

Waters of



Blue Dot Steering Group Meeting

Update on Project Actions

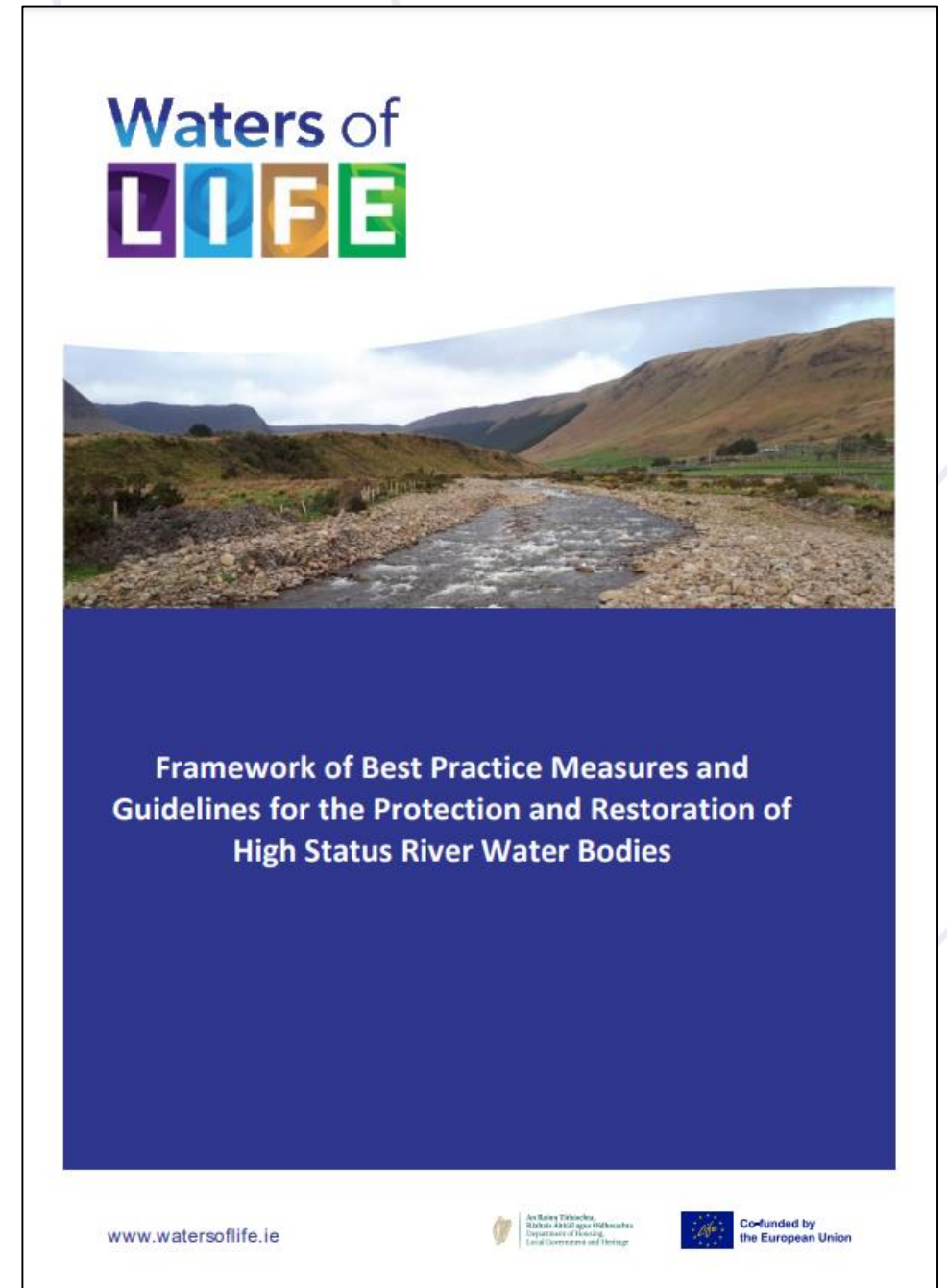
28th September 2023



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Action A2: Develop a Framework of Measures and Best Practice Guidance

- Background research and initial draft produced by RPS
- Further refinement by Donal Daly with input from Maeve Ryan and Philip Murphy in consultation with the project partners
- First version of the Agri Measures table was published last January so that it would be available for the ACRES CP teams training.
- Framework document and measures tables now available on project website www.watersoflife.ie



Action A2: Develop a Framework of Measures and Best Practice Guidance

Sectoral Measures Tables

- 5 sectoral measures tables produced
 - Agriculture
 - Forestry
 - Peat Extraction
 - Quarrying
 - Domestic Wastewater Treatment Plants.
- A separate hydromorphology measures table not yet produced



Framework of Measures and Best Practice
Guidelines for the Protection and Restoration of
High Status River Waterbodies

Annex 1: Agriculture

Tables of Measures for Mitigating Impacts from
Significant Issues arising from Agricultural Activities in
Catchment Areas where the Objective is Restoration

Action A2: Develop a Framework of Measures and Best Practice Guidance

Agricultural Measures

No.	Cat.	Measure	Measures Effectiveness (High (H), Medium (M), Low (L), Insignificant (-))															
			Sediment		PO ₄		NO ₃		NH ₄		BOD		MCPA		FIOs		Hydrology	
			PD	FD	PD	FD	PD	FD	PD	FD	PD	FD	PD	FD	PD	FD	PD	FD
A1	Source reduction & control	Farmyard management	M	L	H	L	L	-	M	L	H	M	-	-	H	M	-	-
A2		Appropriate N & P application rates	-	-	M	L	-	M	-	-	-	-	-	-	-	-	-	-
A3		Soil testing & NMP**	-	-	M	-	-	M	-	-	-	-	-	-	-	-	-	-
A4		Management of farm roadways, supplementary feeders, poaching	H	L	M	L	-	-	L	-	M	L	-	-	H	M	-	-
A5		Appropriate location of supplementary drinking troughs**	L	-	L	-	-	-	-	-	L	-	-	-	L	-	-	-
A6		Storage of silage bales	-	-	-	-	-	-	-	-	M	L	-	-	-	-	-	-
A7		Using low crude protein animal feeds**	-	-	L	-	-	M	-	-	-	-	-	-	-	-	-	-
A8		Precision nutrient applications (e.g. using GPS technology in conjunction with NMP).	-	-	L	-	-	L	-	-	-	-	-	-	-	-	-	-
A9		Management of land drainage & intensification	H	L	L	-	-	-	-	-	-	-	-	-	-	-	L	-
A10		Pesticide control & weed wiping	-	-	-	-	-	-	-	-	-	-	H	-	-	-	-	-
A11		Reducing N loading	-	-	M	-	-	H	L	-	-	-	-	-	-	-	-	-
A12	Mobilisation control	Complying with landspreading requirements for fertilisers and soiled water (e.g. closed period).	-	-	H	-	-	M	M	-	M	-	-	-	M	-	-	-
A13		Liming of mineral soils**	-	-	M	-	-	L	-	-	-	-	-	-	-	-	-	-
A14		Low emission slurry spreading**	-	-	L	-	-	L	L	-	-	-	-	-	L	-	-	-
A15		Cover/catch crops (tillage)**	H	L	L	-	-	M	-	-	-	-	-	-	-	-	-	-
A16		Protected urea	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-
A17		Multi-species swards	-	-	-	-	-	L	-	-	-	-	-	-	-	-	-	-

Action A2: Develop a Framework of Measures and Best Practice Guidance

Agri Measures for P



Table 3-3: List of measures for mitigating impacts from PHOSPHATE arising from agricultural activities in poorly draining and freely draining areas, with measures ranked based on an estimation of effectiveness.

Setting	No.	Measure	Effectiveness rating
Poorly Draining	A1	Farmyard management*	H
	A12	Complying with landspreading requirements for fertilisers and soiled water, e.g. closed period*	H
	A28	Spatially targeted variable width/extended buffer	H
	A2	Appropriate N & P application rates*	M
	A3	Soil testing & NMP**	M
	A4	Management of farm roadways, supplementary feeders, poaching**	M
	A11	Reducing N loading, e.g. less LUs/ha	M
	A13	Liming of mineral soils**	M
	A22	Peatland soils (>20% OM) – fertiliser spreading little and often based on crop needs	M
	A25	Magic margins	M
	A26	Raised buffer/interception berm	M
	A28	Hedgerows (along a contour or alongside a watercourse)	M
	A29	Wetland buffer/farm pond	M
	A30	Swales	M
	A32	In-field sediment trap	M
	A33	In-ditch sediment trap	M
	A34	Engineered ditch management, e.g. two-stage channel	M
	A40	ICWs for soiled water (using DAFF specification S133 (2011) and maintenance)	M
	A5	Appropriate location of supplementary drinking troughs**	L
	A7	Using low crude protein animal feeds**	L
	A8	Precision nutrient applications (e.g. using GPS technology in conjunction with NMP).	L
	A9	Management of land drainage & intensification	L
	A14	Low emission slurry spreading**	L
	A15	Cover/catch crops (tillage)*	L
	A20	Conservation tillage, contour ploughing & tramline management	L
	A21	Raising water levels in peatlands	L
	A23	Fixed-width buffers/setbacks*	L
	A27	Raised buffer – overbank storage	L
	A32	Tile-drain fed wetland	L
	A35	Leaky dam	L
	A36	Sediment filter fence (tillage)	L
	A37	Denitrifying bioreactor	L
	A38	Woodlands (outside riparian areas)	L
	A39	Agroforestry (outside riparian areas)	L
	A41	Livestock exclusion from watercourses (drinking points, river crossings)**	L

Setting	No.	Measure	Effectiveness rating
Freely Draining	A43	Invasive species control	L
	A1	Farmyard management*	L
	A2	Appropriate N & P application rates*	L
	A4	Management of farm roadways, supplementary feeders, poaching**	L
	A40	ICWs for soiled water (using DAFF specification S133 (2011) and maintenance)	L
	A41	Livestock exclusion from watercourses (drinking points, river crossings)**	L
	A43	Invasive species control	L
Notes: - Measures effectiveness ratings: High (H), Medium (M), Low (L). Measures classified as having an insignificant effect are not shown. - The ratings are based on consideration of measures in the catchment areas of waterbodies where the objective is restoration to the required water body status or condition. - The measures ratings do not apply to the freely draining soils and permeable subsoils, which are derived from Old Red Sandstone bedrock, located close to the coast in County Cork where the geochemistry, particularly the high iron content, facilitates leaching to groundwater. - The ratings are intended as guidance, and they may vary depending on local circumstances. - The ratings do not account for environmental co-benefits, such as GHG emission reduction, carbon sequestration and/or terrestrial biodiversity enhancement. - For optimum effectiveness, a suite of measures at an appropriate scale will generally need to be established. - Mandatory measures are indicated as follows: * Mandatory measures. ** Mandatory measures only when a stocking rate is exceeded (see GAP Regulations). - The measures are categorised based on their location in the landscape.			
Source reduction & control measures		Mobilisation control measures	
Pathway interception measures		In-stream measures	



Action A4: Develop a HS Results Based Payments Scheme

Facilitated Workshops with Key Stakeholder

- 4 Workshops held in May and June 2023
 1. The policy context, approach, vision & principles.
 2. The evidence base, anticipated outcomes and data collection
 3. Financing, payments and supports
 4. Capacity building and technology
- Chaired by Dr. James Moran, ATU
- Excellent attendance and engagement
- Facilitated by Quality Matters.

6 *“Quality Matters are a not-for-profit working with organisations across Ireland to improve social service provision.”*



RBPS Workshop No 2

Suggested Goals Related to Hydromorphology

	Catchment level goals	Farm level goals	Forest level goals
	Reduce Sediment/Siltation	Create functioning riparian zones	Create functioning riparian zones
	Reduce hydromorphological impacts	Achieve high hydromorphological status	Assess impact of forestry on water volume
	Improve channel characteristics	Remove artificial drainage	
	Develop and enhance resilience through buffer/riparian zones		
	Identify, reduce and eliminate invasive species		
	Maintain all areas with good and high hydromorphological status		
	Increase levels of forestry (riparian woodland)		

RBPS Workshop No 2

Suggested indicators related to hydromorphology



Element of RHAT

	Bedrock	Cascade / Step-pool	Pool-riffle-glide	Lowland Meandering
1. Channel form and flow types	4	4	4	4
2. Channel vegetation	4	4	4	4
3. Substrate condition	4	4	4	4
4. Barriers to continuity	4	4	4	4
5. Bank structure & stability L+R	4	4	4	4
6. Bank vegetation L+R	4	4	4	4
7. Riparian land cover L+R	4	4	4	4
8. Floodplain connectivity L+R	4	4	4	4
TOTAL	32	32	32	32
Hydromorph Score *				
WFD class **				

$$\text{Hydromorph score} = \frac{\sum \text{Assessment score}}{\text{Total}}$$



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Sediment reduction indicators	Hydrological indicators	River Bank Indicators	In stream indicators	Riparian indicators
Percentage of drains vegetated	Water table management & Flow measurement	Level of vegetation on banks (to prevent bank erosion)	Channel morphology (i.e. meandering or straight)	Quality and quantity of riparian zones i.e. age, structure, diversity, ecological connectivity, width length
Sediment capture in ditches	Level of natural flow - Natural hydrography and modification	Bank structure	Substrate composition	Woodland per unit of length of watercourse in km/proportion riparian zone with trees
Turbidity levels	Amount of artificial drainage	Bare soil (should be minimal)	Number of leaky dams in streams and ditches	No of invasive species
Real time silt monitoring	Rate of impact of forestry (i.e.trees using water, drains diverting water) on water quantity measured			Implementation of a 30-40m riparian zone in restructured legacy forest plantations
Level of drainage through riparian zones	Connectivity to flood plan			
Amount of artificial drainage				

Development of Project Results Based Payments Scheme



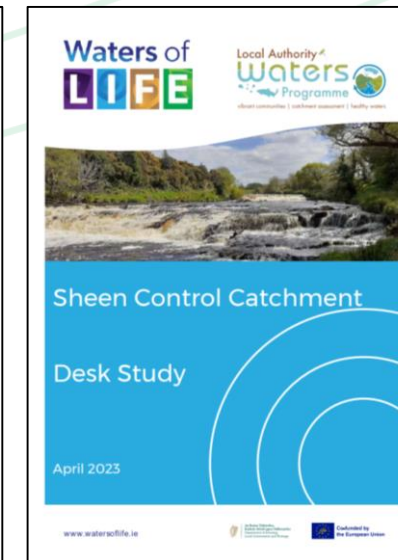
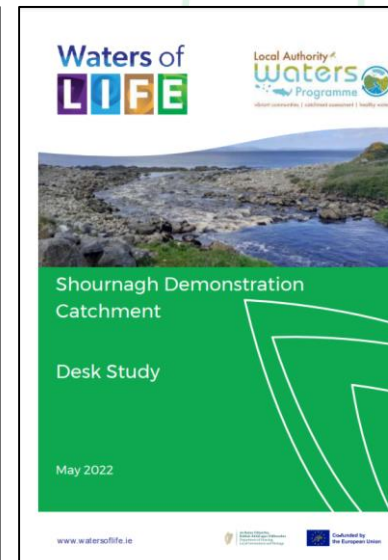
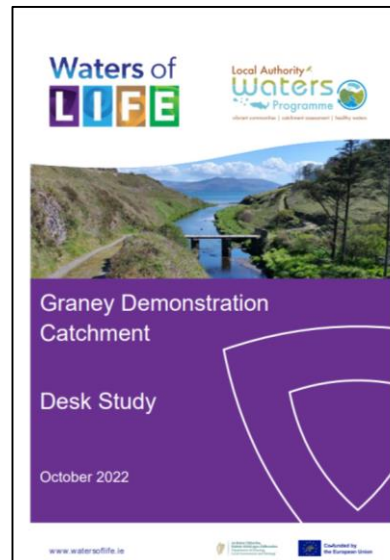
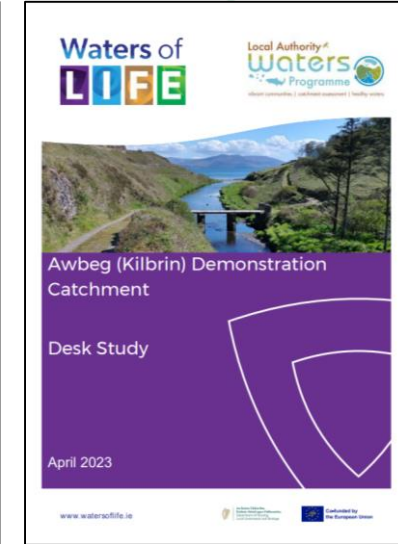
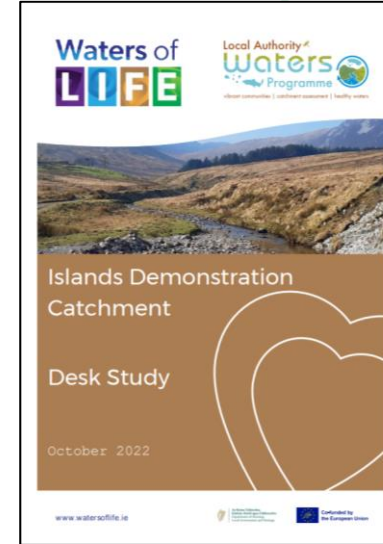
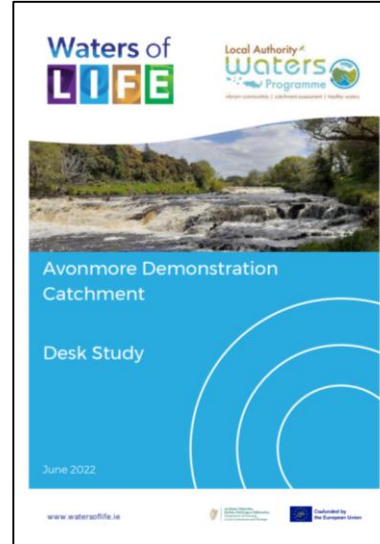
Workflow and Timelines

Action number					2024												2025	
	Month	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
A4	Planned																	
Scope range of score cards eg riparian margins, pathway intereception, drains, NUE Determine appropriate NPI's and Landscape Measures Develop draft score card options and draft payments structures Engagement in catchments Workshop with stakeholders to co design scheme Finalise T&Cs Recruit Pilot Farms Trial scoring system and IT Refine scheme based on pilot Recruit farmers Roll out in Demo Catchments	Planned																	
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Actions C1: Initial Catchment Walkover Investigations

- Action completed by LAWPRO Scientists
- 6 Desk studies completed and published on the project website
- Initial bridge hops carried out last Autumn



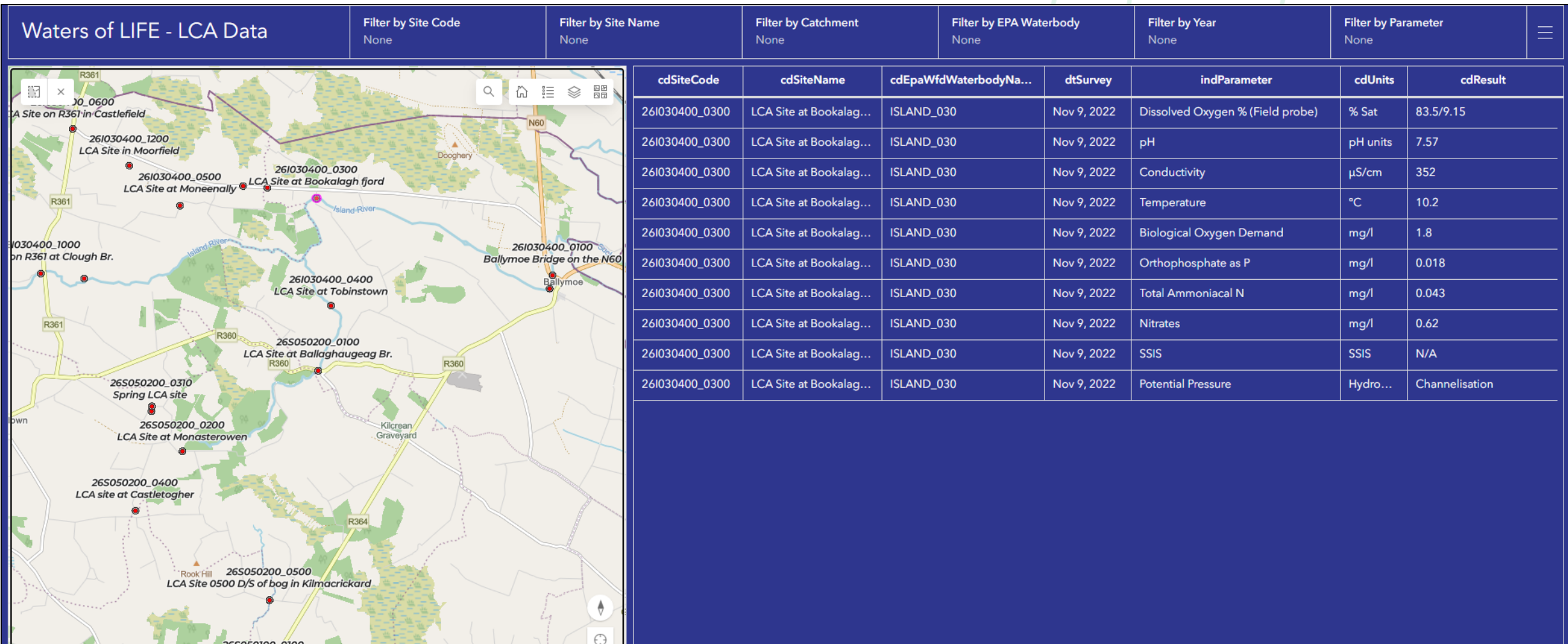
Action C2: Further Catchment Investigations

LAWPRO Local Catchment Assessments

- Stream walks to identify potential pressures
- Kick samples /Small Streams Impact Score (SSIS) to identify “at risk”
- Chemical Samples for BOD, nutrients etc



Data Capture and Management



Action C2: Further Catchment Investigations

Data Capture and Management

- Project GIS/Data Manager (Paul Duffy) has developed Survey 123 App to facilitate field data collection and ensure consistency.
- Will replace current paper based system and be available to LAWPRO and project staff
- Benefits
 - Totally Digital Workflow
 - Consistency of Field Naming
 - Consistency of Image Naming
 - Data all stored in ArcGIS Online (AGOL) so can be put into Map Viewers easily.
 - No Data entry required post-field work
- Currently being field tested by LAWPRO scientists- feedback very positive

Waters of LIFE - Small Stream Impact Score (SSIS)

Site type *
☒ Waters of LIFE LCA Site ☐ New Site

Sheen Site
☐ Br US Sheen R confl (COOMEELAN STREAM_010)
☐ Baurearagh R at Releagh Br (SHEEN_020)
☒ Dromanassig Br (SHEEN_020)
☐ Bonane Br (SHEEN_020)
☐ Coomeelan Stream US of Br US Sheen R confl (COOMEELAN STREAM_010)
☐ Br at Baurearagh (SHEEN_010)
☐ Dromagorteen Br (SHEEN_020)
☐ LCA Site 1.1 km US Sheen Br (SHEEN_030)

Site ID *
 215010600_0100

Eastng (ITM)
 495254.15

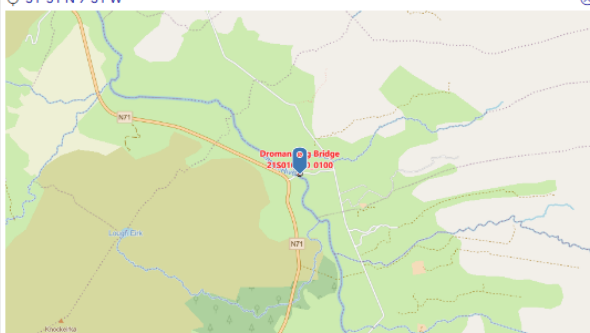
Latitude
 51.854649

River Waterbody *
 SHEEN_020

Northng (ITM)
 568031.24

Longitude
 -9.52056998

Site Location
 51°51'N 9°31'W



Final Site Latitude
 51.854649

Final Site Longitude
 -9.52056998

Site Location Comment

1 of 9

Waters of LIFE - Small Stream Impact Score (SSIS)

2 - CHECKLIST

Ephemeroptera Taxa Recorded
☒ Ecdyonurus o A ☒ Heptagenia o A
☒ Rhithrogena o A ☐ Ephemer danica o A
☐ Siphonuridae o A ☐ Paraleptophlebia o B
☐ Leptophlebia o B ☒ Ephemerellidae o C
☒ Caenis o C ☒ Baetidae o C (not SISS)

Plecoptera Taxa Recorded
☐ Perl o A ☐ Dinocras o A ☐ Isoperla o A ☒ Chloroperla o A
☐ Amphinemura o A ☐ Brachyptera o A ☐ Protonemura o A ☒ Leuctra o B
☐ Other

Trichoptera Taxa Recorded
☐ Limnephilidae o B ☐ Sericostomatidae o B ☐ Glossosomatidae o B
☐ Lepidostomatidae o B ☐ Goeridae o B ☐ Hydroptilidae o B
☐ Leptoceridae o B ☒ Hydropsychidae o C ☒ Polycentropodidae o C
☐ Rhyacophila o C ☐ Other

G.O.L.D Taxa Recorded
☐ Radix balthica (G) o D ☒ Potamopyrgus (G) o C ☐ Planorbis (G) o C ☐ Ancylus (G) o C
☐ Physa (G) o D ☐ Lumbriculus (OL) o - ☐ Eiseniella (OL) o - ☒ Tubificidae (OL) o E
☒ Simuliidae (D) o C ☐ Ceratopogonidae (D) o C ☒ Dicranota (D) o C ☐ Tipulidae (D) o C
☒ Chironomidae (D) o C ☐ Chironomus (D) o E ☐ Other

Other Taxa Recorded
☒ Gammarus o C ☐ Crangonyx o C ☒ Riffle beetle o C ☒ Leech o D ☐ Flatworm o C
☐ Odonata o B ☐ Crayfish o C ☐ Hydracarina o C ☐ Other

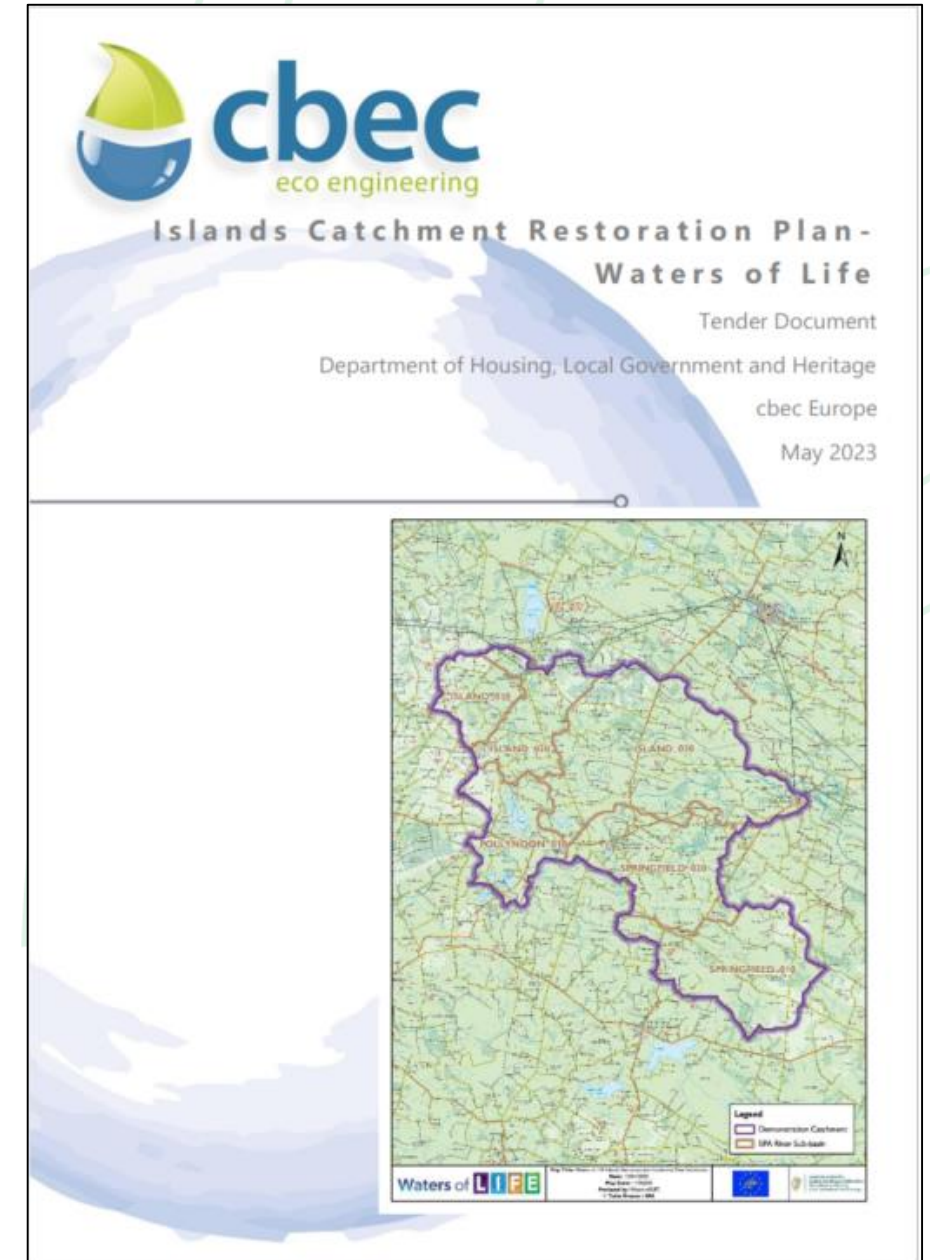
Asellus Recorded
☒ Yes ☐ No

2 of 9

Action C2: Further Catchment Investigations

Specialist Investigations

- CBEC is carrying out a hydromorphological assessment and developing a river restoration plan for the water bodies in the Islands demo catchment
- Contract value €48,891.27 incl VAT
- RFT issued through e-tenders for Land Potential Assessment Mapping for NbS for ICM in order to:
 - **protect** land from erosion and sediment loss;
 - **intercept** and improve infiltration;
 - **store** surface water; and
 - **slow** surface water before reaching downstream water bodies.
 - 5 submissions received
- Based on draft methodology developed by EPA
- Using new national land cover map along with data on soils, rainfall and slope and pollution impact assessment maps.



Actions D1&D2: Establish Environmental Monitoring Programme and Carry out Monitoring

- This is being delivered through an EPA research project
- Successful bidder was a consortium of IFI and UCD led by Dr. Fiona Kelly and Dr Mary Kelly Quinn
- Project will be represented on steering committee by PM and/or Project Scientist.
- Donal Daly will also be a member of the steering group.
- Project officially starts on 29th September.



Action D3: Generate Community Custodianship of HS Sites

- This will be the subject of a Teagasc Walsh Fellowship action-research project
- Student beginning in UCD this month
- Will spend 1 year in college and then begin work in catchments
- Will work closely with project catchment staff and LAWPRO Community Water Officers
- Will need baseline attitudinal survey before significant engagement takes place in catchments



Engagement and Dissemination Actions

Action E4- Networking with other projects:

- Seminar on National Capital in Croom in March with Natural Courses LIFE IP
- Workshop in Manchester on “Trialling a natural capital approach to fund and deliver environmental benefits”

Action E7 – Raise Awareness of HS through School Visits

- School visits by LAWPRO CWO’s in Blue Dot catchments in Mayo

Action E3: Promote HS through media

- Article on project in Farming Independent
- Press release in national papers on release of Framework Document
- Podcast on Maritime Ireland
- Active on social media
- Project website updated regularly



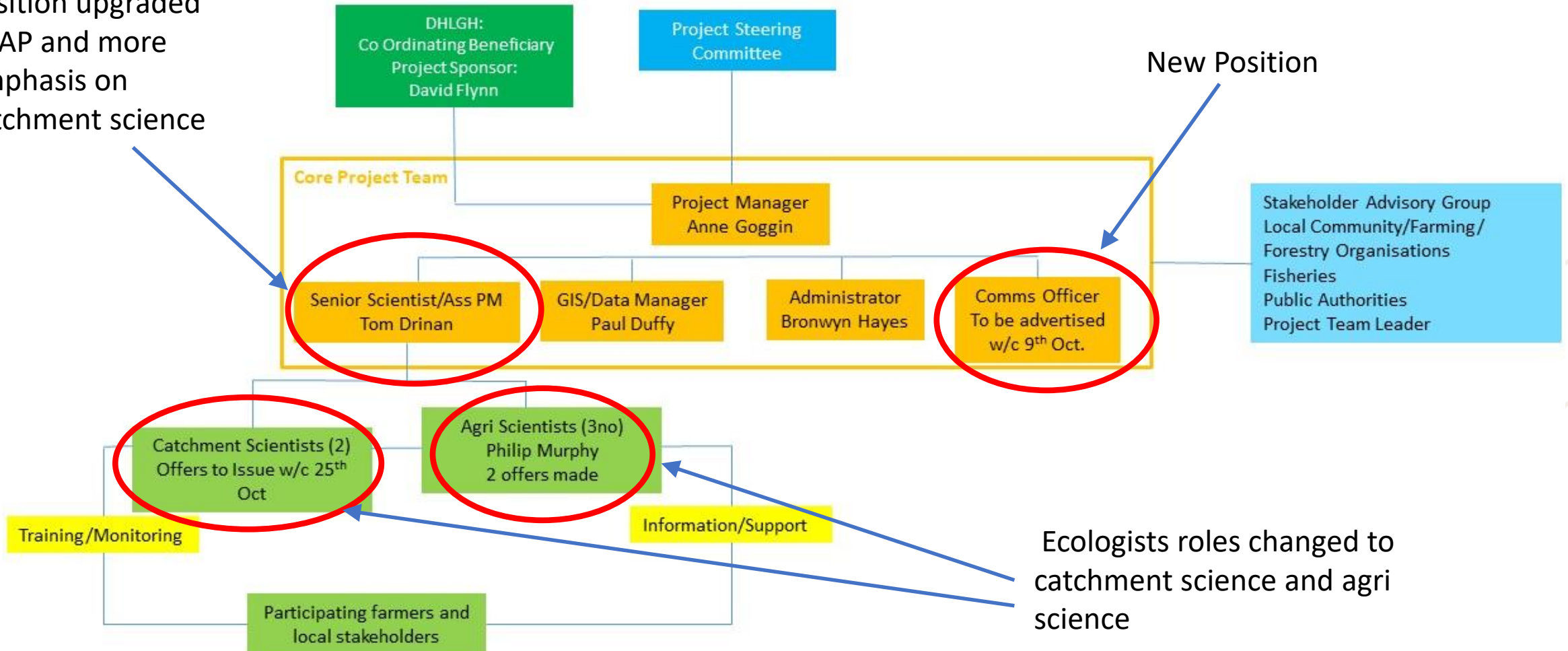
*Seminar on Natural Capital and Environmental Funding,
Croom, March 23*

Project Team /Recruitment



Position upgraded
to AP and more
emphasis on
catchment science

New Position



Ecologists roles changed to
catchment science and agri
science

Thank You



protect



restore



respect



sustain