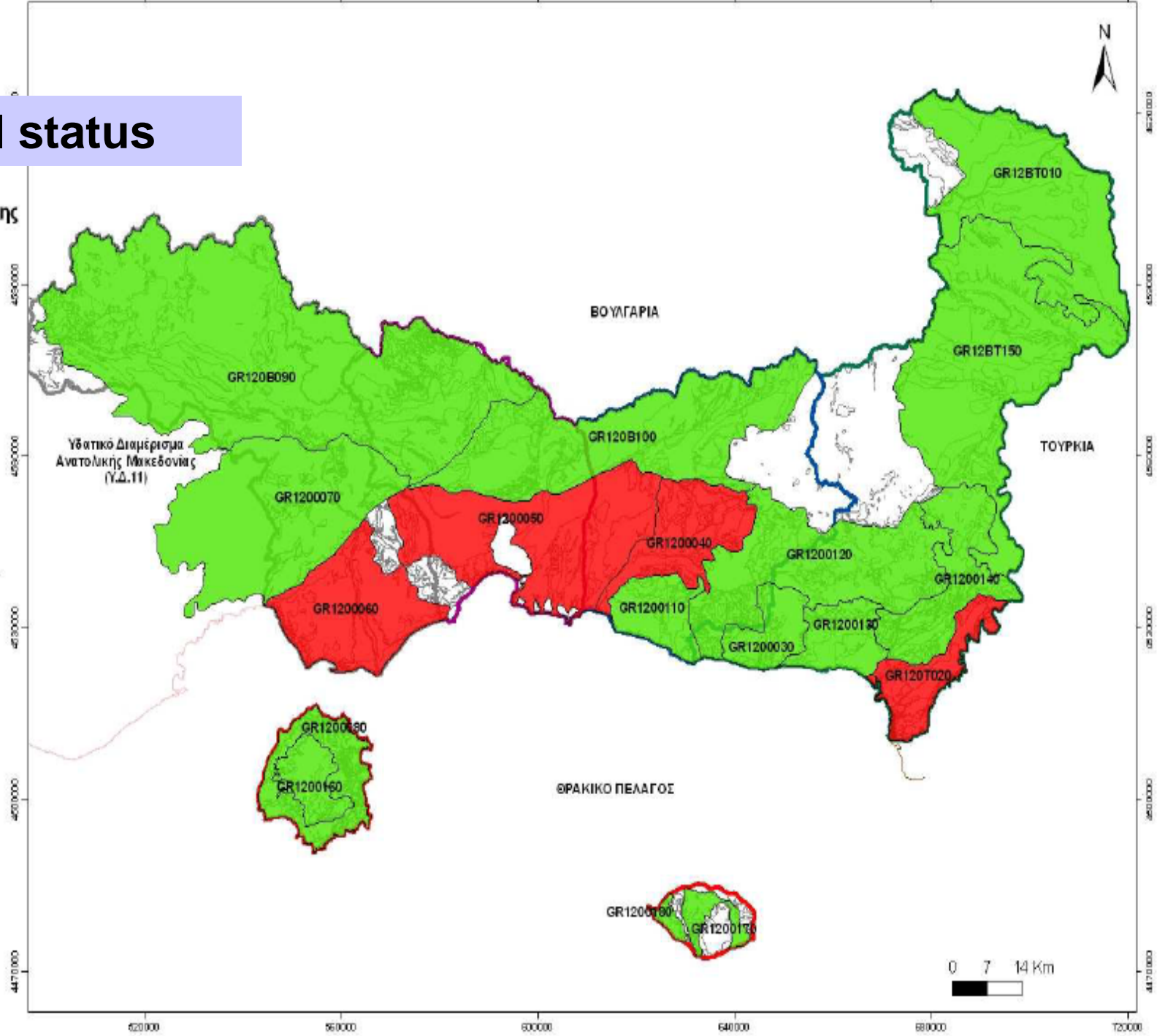
# CHEMICAL STATUS



# Chemical status

Ποιοτική (χημική)  
Κατάσταση ΥΥΣ  
Πολιτικού Διαμερίσματος Θράκης  
(Υ.Δ.12)

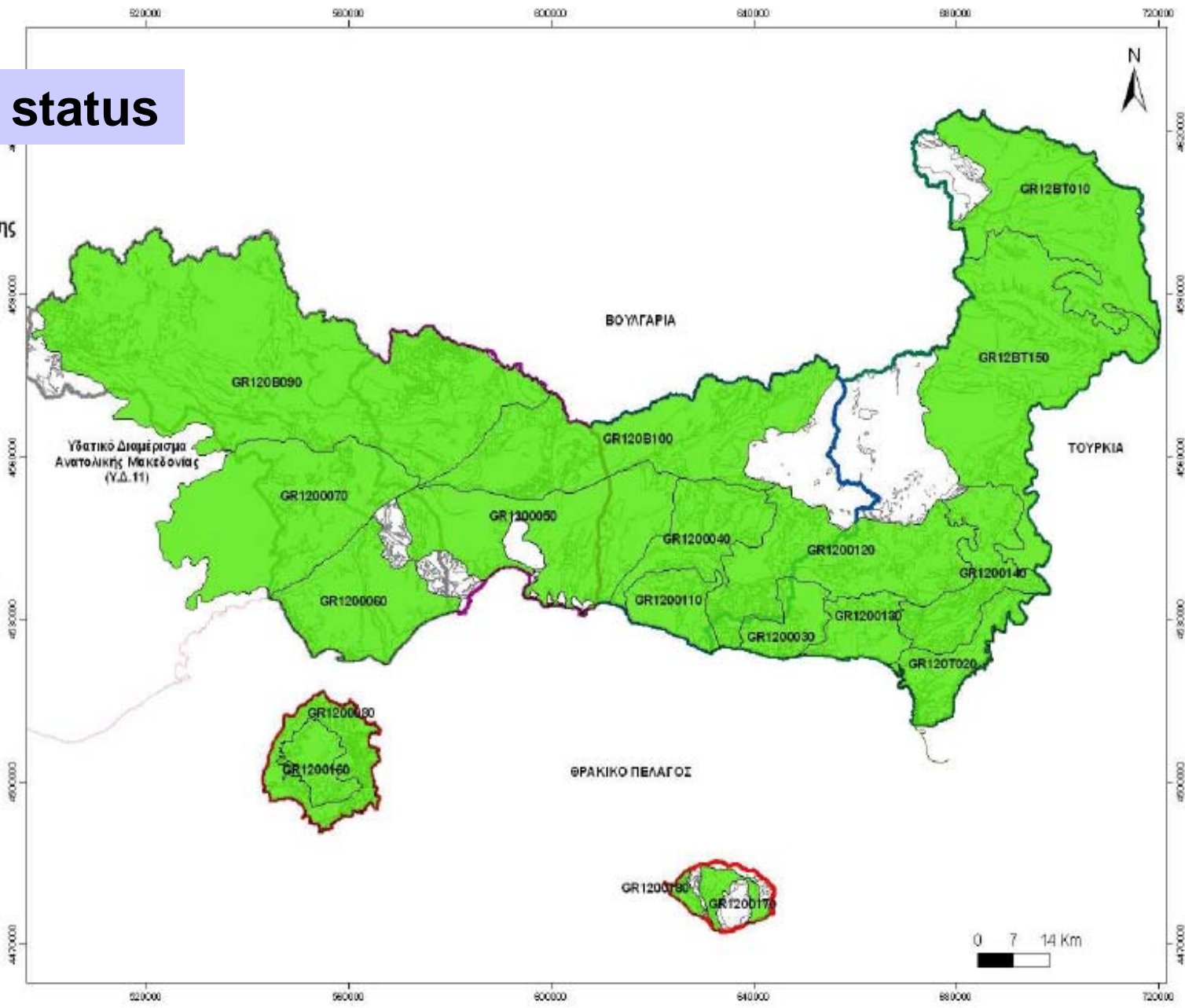
- Υπόμνημα
- ΥΥΣ καλής χημικής κατάστασης
  - ΥΥΣ κακής χημικής κατάστασης
  - Υδρολογική Διαίρεση Νέστων
  - Υδρολογική Διαίρεση Ρεϊνίτης - Σηροβόματος
  - Υδρολογική Διαίρεση Ρίχαιμας/Εύρω - Λουγιά/Εύρω
  - Υδρολογική Διαίρεση Έβρου
  - Υδρολογική Διαίρεση Θάρασι - Σομαθόβτης
  - Πολυλογικό Υπόβασμα



# Quantitative status

Χάρτης Ποσοτικής Κατάστασης ΥΓΣ Υδατικού Διαμερίσματος Θράκης (Υ.Δ.12)

- Υπόμνημα
- ΥΓΣ εκτός Ποσοτικής Κατάστασης
  - Υδρολογική Απορροή Νέσος
  - Υδρολογική Απορροή Ρ.Σάπλης - Σπυριδάκι
  - Υδρολογική Απορροή Ρ.Καρστικής - Λουτρό Έβρου
  - Υδρολογική Απορροή Έβρου
  - Υδρολογική Απορροή Αίθουσα - Διαμείριση
  - Πολύτροπός Υπόλοιπος





## Cost components & cost recovery

- Environmental cost
  - For drinking water services  $\leq 15\%$  of the total cost
  - For agriculture  $\sim 55\%$  of the total cost
- Resource cost – no competing uses

Recovery of financial and environmental cost:

- cost recovery high ( $\sim 95\%$  to  $100\%$ ) for water supply
- cost recovery medium ( $\sim 60\%$ ) for agriculture

Notes:

- Agricultural water privately pumped or distributed by cooperatives
- Financial cost recovery is  $100\%$  for private wells





## Supplementary measures

- Measures for protection of thermal mineral waters (establishment appropriate legislation framework).
- Monitoring program for specific pollutants (e.g. Mercury in inland waters)
- Establishment of Sediment Management Plan in rivers and lakes of the RBD
- Establishment of a special action plan for the protection of lakes
- Regulation of the ground water abstractions in areas with salt-water intrusion
- Construction of works for the enrichment of groundwaters
- Actions for the protection/rehabilitation of fish habitats and ecosystems in the rivers

Total 24 actions