River Frome SSSI
Diffuse Water Pollution Plan

Douglas Kite
Conservation Adviser (water and wetlands)
Why a DWPP is needed for the SSSI?

- Agreed as the joint EA and NE ‘remedy’ for addressing failure of SSSI favourable condition on diffuse water pollution.
- Engages EA and NE with catchment stakeholders.
- Brings together the key evidence base on situation.
- Directs joined up delivery of actions by EA and NE using core resources and Defra funding streams (and with work of others eg GWCT, Poole Harbour Catchment Initiative and Highways authorities)
- Informs NEs local priorities on CSF and Countryside Stewardship.
- Prioritises actions and annually tracks their delivery.
- Identifies any shortfall in achieving favourable condition through identified actions, including on point sources and regulation.
What sources a DWPP covers

Diffuse sources
- Natural and historical land use background
- Agricultural
- Urban
- Highways

Partially regulated sources
- Septic tanks
- Fish and watercress farms
- Waste spreading to land

Context with regulated point sources
- Sewage treatment works

Inter-relationships affecting water quality eg
- River flow
- Groundwater
- River connectivity with riparian corridor & floodplain
SSSI water quality compliance

- Organic (wastes) pollutant pressures
  - Dissolved oxygen
  - Biological Oxygen Demand
  - Ammonia
  - Un-ionised ammonia

- Chemical and pesticide pressures
  - heavy metals
  - others

- Nutrient pollutant pressures
  - Phosphorus (orthophosphate)
  - Nitrogen (nitrate)

- Siltation/fine sediment pressures
  - river bed siltation
  - suspended sediment
  - river sediment load

pass    fail    uncertain
Water quality needs for delivering SSSI favourable condition

<table>
<thead>
<tr>
<th></th>
<th>Phosphorus</th>
<th>Nitrogen</th>
<th>Fine silt/siltation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A near-natural state would be</strong></td>
<td>≤ 30 µg/l</td>
<td>&lt; 2 mg/l</td>
<td>about 2 t/km²/yr</td>
</tr>
<tr>
<td><strong>What the SSSI needs</strong></td>
<td>≤ 50 µg/l</td>
<td>&lt; 5 mg/l</td>
<td>≤ 5 t/km²/yr</td>
</tr>
<tr>
<td><strong>Where we are now (scale of change)</strong></td>
<td>Getting there, but now more slowly</td>
<td>Getting worse, but now more slowly</td>
<td>Too much</td>
</tr>
<tr>
<td></td>
<td>c40 µg to c70 µg/l</td>
<td>5.7+ mg/l</td>
<td>about 11 t/km²/yr</td>
</tr>
<tr>
<td></td>
<td>(decline from c150 µg/l in 1990s)</td>
<td>(increasing from 2.3 mg/l in mid 1960s)</td>
<td>(trend uncertain)</td>
</tr>
</tbody>
</table>
Key diffuse water pollutants

- Phosphorus – mainly affects river from run-off.

- Nitrogen – affects wetland and river banks (& river?) from groundwater and drainage/run-off.

- Fine sediment / siltation - mainly affects river from run-off.
DWPP fit with other Poole Harbour catchment water plans

- **Poole Harbour strategy / NMP**
  Focus on nitrogen
  - leaching/drainage to groundwater

- **River Frome DWPP**
  Focus on phosphorus and fine sediment
  - run-off and lateral soil drainage
  - increasing natural catchment functions
1. Key evidence gaps

Science

- Understanding the biology causing SSSI condition failure.
- Fen and river bank vegetation change from nitrogen increase.

Informing actions to deliver

- Distribution and severity of road & track pathways for silt.
- Identifying sources and mitigation in place at field level along rivers.
- Distribution of best land as P sinks, silt capture or denitrification - riparian corridor and floodplain.

Informing ways to deliver

- Regulatory investigation
- Farm clusters
DWPP overview
2. Strategic focus of plan actions (what)

- Soil husbandry – reducing soil, nutrient and carbon loss.
- Nutrient efficiency & trading
- Capture & breaking run-off pathways – roads & tracks.
- Natural flood management – headwater woodland, infield vegetation breaks, riparian wet habitat, managed flood meadows, river geomorphology
3. Strategic focus of delivering actions (how)

Voluntary measures and incentive based approach

- Clear advice on what success looks like.
- Dovetail NE, EA, WxW et al delivery capacities to what and where it is best suited.
- Provide land managers across local catchments with means for collaborative bottom-up approach in delivering success.

Point sources - enable impact reductions by alternative measures if less onerous.
4. Key monitoring

- Progress of actions and uptake of CSF, CS, EFAs
- River water quality
- Biological outcomes of actions taken – more of desirable plants & animals
- Soil carbon
- Extent of river corridor / floodplain giving good catchment services
Success looks like - more of this