SEPA Policy in Regulating Water Usage

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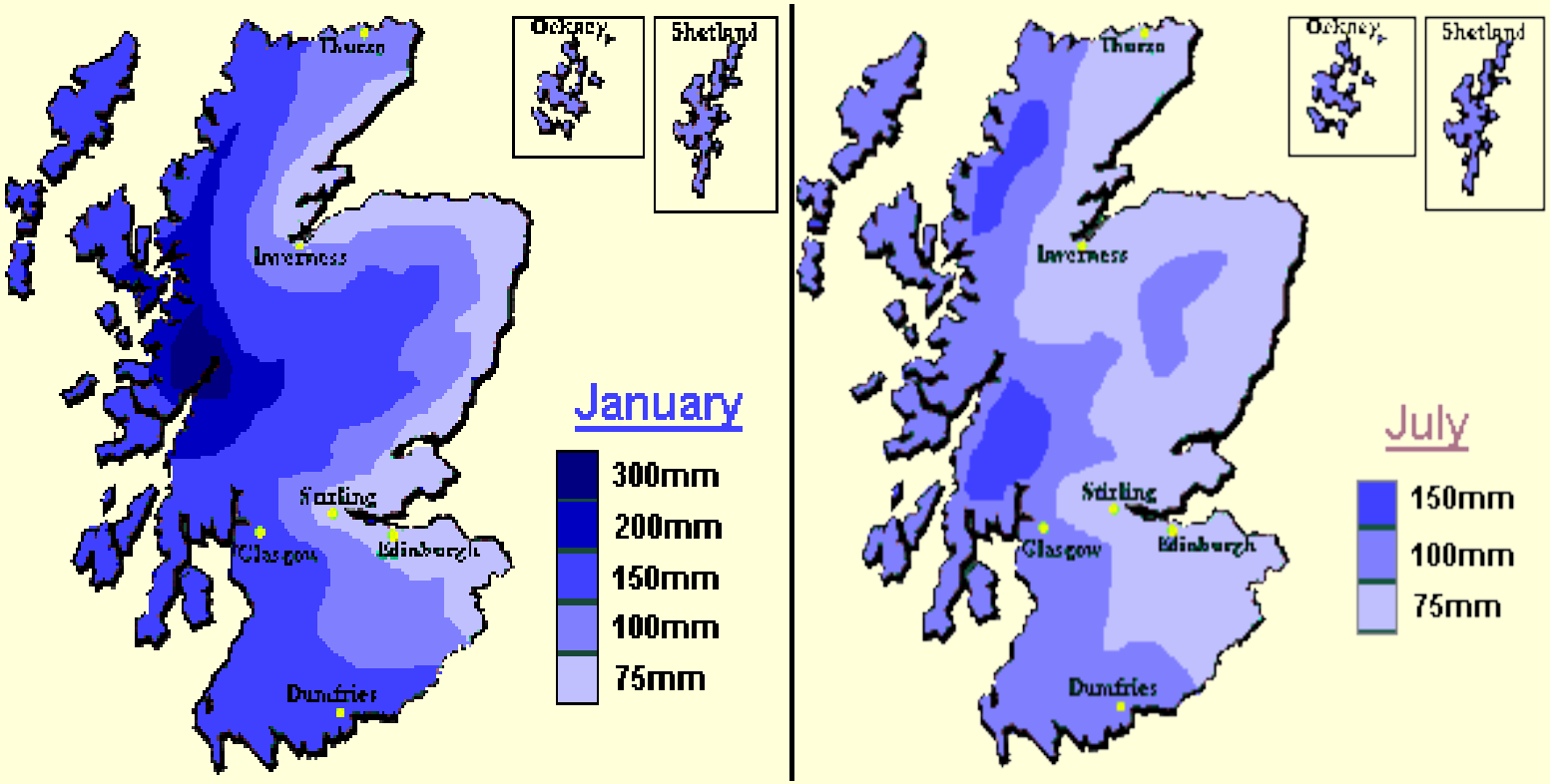
Outline

- SEPA's role
- Impacts of drought
- Scotland Drought Management Plan
- Protecting low flows

Drought Planning in Scotland?

Lots of water…

…but not always in the right place at the right time



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Dry Scotland?

Drought impacts on the water environment

- Dry weather conditions and low flows are natural but where the water environment is under stress, impacts may occur

- Drought impacts are dependant upon the type and severity of drought

- 2 types of drought:
- 'acute', where little or no rain has fallen for a number of weeks; and
- 'chronic', where the effective rainfall has remained below a long term average for a number of months.

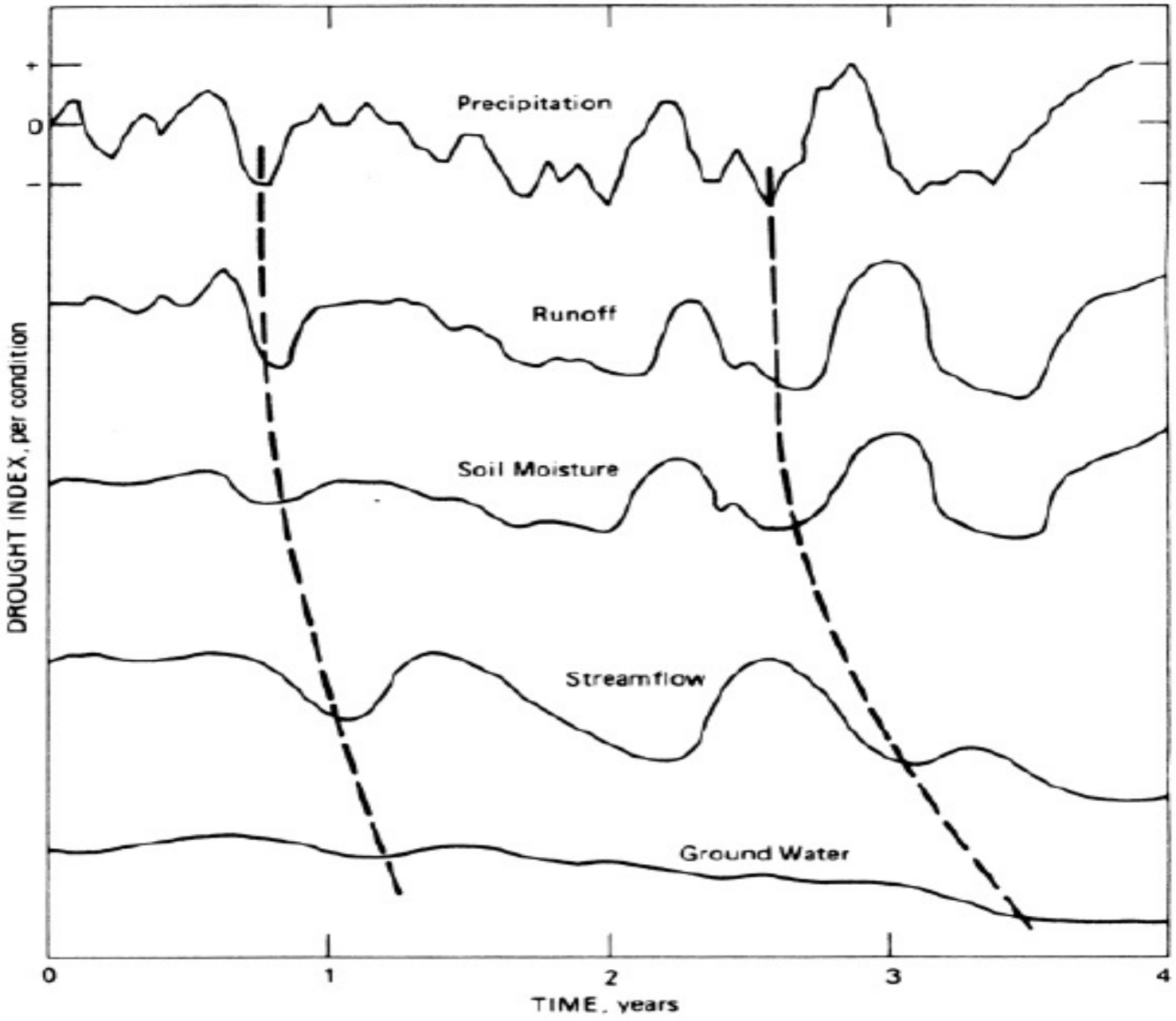
Acute versus Chronic

- Acute: Typically have the greatest effect upon water sources with little storage such as rivers with a low baseflow

- Chronic: Most evident in parts of the water environment where storage is a key factor e.g. groundwater and standing waters.

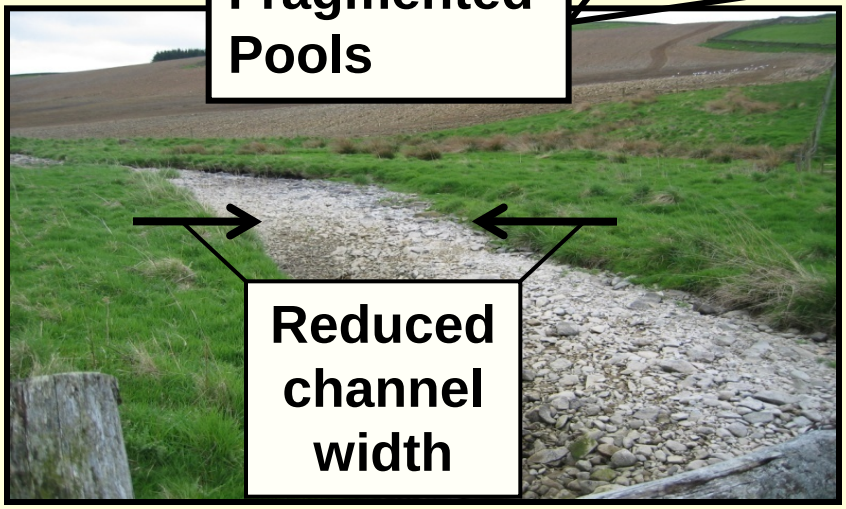
- Additional pressures include:
  - Loch / reservoir level drawdown
  - Reduced spring flows
  - Large soil moisture deficits.

SEPA
Scottish Environment Protection Agency

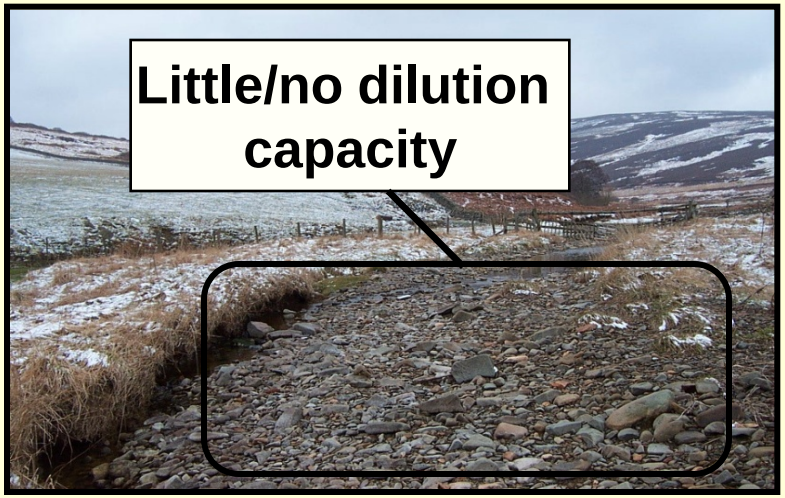


Impacts of Drought

Fragmented Pools



Reduced channel width

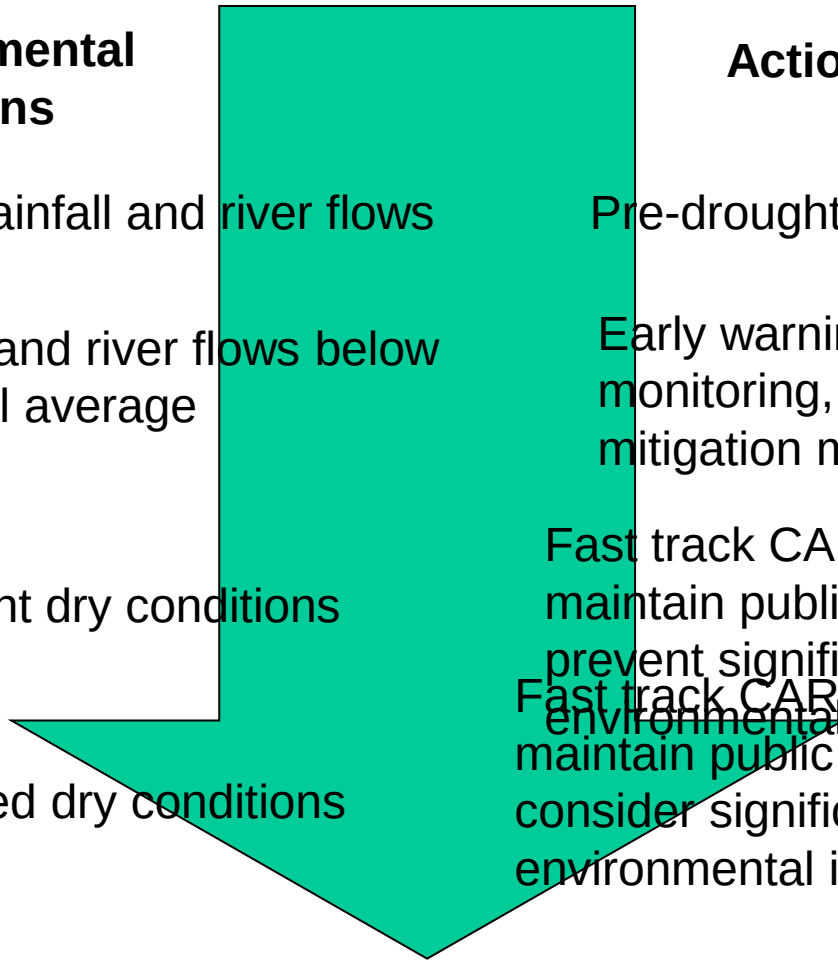


Little/no dilution capacity

So how do we deal with drought?

- First rule of regulation: co-operation
- Have to consider all water users, and take on board the information and experience available from other sources
- Develop a drought plan
- Regulate effectively.

Scotland Drought Management Plan



Environmental Conditions	Actions
Normal rainfall and river flows	Pre-drought planning
Rainfall and river flows below seasonal average	Early warning, increased monitoring, implementation of mitigation measures
Persistent dry conditions	Fast track CAR authorisations, maintain public water supply, prevent significant environmental impact
Prolonged dry conditions	Fast track CAR authorisations, maintain public water supply, consider significant environmental impact

Five stages of the drought plan

- **Stage 1: pre-drought planning**
  - Duty under CAR to use water efficiently
- **Stage 2: early warning and water saving**
  - SEPA to provide early warning of low rainfall periods
  - Operators to implement appropriate efficiency measures

Five stages of the drought plan

- **Stage 3: implementing mitigation measures**
  - SEPA to provide progressive warnings
  - Operational changes
    - Schedule abstractions?
    - Management agreement?
    - Alternative sources?
    - Consider storage?

Five stages of the drought plan

- **Stage 4: implementing restrictions**
  - SEPA to reduce licensed abstraction volumes
  - Consider cessation in extreme circumstances

- **Stage 5: post drought**
  - Learning lessons
  - Building into future planning
  - Monitoring during dry periods.

How do we implement this?

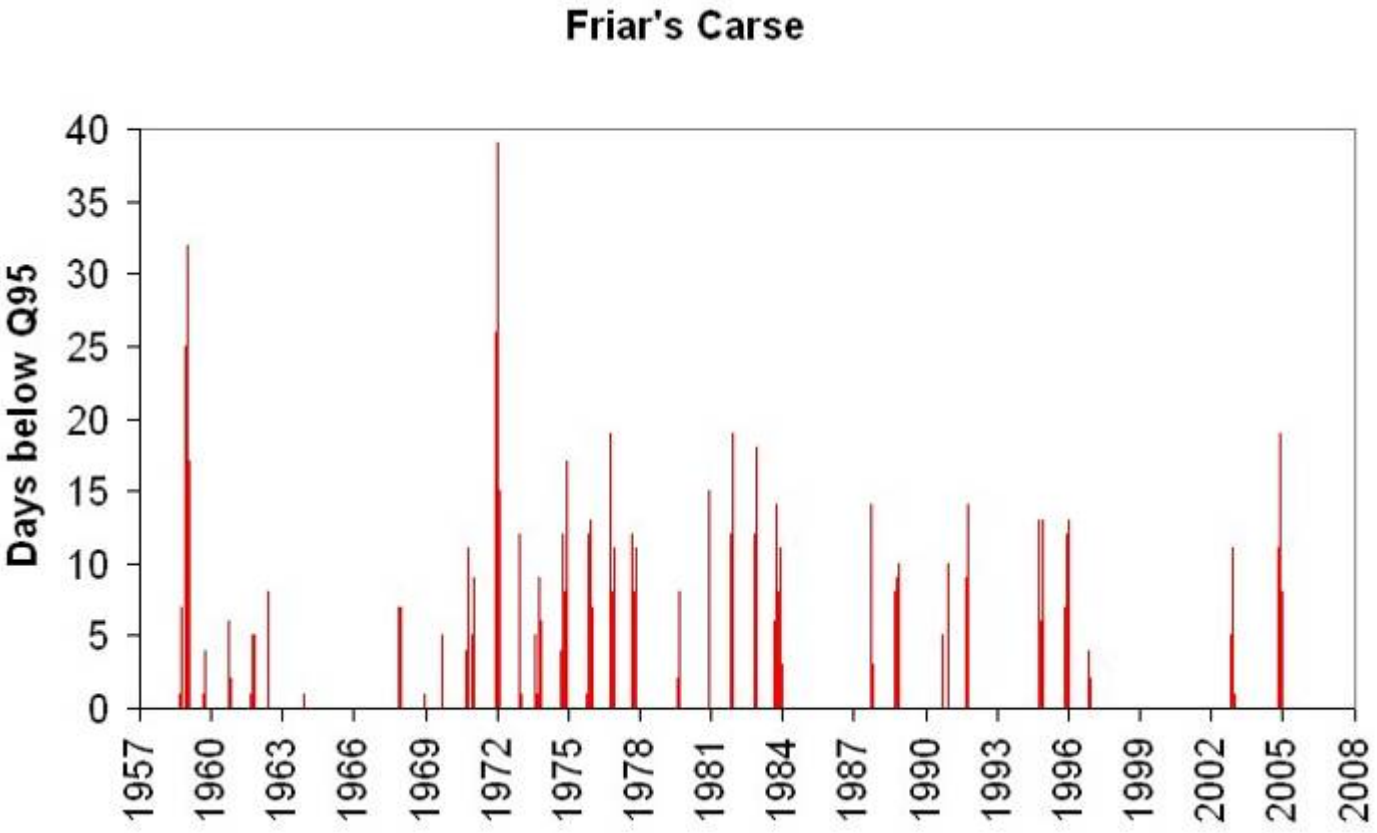
- Through joint working again:
  - Rely on SEPA hydrological monitoring network on rivers
  - SEPA software tools
  - Operator monitoring
  - Extensive Scottish Water monitoring

  - Use real data to create indices:
    - Reduction in river flow
    - Decrease in soil moisture content
    - Change on loch level.

Drought Indices

- Early warning of drought potential
  - An index can be used to assess the risk of environmental impacts e.g. Environmental risk = *fn* (Meteorological forecast)
- Tool for measuring drought severity
- Used to trigger action levels
  - To ensure operators are only asked to alter practices when necessary
  - To allow us to take action and minimise impacts
- Provide consistency.

Flow-based indices



- Easy index to put across e.g. “River has been extremely low for 15 days. This is the longest period of low flow since 1972”.

We have to rely on third party information as well as static river gaugings…

Protecting low flows

Setting HoFs for abstraction

Compensation flows and freshets