Environnemental accounting for the Blueprint 2012 current and future data needs

- Scope and policy needs
- Water accounts and first results
- Ecosystem dimension
- Possible way forward

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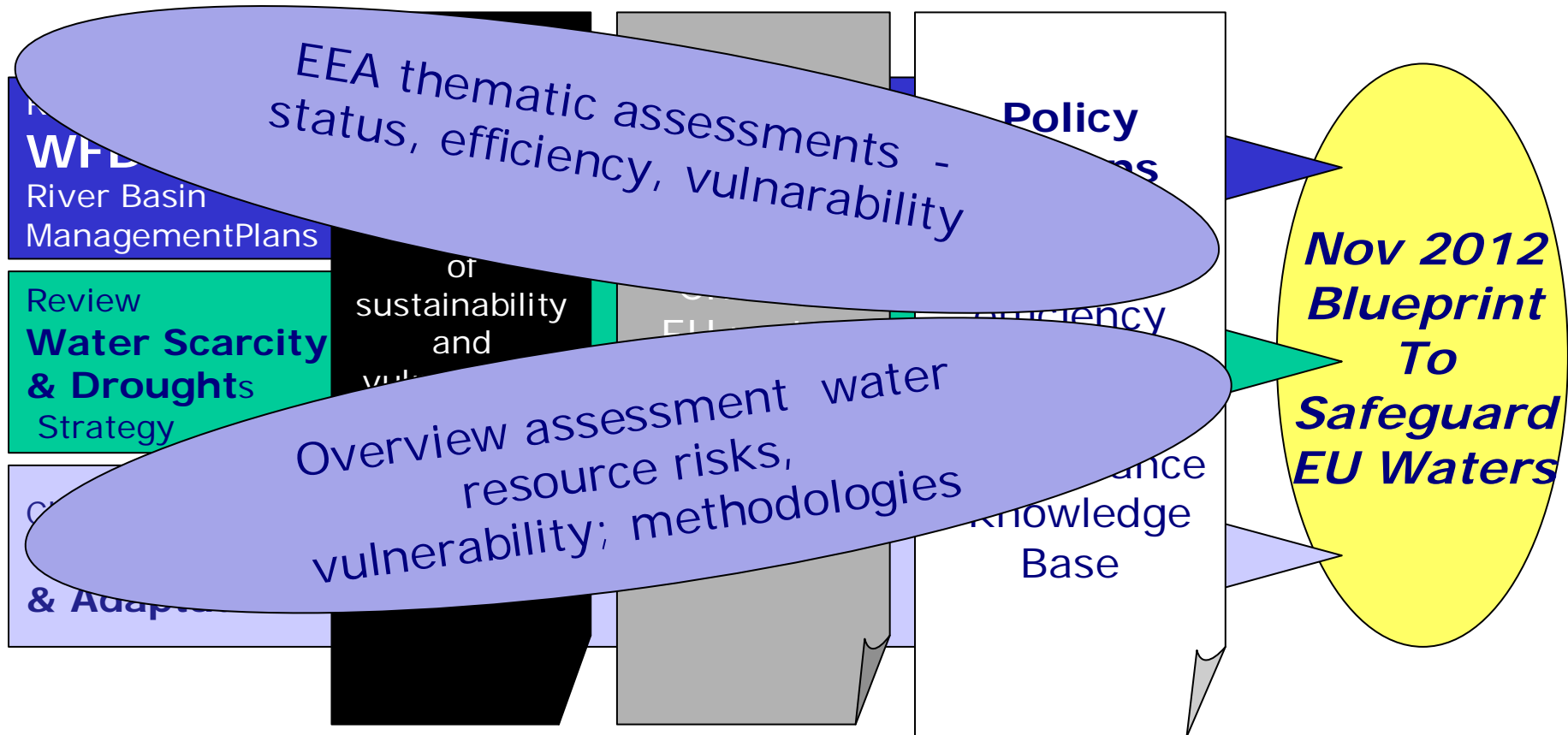
Request for data use via GRDC

EU bodies require river discharge data for

- EU overview assessments

- Contextualising of CC adaptation, vulnerability, Floods and water scarcity and drought policies

- Scoping applicability of policies

- Piloting possible methodologies

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2012 Blueprint to safeguard EU Waters: EEA support - **water accounts**

EEA thematic assessments - status, efficiency, vulnarability

WFD
River Basin ManagementPlans

Review
Water Scarcity & Droughts
Strategy

of sustainability and

Policy

efficiency

Knowledge Base

& Adapt

Overview assessment water resource risks, vulnerability; methodologies

Nov 2012 Blueprint To Safeguard EU Waters

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Water accounts to assess water stress and vulnerability – EU level

- **Implementation of "Ecosystem accounting" at EU level, with special regards to water**
  - Pilot adapted Water accounts module of the SEEA (UNSD international statistical standard)
    - at EU level
    - possible methodology for further guidance.
  - Adapting SEEAW (for regional / seasonal assessments)
  - Establish common spatial reference systems and related data sharing processes in SEIS (Shared Environmental Information System)

Water accounts conceptual model

- The **UN SD methodology (SEEA-W**) for accounting measures *natural resources* (physical assets) in relation to *economic activities* (monetary assets):

    - *Balances carried out across the inland resource system (natural assets) and the economy*

    - *Exchanges between the different components: rain on soil that receives irrigation; rivers fill reservoirs used for abstraction and supply; etc*

    - *The accounting spatial unit: 'territory of reference', in SEEA-W 'statistical units' and annual average.*

- **EEA adapted approach to <u>sub-basin</u> and <u>monthly</u> assessments**
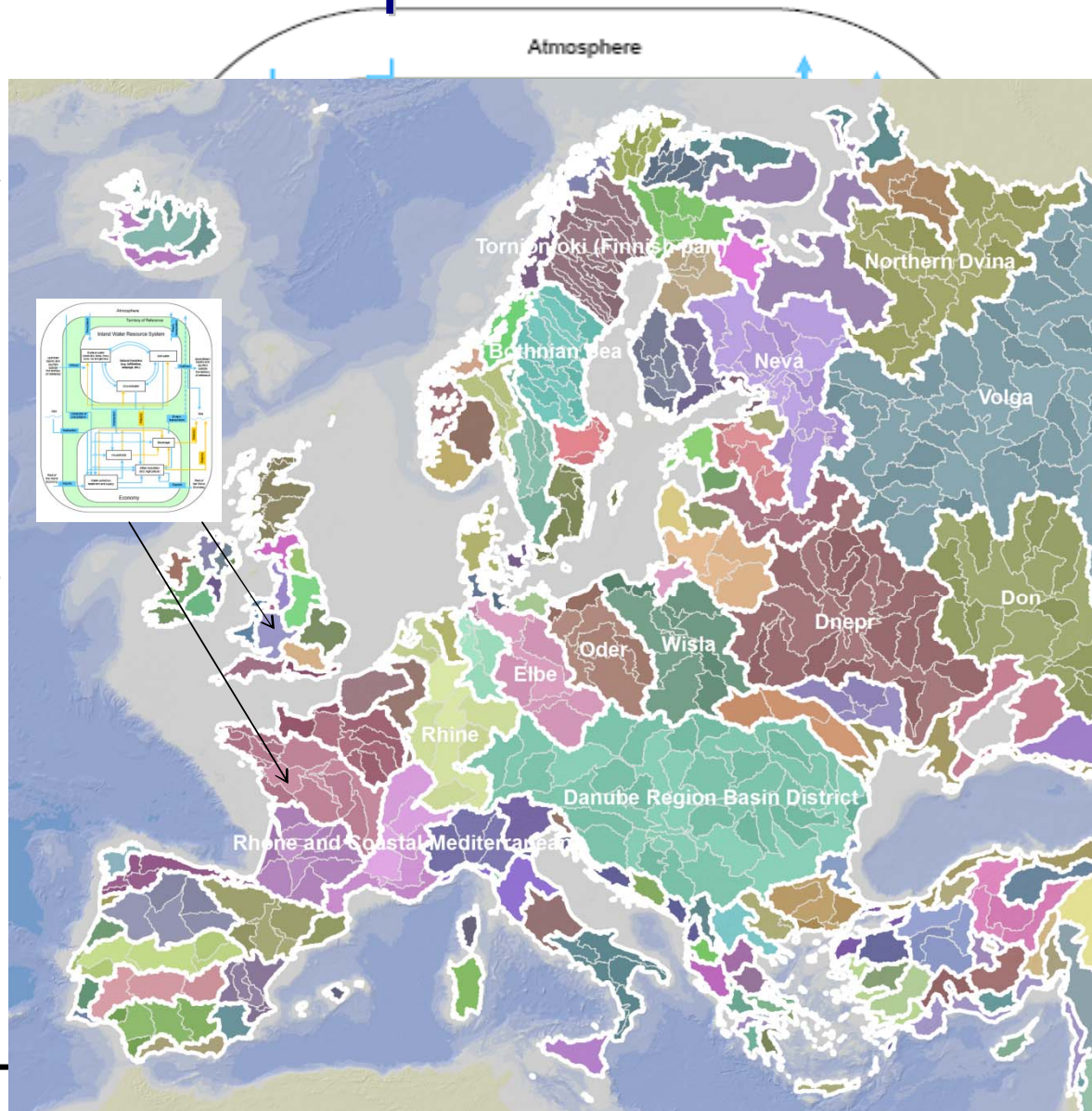
EEA approach – by June

Item (summary)	Task	Status
GIS reference system validated	Catch & rivers Lakes & reservoirs GW	Done Almost finalised GW to finalise
River discharge data monthly at river segment level	Collection Reconstruction	Done On-going
Compute river flow by FEC	On Collected On Reconstructed	Done (avg. 8Y) To be done
Climatic data integration, apportioned to elem. catchments	Rain, act. ETP, etc.	Done
Water uses : Agriculture Urban Industry Energy	Assign per area Define Urban & data Reconstruct all Reconstruct all	Done Done (refine) Done (check) Done (check)
Apportion soil & water per target	Soil & GW Lakes and reservoirs	40% done (GW missing) 70% done (missing lakes)
Compute final Input/Output tables	Make raw tables Deliver calibrated tables	Done On-going

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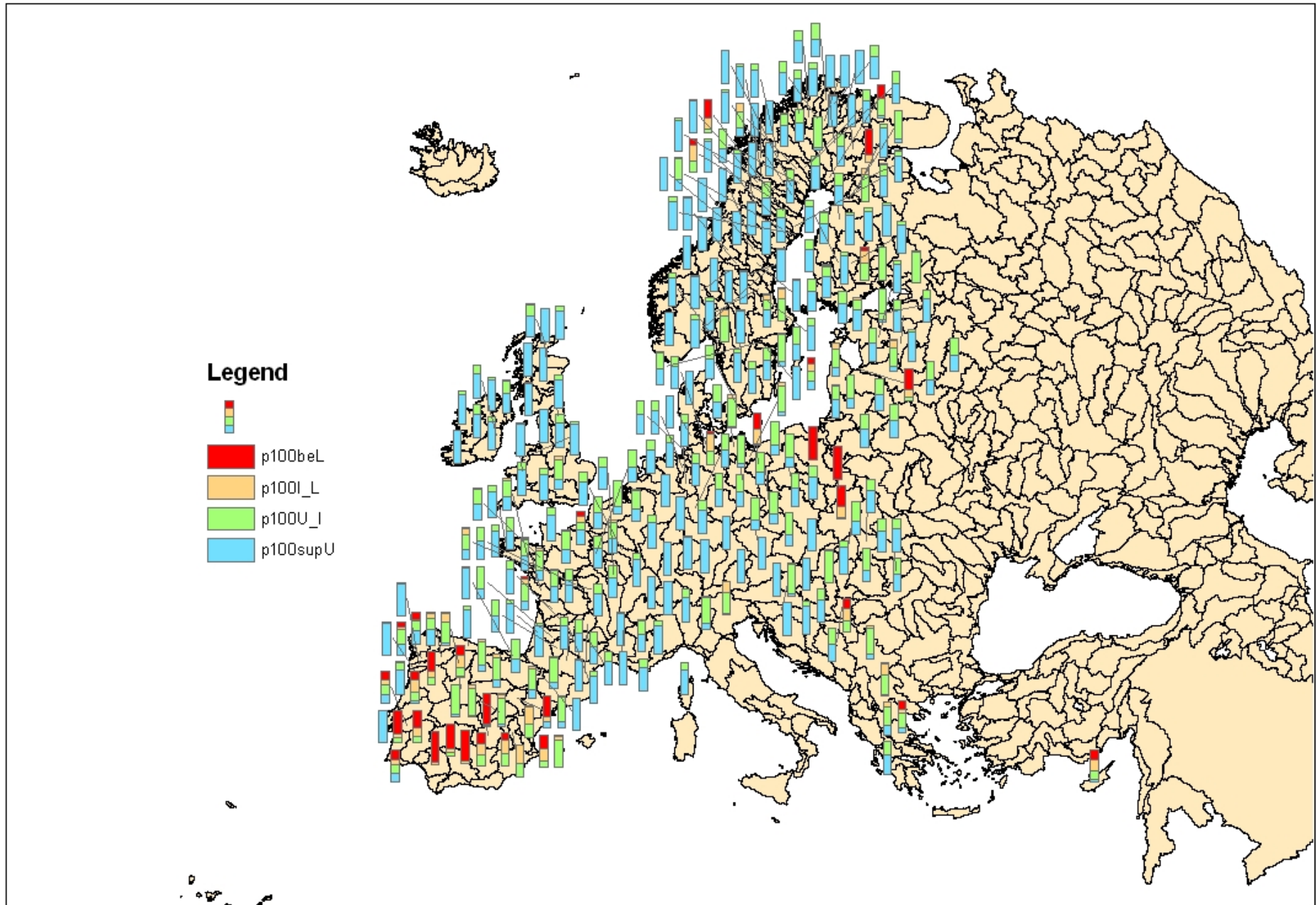
The operational data sets: natural assets

- Climate data has been re-analysed as :

  - Soil water, a key element of all ecosystem accounts

  - Surface run-off, a key component of water accounts
  - Plus raw rain, potential ETP, actual ETP, etc.

- River discharge has been processed, where data could be collected:
  - Productivity / quantity at sub-basin levels , a key components of the water accounts (surface run-off with the ground-water reserves from actual observations): the touchstone of water balance accuracy

- *Final task (not yet done) is checking matching between these independent datasets ("calibrating")*

Beyond the water accounts towards ecosystem services

- Climate data that has been re-analysed as soil water:

    - Becomes a key element of all ecosystem accounts: habitats, carbon balances and will be confronted with NVDI data sets (Normalised Difference Vegetation Index), which is under computation and cross-checking with climatic data sets

- River discharge has been processed, where data could be collected:

    - Monthly average discharge per river segment: regime is essential support to aquatic ecosystems and key to "quality accounts" for resources

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Legend

- ■ p100beL
- ■ p100l_L
- ■ p100U_l
- ■ p100supU

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The operational datasets: water uses

- Uses/resource to calculate Water Exploitation Index(WEI) for Europe improvement vs UNSD Manual

- demand/resource per catchment and monthly
  → specifies regional conditions

- Typology of situations, structural deficit can be identified

- Categories of uses, need to better specified

- Water abstractions, uses and recharge re-analysed :

- Global statistics (volume per year / country) disaggregated by functional units (e.g. metropolis, small villages based on population density / water demands)

- Significant water transfers systematically documented to meet SEEAW scheme

Sample results

- First month

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Integration with Blueprint 2012

- Water accounts one of the key tools proposed in the blueprint consultation document

- Accounts as possible methodology to be further discussed with member States on Basis of EU level pilots

- Water balances (asset accounts) as element of water Scarcity and drought indicators, just adopted by WS&D expert network

data needs & way forward

Data needs for EU level uses:

- Historical data

- from stations reported to GRDC

- Monthly and daily observed avarage river discharges

Possible way forward

- Manadte GRDC to share data for research AND policy assessments by EU institutions

- Support to establish GRDC as EU run-off data centre

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THANKS FOR YOUR ATTENTION

EEA - Philippe Crouzet

Oscar Gomez and Blaz Kurnik

And Pöyry consultants

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Soil water contents per month

Source: EEA computations from
:
• Soil data centre
• Primary climatic: **E-OBS** :
http://eca.knmi.nl/download/ensembles/ensembles.php
• Reference: Ecrins (EEA)
NB: full Europe under processing

2001/01

Legend
mm H20 / m of soil
< 50
50 to 100
100 to 200
200 to 250
250 to 300
300 to 350
350 to 400
400 to 500
500 to 600
600 to 700
> 700
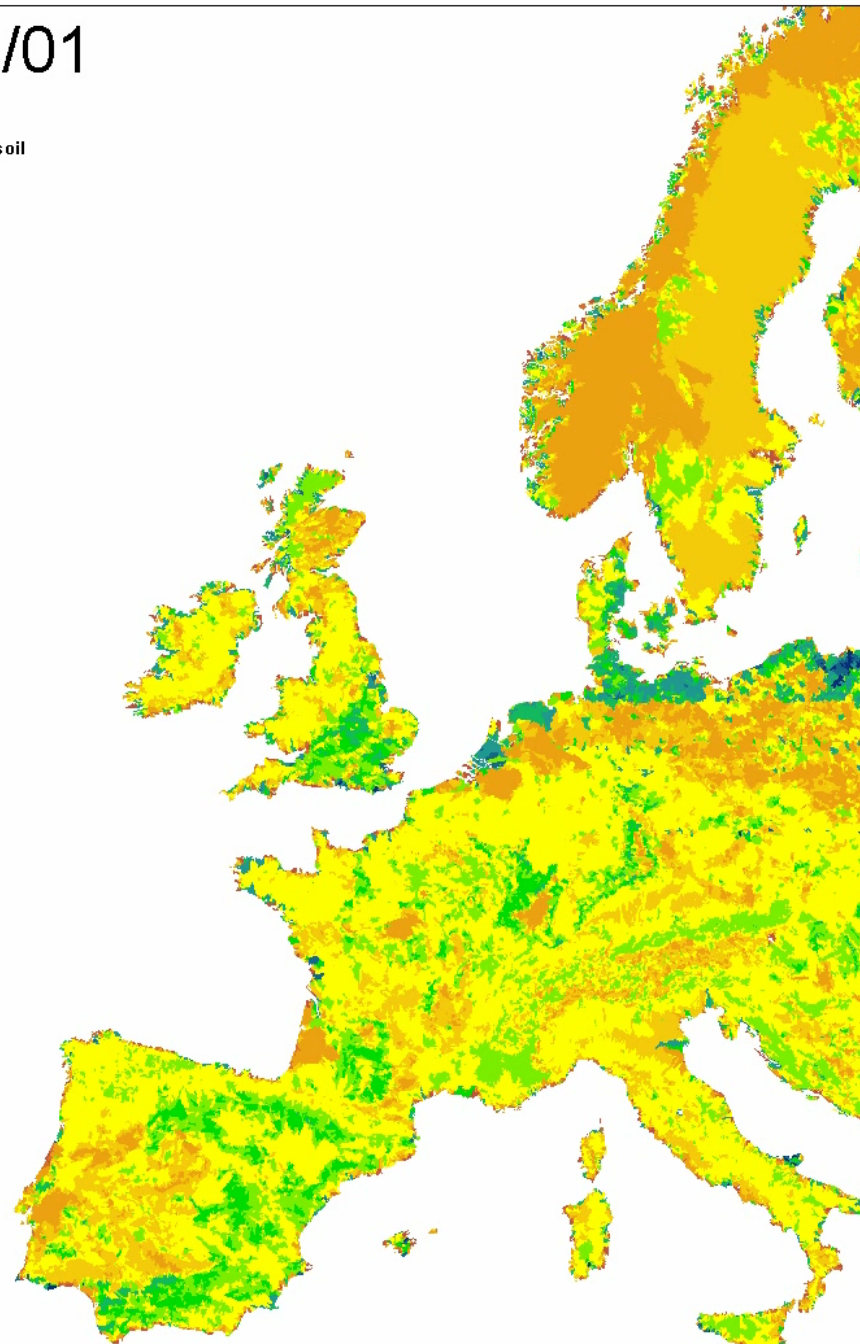
Soil run-off per month

Source: EEA computations from:
- Soil data centre
- Primary climatic:**E-OBS** :
http://eca.knmi.nl/download/ensembles/ensembles.php
- Reference: Ecrins (EEA)

NB: full Europe under processing

2001/01

Legend

Surface run-off in mm

- 0
- 0 to 1
- 1 to 5
- 5 to 10
- 10 to 15
- 15 to 25
- 25 to 50
- 50 to 100
- 100 to 200
- 200 to 500
- > 500
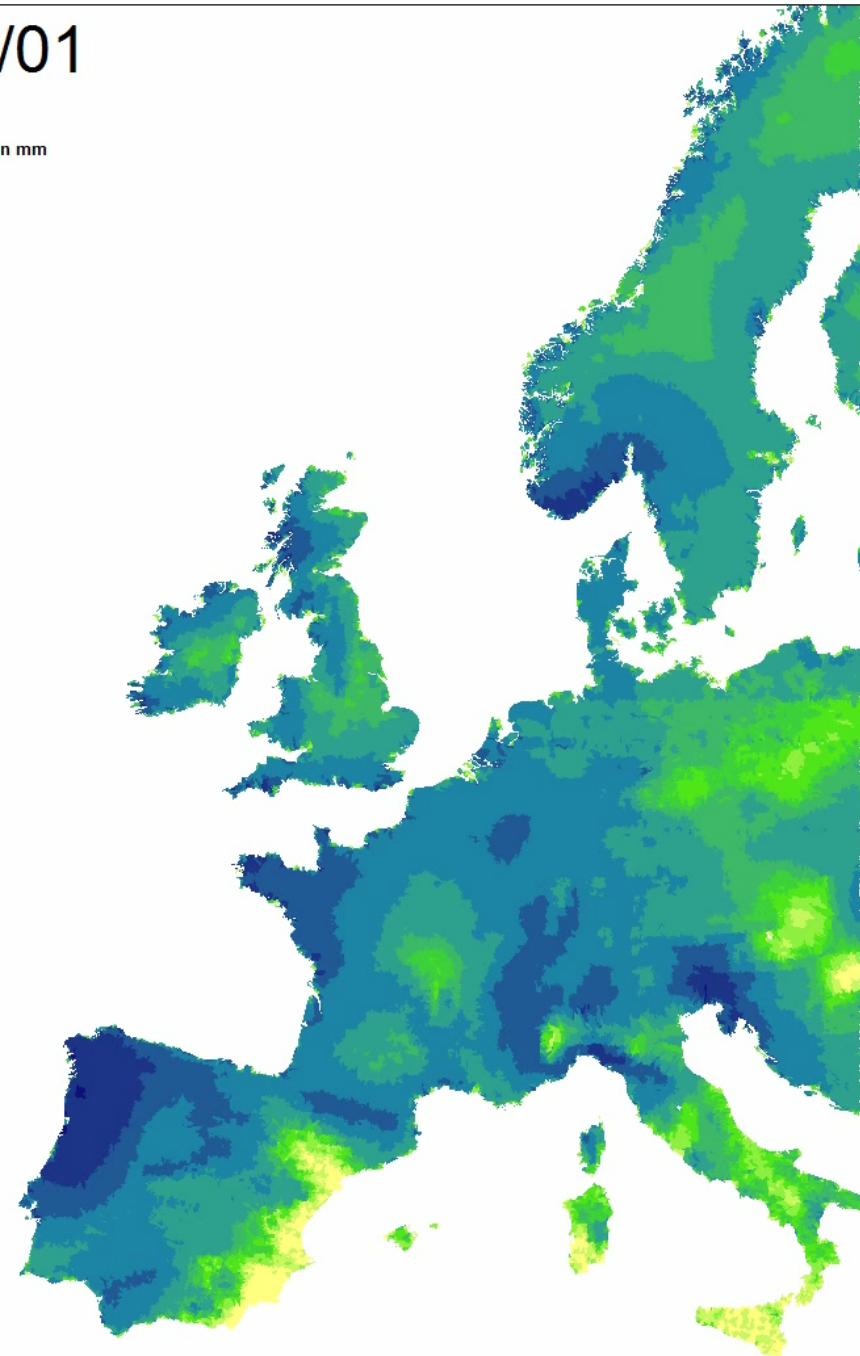
Monthly discharge at sub-catchment level

Source: Pöyry computation for DG Env

- Discharge collected by EEA
- Data organised by EEA (>70 million daily data)
- GIS Reference: Ecrins (EEA)

2001/01

Legend

Productivity l / sec / sqKm

- < 1
- 1 to 2.5
- 2.5 to 5
- 5 to 10
- 10 to 15
- 15 to 25
- 25 to 35
- 35 to 50
- 50 to 75
- 75 to 100
- > 100
- No data

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Monthly discharge at segment level (Zoom)

Source: Pöyry computations for DG Env
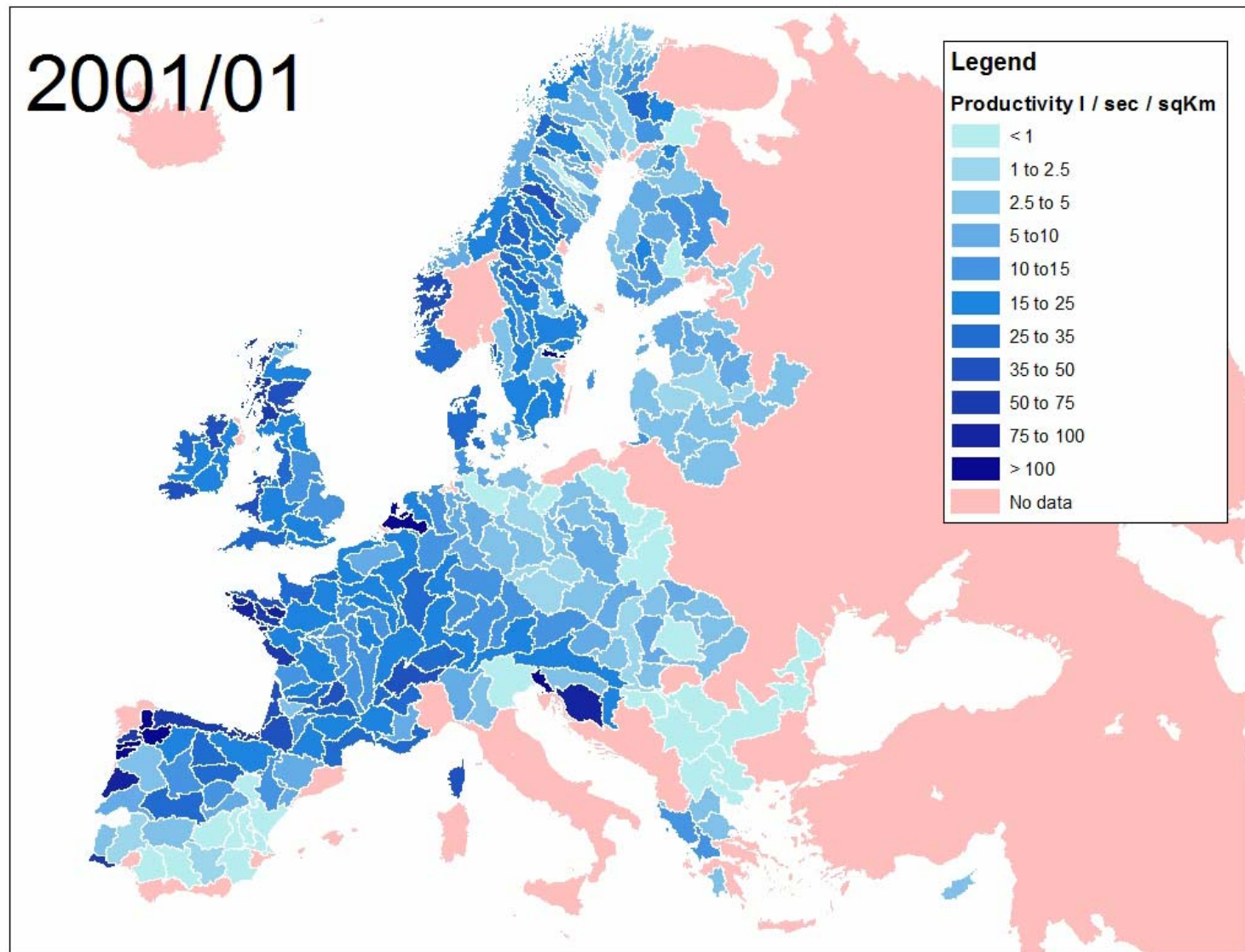- Discharge collected by EEA
- Data organised by EEA (>70 million daily data)
- Reference: Ecrins (EEA)

2001/01

Legend
Stream flow
m3 / sec
- < 1
- 1 to 5
- 5 to 25
- 25 to 50
- 50 to 100
- 100 to 200
- 150 to 200
- 200 to 300
- 300 to 450
- 450 to 700
- > 700

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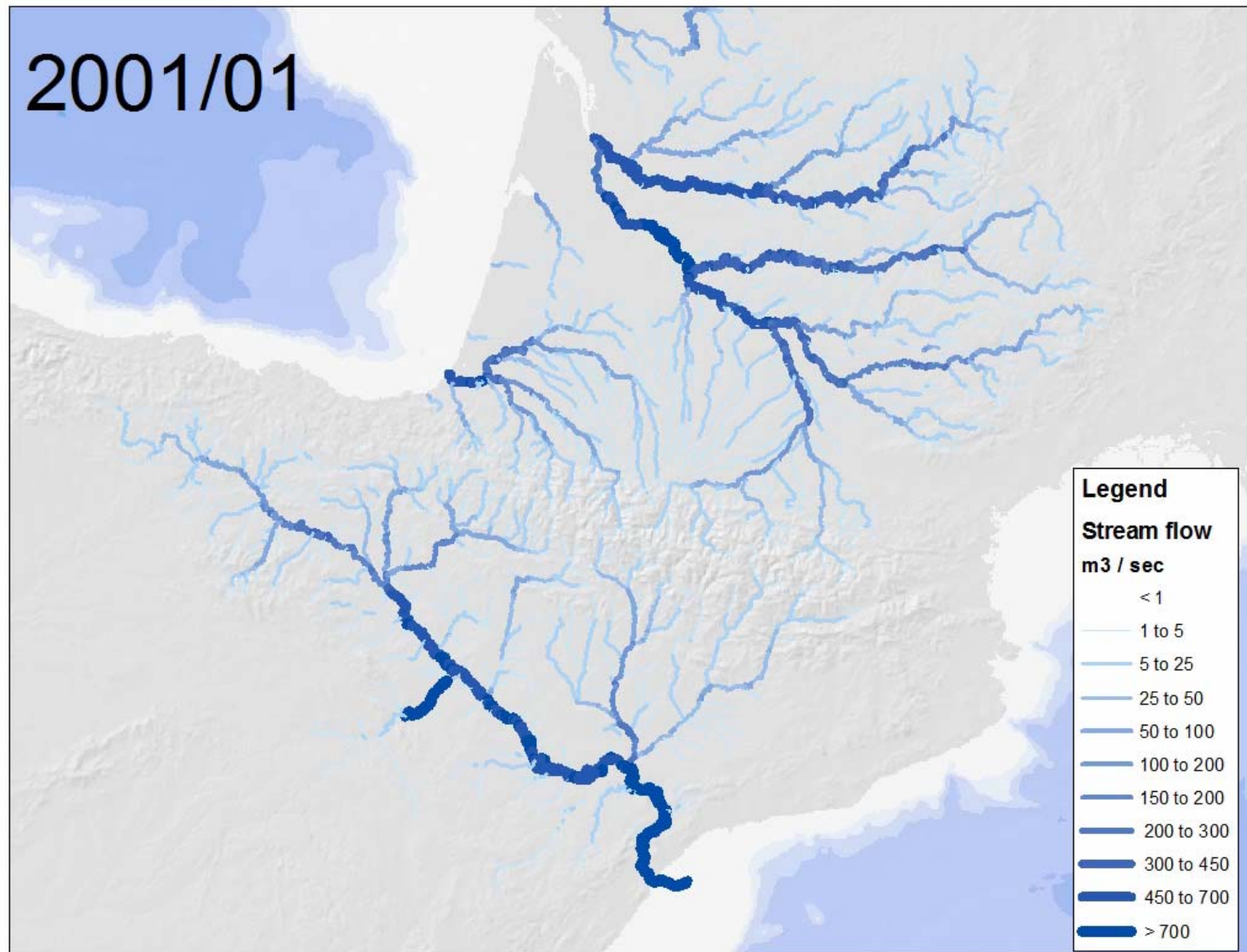
Water uses and towards regional – seasonal WEI

- Water uses under reconstructing / apportioning under NACE.
- Example: domestic demand

    Source: Pöyry from EEA data
    Reference Ecrins

Legend

Sub-basins

Domestic demand hm3/y

	0.000073 - 10.000000
	10.000001 - 25.000000
	25.000001 - 75.000000
	75.000001 - 100.000000
	100.000001 - 150.000000
	150.000001 - 200.000000
	200.000001 - 500.000000
	500.000001 - 750.000000
	750.000001 - 1000.000000
	1000.000001 - 4000.000000

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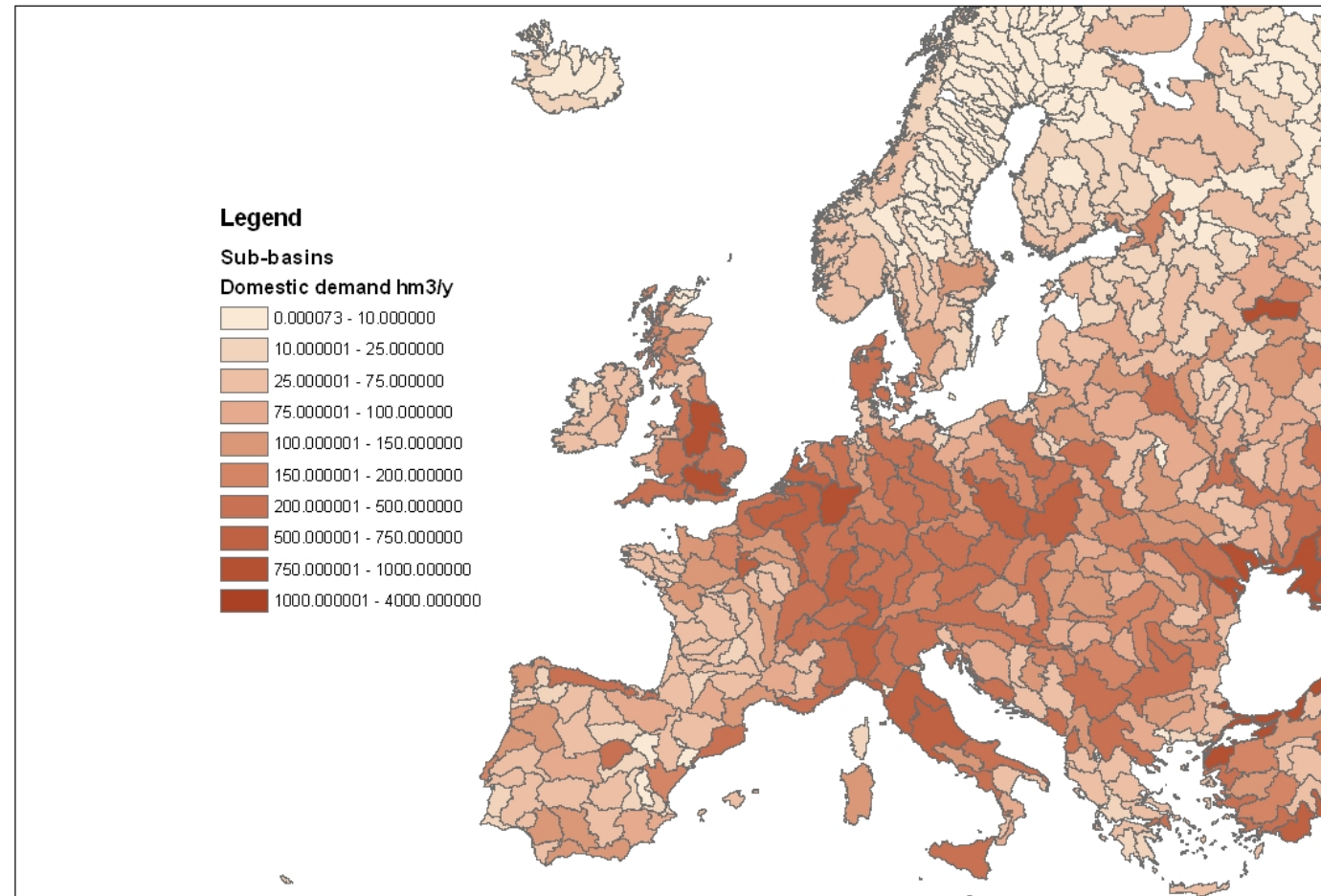
Sample of irrigation map

Irrigation water use per FEC is computed thanks to the use of a transfer matrix. Each of last ten year monthly dataset is calculated from JRC EU_IRGA data base

Irrigation year 2008

c_ZG

siteLAEA10K
IRGAmm
- 0 - 4
- 5 - 13
- 14 - 23
- 24 - 35
- 36 - 47
- 48 - 61
- 62 - 76
- 77 - 91
- 92 - 108
- 109 - 124
- 125 - 143
- 144 - 163
- 164 - 184
- 185 - 206
- 207 - 227
- 228 - 249
- 250 - 276
- 277 - 309
- 310 - 346
- 347 - 400

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