REF.	ACTIONS	PARTNERS (lead partners in bold)
4.1	**Improve water quality where downgraded by runoff from roads/access tracks.**	**SEPA / SW / Industry** / Community Councils / **AC / ACC** / Land owners / Land managers
4.1.1	Identify sources of water quality downgrade caused by infrastructure.	**SEPA**
4.1.2	Improve water quality where possible by taking appropriate remedial action.	**AC / ACC** / Land owners / Land managers
4.2	**Use SuDS to treat run-off from public roads, trunk roads and access tracks.**	**AC / ACC** / SEPA
4.3	**Prepare and implement a road drainage outfall improvement plan.**	**AC / ACC** / SEPA
4.4	**Use temporary SuDS to treat run-off from projects during construction phase.**	**SEPA / AC / ACC**
4.5	**Establish the impacts of de-icing chemicals on aquatic life.**	**SEPA / AC / ACC** / Research Organisations
4.5.1	Review existing literature.	Research Organisations
4.5.2	Undertake research to investigate the ecological impacts of de-icing chemicals.	Research Organisations
4.5.3	Devise and promote best practice guidelines if research findings support a requirement.	**SEPA / AC / ACC**
4.6	**Review existing road de-icing salt storage arrangements and improve where necessary.**	**AC / ACC**
4.7	**Undertake best practice to minimise runoff from access tracks. For example:** - Ensure tracks are correctly specified, designed, constructed and maintained. - Use catchpits to intercept run-off from hard tracks and ensure trapped sediment is removed from them regularly. - Promote swales along access tracks. - Ensure that hard tracks on steep gradients have regular flow interceptors to limit the amount of run-off and surface scour. *Note that FCS's 'Forests and Water Guidelines' provide comprehensive guidance on access track design, construction and maintenance.*	**AC / ACC / FCS / Landowners / Land managers**

Acronyms are listed in the centre of this Action Card

4.Road and access.indd Spread 1 of 2 - Pages(4, 1)



road & access track drainage

4 WATER QUALITY

OBJECTIVE 4. Promote best management practice for dealing with road and access track drainage.

BACKGROUND

Contaminants washed by rainfall into the watercourse from roads, access tracks, vehicle parks and bridges reduce water quality in watercourses. It is estimated that the first 20 minutes or so of a rainstorm flushes most of the contaminants off hard surfaces of roads and vehicle parks, thereafter leaving the run-off relatively clean. Chemical contaminants which find their way into the watercourse vary in type and concentration according to the time of year.

ISSUES

- The following deposits are removed by rainwater and flushed into the watercourse, either in solution or as sediment, via the road drainage system:
  - Oil and fuel spillage and other chemical deposits which build up on the surfaces of roads and vehicle parks during dry weather.
  - De-icing salt applied to the road surface in winter.
  - Fine material from waterbound tracks.
  - Chemical fertilisers spread for agricultural purposes.
- Direct drainage without catchpits or interceptors allows run-off to pollute receiving watercourses.
- Indirect drainage via off-lets cut through the verge, common on the rural road system, permits a degree of absorption into the ground as run-off percolates into the field drainage system or roadside ditch, allowing sediment to settle out prior to entering the receiving watercourse. This practice has understandable objections from landowners. The preferred practice has been to remove such arrangements when opportunities arose and instead create off-lets discharging to roadside ditches which still allow some absorption into the ground.
- Design specifications for tracks (e.g. culvert size, gradients) must be appropriate if they are to drain properly under all conditions.
- Fine materials can wash out from incorrectly designed or constructed waterbound roads, especially during freeze/thaw cycles.
- If tracks are not maintained correctly they can fail to drain properly (due for example to blocked culverts or eroded surfaces), resulting in direct runoff into watercourses.
- Salt washed from uncovered storage sites can pollute watercourses.
- There are no practicable alternatives to the use of salt on the road network for de-icing.

EXISTING / RECENT INITIATIVES

- All new drainage outfalls into watercourses require some form of treatment by Sustainable Drainage system (SuDS) in order to obtain consent to discharge.
- Caontrolled Activities regulations (CAR) for point source pollution – including engineering works.



Many watercourses run close to roads in the catchment (S. Cooksley)

WHO IS INVOLVED?

Aberdeenshire Council

Aberdeen City Council

Community Councils

Forestry Commission Scotland

Industry

Landowners

Land managers

Research Organisations

Scottish Environment Protection Agency

Scottish Water

Further copies can be downloaded at www.theriverdee.org. For further information contact the Dee Catchment Officer c/o The Macaulay Institute, Craigiebuckler, Aberdeen AB15 8QH Telephone: 01224 498200 email: info@theriverdee.org

deecatchment partnership

- Aberdeenshire Council has completed a demonstration project retrofit road gully.

ACTIONS REQUIRED

- Reliable data on the level of pollution is required.
- Sources of significant pollution need to be identified.
- It is likely that improvement in the foreseeable future will be achieved more through interception and treatment than prevention.
- Encourage catchment-wide use of Forests and Water Guidelines for all access tracks to promote the use of appropriate materials and construction techniques.

LEGISLATION

See Action Pack Annex for information sources

- Controlled Activities Regulations (CAR)

GUIDELINES AND INFORMATION

See Action Pack Annex for information sources

- Planning Policy Guidance (PPG) 5: Simplified planning zones
- Working Around Water (Angus Council / Aberdeenshire Council)
- Forests and Water Guidelines 4th edition (Forestry Commission, 2003)
- 3-Dee Vision Forestry Questionaire

BENEFITS TO PROTECTED SPECIES

The following specially protected species will benefit from the Actions:

- Grass wrack pond weed *Potamogeton compressus*
- Pillwort *Pilularia globulifera*
- Freshwater pearl mussel *Margaritifera margaritifera*
- Common frog *Rana temporaria*
- Palmate newt *Triturus helveticus*
- Northern blue damselfly *Coenagrion hastulatum*
- Stiletto-fly *Cliorisimia rustic*
- Stone fly *Brachyptera putata*
- Atlantic salmon *Salmo salar*
- Brook lamprey *Lampetra planeri*
- River lamprey *Lampetra fluviatilis*
- Sea lamprey *Petromyzon marinus*
- Daubenton's bat *Myotis daubentonii*
- Otter *Lutra lutra*
- Water vole *Arvicola terrestris*
- Goldeneye *Bucephala clangula*
- Osprey *Pandion haliaetus*



Dirty water running off roads is a source of diffuse pollution to the catchment's watercourses (S.Langan)

RELATED ACTION CARDS

3. Woodland management

15. Land management & river flows

33. Access and recreation