Sorting Out Sediment
A Water Quality Perspective

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Regulatory Framework

Controllable water quality factors shall not disturb geomorphic and hydrologic processes and the physical attributes of waterbodies to levels that adversely affect beneficial.

Tool box for getting the right size sediment where it needs to be

- Policies – Basin Plan, TMDLs
- Permits – WDRs, WDRs Waivers, NPDES, 401 WQ certs
- Support – grants, SEPs

Many streams are impaired by sediment and lacking in habitat complexity and connectivity

Channel incision reduces the frequency of gravel bars and pools, side channels and alcoves, and results in disconnections of the channel from its floodplain.

Fundamental alterations of channel sediment transport and storage processes.

Reductions in flood plain areas and large woody debris loading diminishes capacity to store and meter sediment

Dams and culverts can reduce coarse sediment supply and promote incision

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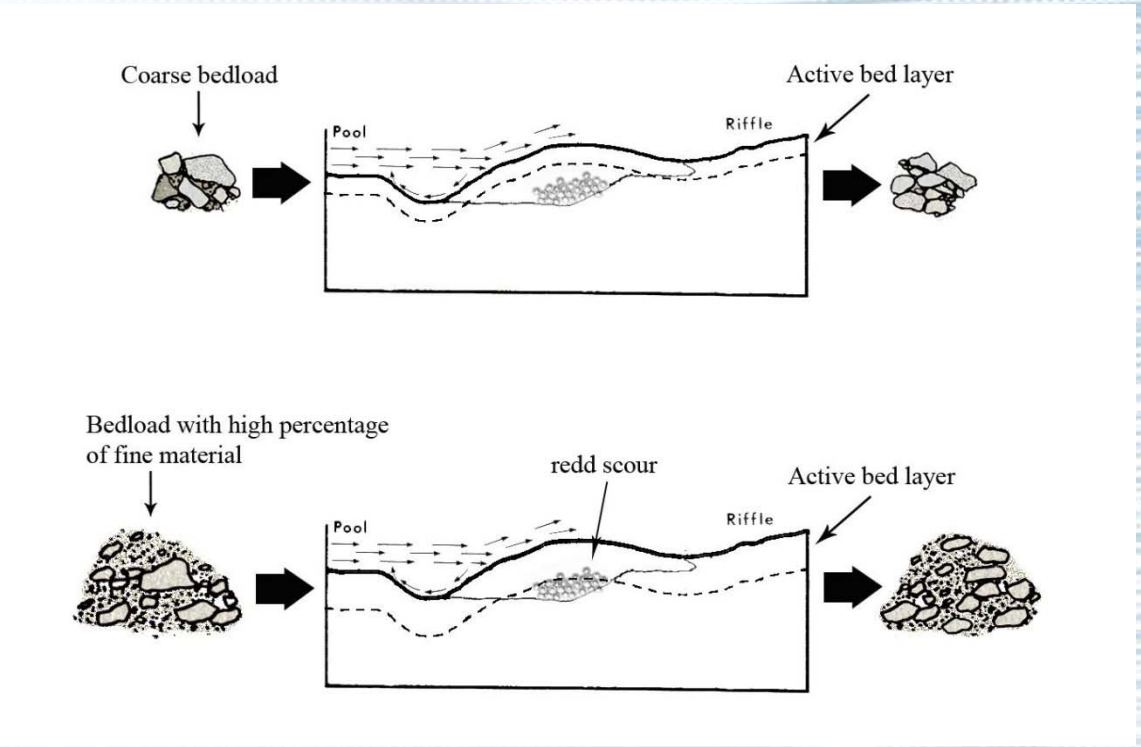
Excess fine sediment impairs fish habitat

Channel incision reduces the frequency of gravel bars and pools, side channels and alcoves, and results in disconnections of the channel from its floodplain.

Sediment Targets

Substrate composition
Spawning gravel permeability
Streambed scour
Tau-star
Pool filling



Stream Maintenance WDRs and 401 certs

Watershed scale

Routine stream maintenance activities

- sediment management
- vegetation management
- Bank stabilization

Mitigation

Stream Maintenance WDRs and 401 certs

Targeted sediment removal in channels reduces the need
for *reach* scale removal downstream

Stream Maintenance WDRs and 401 certs

Channel capacity
Hydraulic constrictions
Roughness

Stream Maintenance WDRs and 401 certs

Promote management aimed at sustaining a desirable value for vegetative roughness in order to balance the functions of the vegetation for erosion control, shade, temperature, aquatic habitat, and flood risk reduction

Stream Maintenance WDRs and 401 certs

Require developing channel capacity objectives and estimates of flood stage-discharge relationships so that quantifiable information will inform when maintenance is needed for flood protection.

Stream Maintenance WDRs and 401 certs

Channel dimension objectives:

- Facilitate stream equilibrium conditions
- Address excessive erosion and deposition problems
- Promote sustainable habitat conditions
- Guide channel grading and enhancements activities