



UK Technical Advisory Group River Morphology Standards

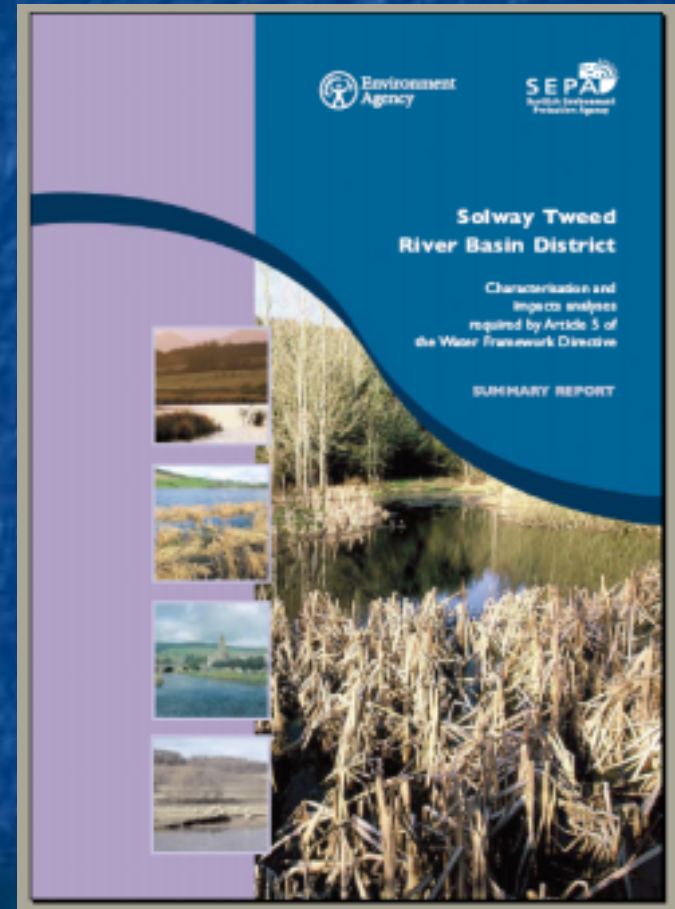
WFD UK TAG

Water Framework Directive
www.wfduk.org

Dr Roy Richardson, SEPA

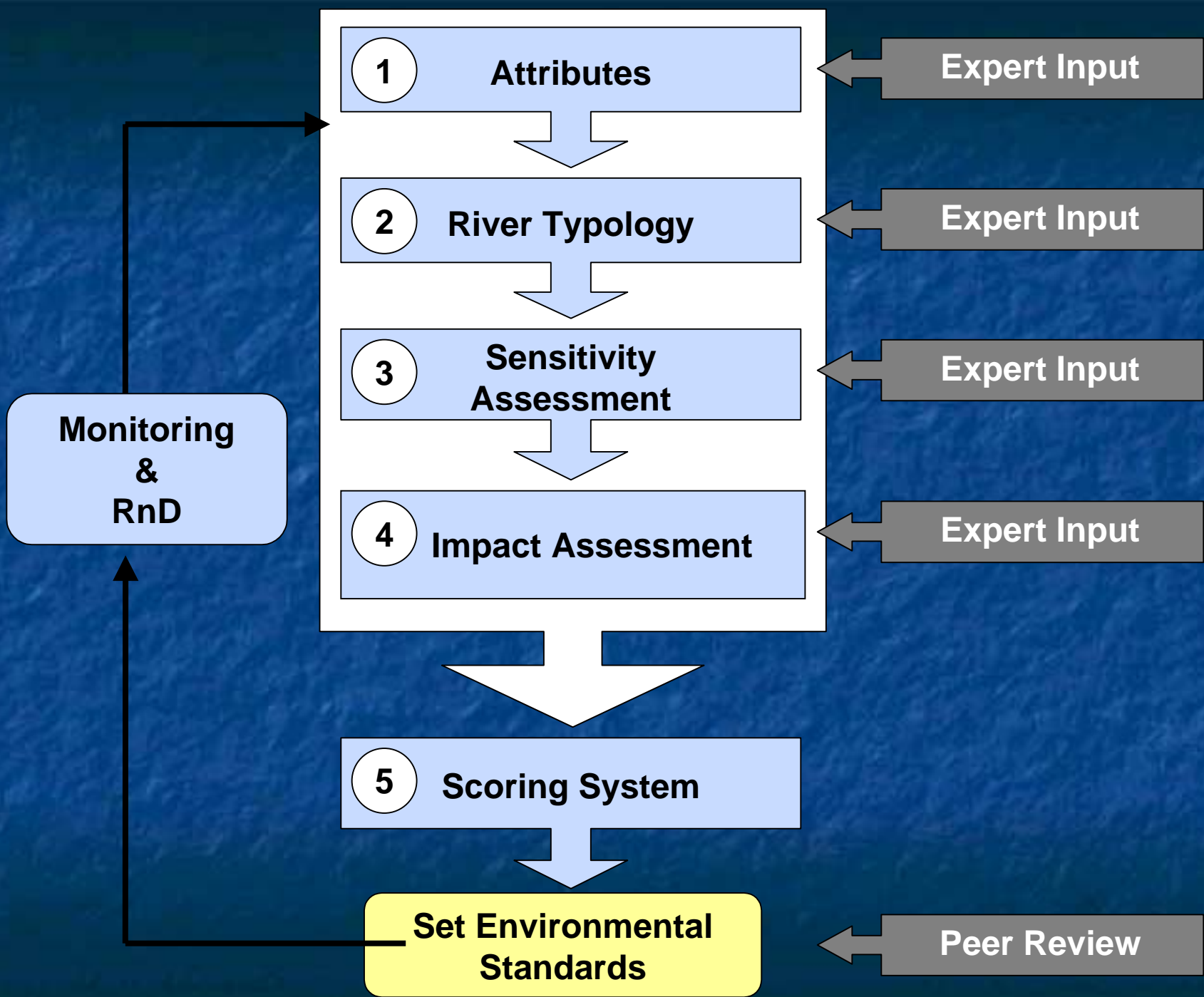
Characterisation

- Scotland: 33% Rivers 'at-risk' from morphological pressures
- Sectors: Agriculture, Forestry, Hydropower
- Strengthen the ecological links

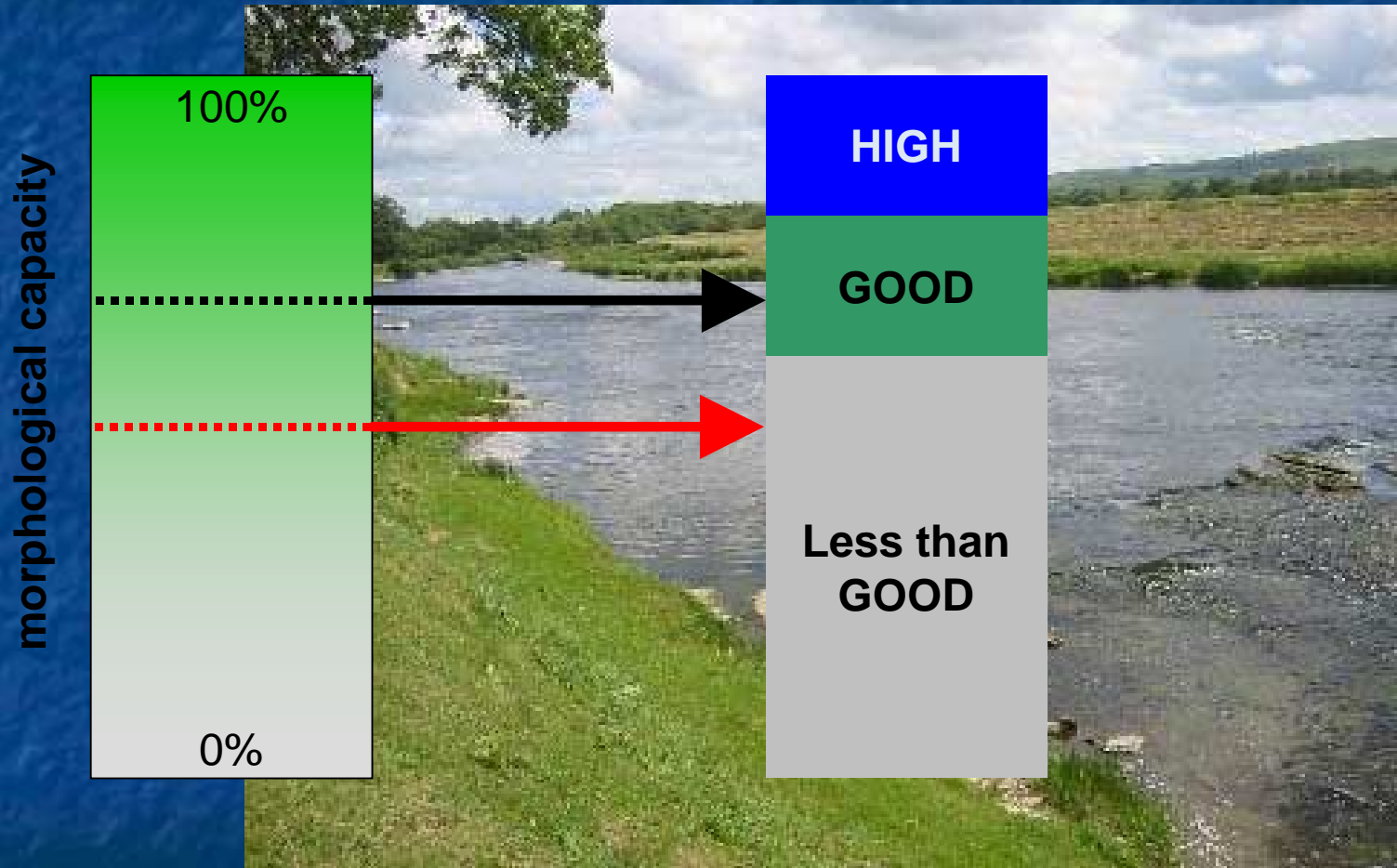


UKTAG River Morphology Project

- Classification:
 - Define High Status
 - Define Risk of failing GES
- Regulation:
 - Tool to allow determination of applications for new alterations
- Applied by Non-Experts
- Adaptable Framework



Scoring System



Scoring System

Capacity Used (%) =

Activity Impact Score x Activity Footprint (%)

Activity Impact Score =

Ecology Sensitivity x Morphology Sensitivity x Likelihood of Impact x Extent of Impact

Environmental Standards

Capacity Limits		
ZONE	High Status	Good Status
Channel	5%	15%
Banks	5%	15%
Floodplain	15%	30%
Continuity	15%	30%

Tier One Assessment

Activity	Channel Type					
	A	B	C	D	E	F
Sediment Removal	200	130	100	70	70	130
Sediment Manipulation	270	130	70	70	70	130
Dredging	130	80	50	40	40	80
Riparian Vegetation Loss	n/a	530	270	270	270	530
Embankment	130	130	50	80	70	130
Set Back Embankment	n/a	800	400	600	600	800
Hard Bank Protection	530	270	110	150	150	270
Soft Bank Protection	n/a	530	270	270	270	530
Bank Reprofilng	710	270	130	160	180	270
Realignment	100	80	30	40	30	100
Realignment Partly Recovered	360	210	70	120	110	210
Flood Bypass	150	130	70	70	60	210
Culverts	70	70	30	40	30	70
Croys/Flow Deflectors	360	130	30	70	70	130
Bed Reinforcement	100	80	30	40	30	100
Weirs	70	70	30	40	30	70
Artifical Substrate	320	320	200	160	160	400
Bridge Piers	210	130	30	70	70	130
Hydro Regime Modified	fail	fail	fail	fail	fail	fail
Sediment Regime Modified	n/a	n/a	fail	fail	fail	n/a

Tier Two Assessment

	A	B	G	H	T	U	V
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	TYPE
Activity Footprints (m)	C
Sediment Removal	0
Sediment Manipulation	0
Dredging	0
Riparian Vegetation Loss	0
Embankment	0
Set Back Embankment	0
Hard Bank Protection	0
Soft Bank Protection	0
Bank Reprofilng	0
Straightening	0
Realignment Partly Recovered	0
Flood Bypass	0
Culverts	0
Croys/Flow Deflectors	0
Bed Reinforcement	0
Weirs	0
Artificial Substrate	0
Bridge Piers	0
Hydro Regime EXT Modified	0
Sediment Regime EXT Modified	0

Channel	0.0%	HIGH
Banks	0.0%	HIGH
Floodplain zones	0.0%	HIGH
Longitudinal continuity	0.0%	HIGH

500m to Water Bodies

- Any Water Body would fail if:
 - 4x 500m sample points <Good (or High) in any 10km, OR
 - The capacity of any zone was exceeded at a 10km scale (capacity limits for 500m x20)

Uncertainty

- Method contains high levels of uncertainty
 - Relationship between 'capacity' and ecological status (Environmental Standards)
 - Modules within the Tool, e.g. ecological sensitivity, impact assessment, typology etc.
- Modules can be calibrated with field data
- Standards can be validated against biological tools when available

Next Steps

- Peer Review
 - Panel of 12 leading UK academics
 - Senior Agency Science and Regulatory Staff
- Version 1 Standards for January 2006
- Field Testing & RnD during 1st RBMP

Moffat Water

- Existing Condition
 - Hard Bank Protection (25m)
 - One In-channel Bridge Pier
- Capacity Used
 - 2.5% Banks, 3.5% Channel
- Ecological Status
 - HIGH Status
- Available Capacity
 - 20m Hard Bank Protection
 - 65m Soft Bank Protection

Dryfe Water

- Existing Condition
 - Hard Bank Protection (100m)
 - Embankments (150m)
 - Vegetation Loss (200m)
- Capacity Used
 - 30% Banks, 37% Channel
- Ecological Status
 - Less Than GOOD Status

WFD49 Rivers Project

Steering Group

(Chair: Mark Diamond)

Technical development

Stuart Greig, SEPA
Roy Richardson, SEPA
Jonty Gibson, EA

External Technical Panel

David Gilvear, David Harper,
Nigel Holmes, Steve Ormerod,
David Sear, Peter Maitland

Internal Peer Review

SEPA, EA, EHS

External Peer Review

Jill Lancaster, Colin Thorne,
Angela Gurnell, John Hilton,
Harriot Orr, Malcolm Newson

Uncertainty

