

Appendix 3 – Supply Side Drought Option Sensitivity Assessment and Environmental Receptors

WRZ	Area	Drought Option		EMP No.	Permission Required	ER	Likelihood of use	Designation	Environmental Sensitivity	Hydrological Impact	Environmental Receptors			
											Fish	Macroinvertebrates	Macrophytes	Other
8001	North Eryri/Ynys Mon	2	Removal of Llyn 10 Ml/d abstraction limit	N9	Drought Order	Yes	Major	National Park, SAC and SSSI	Major	Minor	Arctic char, Atlantic salmon, River Lamprey, Brook Lamprey, Sea lamprey, Bullhead, brown trout (including sea trout)	white-clawed crayfish and benthic macroinvertebrate communities	Floating water-plantain, Littorelletea uniflorae Isoëto-Nanojuncetea, Ranunculion fluitantis and Callitricho-batrachion vegetation	Otter and Water vole
		3	Reduction of Alaw Compensation water	N4	Drought Permit		Moderate	SSSI	Moderate	Major	Brown and sea trout, eel, lamprey (if found to be present) (including sea lamprey (Petromyzon marinus), brook lamprey, river lamprey)	white-clawed crayfish (if found to be present) and benthic macroinvertebrate communities	Ranunculion fluitantis and Callitricho-Batrachion vegetation	Otter
		4	Reduction of Ffynnon Llugwy Compensation water	N6	Drought Permit		Major	National Park, SAC and SSSI	Moderate	Major	Bullhead and brown trout	Freshwater pearl mussel and benthic macroinvertebrate communities. Crayfish? (unlikely)	Isoëto-Nanojuncetea and Littorelletea uniflorae vegetation and Floating water-plantain (Luronium natans) and River Jelly Lichen (Collema dichotomum)	Otter
		5	Reduction of Cefni reservoir Compensation water	N5	Drought Permit		Minor	SSSI and reservoir is a key wetland site in the Anglesey Wetland Strategy	Moderate	Major	Brown trout (including sea trout), eel, lamprey and salmon (if found to be present), bullhead, and coarse fish species	Freshwater pearl mussel and white-clawed crayfish (if found to be present), benthic macroinvertebrate communities	Ranunculion fluitantis and Callitricho-Batrachion vegetation	Otter
		6	Transfer of water from Marchlyn Mawr (the Dinorwig System) to Marchlyn Bach	To be done	Land Access		Minor		Minor	Minor				
		7	Abstraction from Llyn Cwellyn below the pump intake level	N9	Drought Order	Yes	Major	National Park, SAC and SSSI	Major	Minor	Arctic char, Atlantic salmon, River Lamprey, Brook Lamprey, Sea lamprey, Bullhead, brown trout (including sea trout)	white-clawed crayfish and benthic macroinvertebrate communities	Floating water-plantain, Littorelletea uniflorae Isoëto-Nanojuncetea, Ranunculion fluitantis and Callitricho-batrachion vegetation	Otter and Water vole
8012	Clwyd Coastal	1	Transfer water from Llyn Bran to Afon Aled	N1	Drought Permit		Major	SSSI	Moderate	Major	bullhead, Atlantic salmon, brown trout (including sea trout (Salmo trutta)), lamprey	white-clawed crayfish and benthic macroinvertebrate communities	Macrophytes	Otter
		2	Reduction of the compensation release from Aled Isaf and modification of the Hands Off Flow value at Bryn Aled	N7	Drought Permit		Major	SSSI	Moderate	Major	Atlantic Salmon, Bullhead, Brook Lamprey and brown trout (including sea trout)	white-clawed crayfish and benthic macroinvertebrate communities	Macrophytes	Otter

WRZ	Area	Drought Option		EMP No.	Permission Required	ER	Likelihood of use	Designation	Environmental Sensitivity	Hydrological Impact	Environmental Receptors			
											Fish	Macroinvertebrates	Macrophytes	Other
8012	Tywyn/Aberdyfi	1	Relaxation of annual licences on the Afon Fathre and the Nant Braich Y Rhiw	To be done	Drought Permit		Moderate		Moderate	Moderate				
		2	New abstraction (tankering) from Afon Dysynni at Pont Y Garth (to Pen Y Bont WTW)	To be done	Drought Permit		Minor		Moderate	Minor				
8026	Blaenau Ffestiniog	1	Pumped abstraction of Dead Storage from Llyn Morwynion and Increase annual abstraction licence to fully utilise Emergency Storage Volume	N11	Drought Permit		Moderate	National Park, SAC, SSSI and SPA	Minor	Minor	brown trout, eel and brook lamprey	Benthic macroinvertebrate communities	Littorelletea uniflorae and Isoëto-Nanojuncetea	Otter and Water vole
8033	Barmouth	1	Pumped abstraction of Dead Storage from Llyn Bodlyn	N8	Drought Permit	Yes	Major	National Park	Moderate	Major (lake)	Brown trout and Arctic charr	Benthic macroinvertebrate communities	Luronium natans	Otter
		2	Reduce compensation water releases from Llyn Bodlyn	N8	Drought Order	Yes	Major	National Park, SAC and SSSI	Moderate	Major (river)	Brown trout (including sea trout), eel, and Atlantic salmon	Benthic macroinvertebrate communities	Water courses of plain to montane levels with Ranunculus fluitantis and Callitriche-Batrachion vegetation and River Jelly Lichen	Otter
8034	Lleyn/Harlech	1	Reduce compensation flow releases from Llyn Cwmystradllyn	N3	Drought Permit	Yes	Moderate	ESA and National Park	Moderate	Minor	Atlantic salmon, brown trout (including sea trout)	Freshwater pearl mussel and benthic macroinvertebrates	Macrophytes	Otter
		2	Reduce regulation releases from Llyn Cwmystradllyn	N3	Drought Permit	Yes	Moderate	ESA and National Park	Moderate	Minor	Atlantic salmon, brown trout (including sea trout)	Freshwater pearl mussel and benthic macroinvertebrates	Macrophytes	Otter
		3	Extension of the syphon arrangement to exploit the Dead Storage in Llyn Techwyn	N12	Drought Permit	Yes	Moderate	No designation-SAC and SSSI areas border the study area.	Minor	Minor	Brown trout and eel	Benthic macroinvertebrate communities	Macrophytes	Otter
8035	Dyffryn Conwy	1	Increase the daily and/or annual abstraction licences from Llyn Cowlyd	To be done	Drought Order		Major	SAC and SSSI	Unknown	Unknown				

WRZ	Area	Drought Option		EMP No.	Permission Required	ER	Likelihood of use	Designation	Environmental Sensitivity	Hydrological Impact	Environmental Receptors			
											Fish	Macroinvertebrates	Macrophytes	Other
8036	South Meirionnydd	1	Increased abstraction from Llyn Cynwch Penycefn WTW to support tankering to outlying source areas	N13	Drought Permit		Moderate	National Park	Minor	Negligible	Atlantic salmon, brown trout, eel and lamprey species	Benthic macroinvertebrate communities	Floating water-plantain	Otter
8101	Ross-On-Wye	1	Exchange of spare Wye Regulation water to Severn Trent Water's Lydbrook abstraction point		Drought Order	Yes		SSSI, SAC and AONB	Major	Minor	Atlantic salmon, Brown trout, River, Brook and Sea lamprey, Bullhead, Allis and Twaite shad, Grayling and coarse fish species	Freshwater pearl mussel, White-clawed crayfish and benthic macroinvertebrate communities	Ranuncullon Fluitantis and Callitricho-Batrachion vegetation	Otter
8103	Hereford C.U. Area	1	Increase the abstraction at Broomy Hill by 3 MI/d	SE5	Drought Order		Moderate	SSSI and SAC	Negligible	Negligible	Sea lamprey, Brook lamprey, River lamprey, Twaite shad, Allis shad, Atlantic salmon, Bullhead, Grayling and brown trout	Freshwater Pearl Mussel, White-clawed Crayfish and benthic macroinvertebrate communities	Ranunculon fluitantis and Callitricho-Batrachion vegetation and River Jelly Lichen	Otter and Water vole
		2	Increase the abstraction at Leintwardine by 0.1 MI/d	SE1	Drought Order		Minor	SSSI, SAC and ESA	Major	Minor	Sea lamprey, Brook lamprey, River lamprey, Atlantic salmon, Bullhead and brown trout	Freshwater Pearl Mussel and benthic macroinvertebrate communities	Ranunculon fluitantis and Callitricho-Batrachion vegetation and River Jelly Lichen	Otter
8105	Llyswen	1	Increase the abstraction at Llyswen	SE4	Drought Order		Minor	SSSI and SAC	Negligible	Negligible	Sea lamprey, Brook lamprey, River lamprey, Twaite shad, Allis shad, Atlantic salmon, Bullhead and brown and sea trout	White-clawed Crayfish, Freshwater Pearl Mussel and benthic macroinvertebrate communities	Ranunculon fluitantis and Callitricho-Batrachion	Otter and Water vole
8107	Pilleth	1	Increase the authorised Pilleth abstraction	SE8	Drought order		Minor	SSSI and Withybeds Nature Reserve	Moderate	Moderate	sea and brown trout (including sea trout), Atlantic salmon, bullhead, twaite shad and lamprey	Benthic macroinvertebrate communities and white-clawed crayfish (feature of the SSSI)	Macrophytes	Otter
8108	Brecon/Portis	1	Maintain/implement a reduced Usk Compensation discharge of 5.7MI/d and relax the requirement to ensure the average compensation discharge of 9MI/d for the year.	SE13	Drought Order		Moderate	SSSI and SAC	Major	Major	Atlantic salmon, Bullhead, Sea lamprey, Brook lamprey, River lamprey, Twaite shad, Allis shad and brown trout (including sea trout)	white-clawed crayfish and benthic macroinvertebrate communities	Ranunculon fluitantis and Callitricho-Batrachion vegetation and River Jelly Lichen	Otter and Water vole
8110	Vowchurch	1	Removal of flow condition on the River Dore	SE7	Drought Order	No	Moderate	No designation-SSSI about 44 km downstream	Moderate	Moderate	Brook lamprey, bullhead, brown trout and coarse fish species		macroinvertebrates	Otter and Water vole

WRZ	Area	Drought Option		EMP No.	Permission Required	ER	Likelihood of use	Designation	Environmental Sensitivity	Hydrological Impact	Environmental Receptors			
											Fish	Macroinvertebrates	Macrophytes	Other
8111	Whitbourne	1	Removal of flow condition on the River Teme	SE2	Drought Order	Yes	Moderate	SSSI	Moderate	Minor	Twaite shad, Sea lamprey, Brook lamprey, River Lamprey, Atlantic salmon, Bullhead, brown trout, sea trout and grayling	White-clawed Crayfish, Freshwater Pearl Mussel and benthic macroinvertebrate communities	Macrophytes	Otter
8121	SEWCUS	Rhondda	1	Emergency abstraction from the River Rhondda at Treherbert	SE11	Drought Permit	Yes	Minor	No designation	Moderate	Atlantic salmon, brown trout (including sea trout), shad, bullhead, Sea lamprey, Brook lamprey, River lamprey and coarse fish species	White-clawed crayfish	Macrophytes	Otter
		Talybont	1	Further reduction in Talybont Compensation Water release and reduction of residual flow condition on Nant Clydach	SE14	Drought Order		Moderate	National Park, SSSI and SAC	Major	Sea lamprey, Brook lamprey, River lamprey, Atlantic salmon, eel, Twaite shad, Allis shad, Bullhead and brown trout (including sea trout)	white-clawed crayfish (if present), benthic macroinvertebrate communities	Ranunculon fluitantis and Callitricho-Batrachion vegetation	Otter and Water vole
			2	Reduction in the Cwntillery Reservoir Compensation Water release	SE16	Drought Permit		Minor	No designation	Minor	Atlantic salmon, bullhead, brown trout, eel and brook lamprey	White-clawed Crayfish (if found to be present) and benthic macroinvertebrate communities	Macrophytes	Otter
			3	Utilise the Dead Storage in Talybont Reservoir		Drought Order		Moderate	National Park, SSSI and SAC	Major	Sea lamprey, Brook lamprey, River lamprey, Atlantic salmon, Twaite shad, Allis shad, Bullhead and brown trout (including sea trout)	white-clawed crayfish benthic macroinvertebrate communities	Ranunculon fluitantis and Callitricho-Batrachion vegetation	Otter and Water vole
		Llwynon/ Sluvad/ Court Farm	1	Reduce compensation water releases from Llwynon Reservoir	SE20	Drought Permit	Yes	Moderate	No designation	Minor	Atlantic salmon, brown/sea trout, bullhead, lamprey species	White-clawed Crayfish (if found to be present), Marsh fritillary and benthic macroinvertebrate communities	Macrophytes	Otter and Great Crested Newt
			2	Unsupported abstractions from the River Usk at Prioress Mill	SE9	Drought Order		Moderate	SSSI, SAC and Biodiversity Action Plan (BAP) habitats	Major	Sea lamprey, Brook lamprey, River lamprey, Twaite shad, Allis shad, eel, Atlantic salmon, Bullhead, brown trout (including sea trout) and course fish species	White-clawed crayfish and benthic macroinvertebrate communities	Ranunculon fluitantis and Callitricho-Batrachion vegetation	Otter, Water vole and waterside breeding birds

WRZ	Area		Drought Option	EMP No.	Permission Required	ER	Likelihood of use	Designation	Environment al Sensitivity	Hydrological Impact	Environmental Receptors				
											Fish	Macroinvertebrates	Macrophytes	Other	
		Pontsticill High Level	3	Unsupported abstractions from the River Wye at Monmouth	SE6	Drought Order	Yes	Minor	SSSI, SAC and AONB	Major	Minor	Atlantic salmon, Brown trout, River, Brook and Sea lamprey, Bullhead, Allis and Twaite shad, Grayling and coarse fish species	Freshwater pearl mussel, drepressed river mussel, White-clawed crayfish and benthic macroinvertebrate communities	Ranuncullon Fluitantis and Callitricho-Batrachion vegetation	Otter
			4	Emergency abstraction from the Afon Lwyd at New Inn	SE23	Drought Permit	Yes	Moderate	No designation-tributary of a SSSI and SAC	Moderate	Moderate	Atlantic salmon, sea and brown trout, lamprey species, eel and bullhead	white-clawed crayfish and benthic macroinvertebrate communities	macrophytes	Otter
			6	Use Grwyne Reservoir, as a regulating reservoir, to support abstraction at Proiress Mill or Llantrisant	SE15	Drought Order		Minor	National Park, SSSI and SAC	Major	Major	Atlantic salmon, brown trout (including sea trout), bullhead, lamprey, shad and coarse fish species	white-clawed crayfish, fine-line pea mussel and benthic macroinvertebrates	Ranunculion fluitantis and Callitricho-batrachion vegetation	Otter
			7	Reduce the compensation water releases from the Elan Reservoirs	SE12	Drought Order		Moderate	SSSI, SAC and AONB	Major	Major	Atlantic salmon, lamprey, sea trout (including brown trout) Allis and Twaite shad, bullhead and coarse fish	freshwater pearl mussel, white-clawed crayfish and benthic macroinvertebrates community	Ranunculion fluitantis and Callitricho-Batrachion vegetation and River Jelly Lichen	Otter and Water vole
			8	Utilise Grwyne Reservoir for direct supply	Licence already held by DC; EIA would be required for the temporary capital works										
			1	Compensation Water Reducation of 50% at Pontsticill Reservoir	SE19	Drought Permit	Yes	Moderate	Cwm Taf Fechan Woodlands SSSI	Minor	Major	Atlantic salmon, brown/sea trout, bullhead, lamprey species	White-clawed Crayfish (if found to be present) and benthic macroinvertebrate communities	Macrophytes, including: bryophytes	Otter and Great Crested Newt
		2	Compensation Water Reduction of 50% at Lower Carno Reservoir	SE17	Drought Permit		Minor	No designation	Minor	Minor	Brown trout, brook lamprey	benthic macroinvertebrate communities, White-clawed Crayfish (if found to be present)	Macrophytes	Otter	
		8201	Tywi C.U. Area		1	Reduce Crai compensation flow by 50%	SW4	Drought Order		Moderate	National Park, SSSI and SAC	Major	Major	Atlantic salmon, Bullhead, Sea lamprey, Brook lamprey, River lamprey, Twaite shad, , Allis shad and brown trout (including sea trout)	White-clawed crayfish and benthic macroinvertebrate communities
2	Reduce Ystrafdfellte compensation flow by 50%				SW5	Drought Permit		Moderate	National Park	Moderate	Major	Fish population, especially Bullhead, brown and sea trout and coarse fish	White-clawed crayfish and benthic macroinvertebrates	River Jelly Lichen	Otter

WRZ	Area	Drought Option		EMP No.	Permission Required	ER	Likelihood of use	Designation	Environmental Sensitivity	Hydrological Impact	Environmental Receptors			
											Fish	Macroinvertebrates	Macrophytes	Other
		3	Remove the maintained requirement below the Nantgaredig intake on the River Tywi	SW1	Drought Order		Moderate	SAC and SSSI	Major	Major	Allis shad, Twaite shad, Sea lamprey, Brook lamprey, River lamprey, Bullhead, Atlantic salmon, sea and brown trout	freshwater pearl mussel, White-clawed crayfish and benthic macroinvertebrate communities	River Jelly Lichen	Otter and Water vole
		4	Reduce Brianne compensation flow by 50%	To be done	Drought Order		Minor		Major	Major				
8202	Mid - South Ceredigion	1	Increase the Llechryd abstraction from 19 MI/d to 21 MI/d and obtain variation of annual licence amounts	SW2	Drought Order	Yes	Major	SSSI, SAC and NNR	Major	Minor	Lamprey, Atlantic salmon, Bullhead, Shad, Grayling and Brown trout (including Sea trout)	White-clawed crayfish and benthic macroinvertebrates	Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea vegetation, Ranunculus fluitantis and Callitriche-Batrachion vegetation, floating water plantain and River Jelly Lichen	Otter
		2	Increase the Teifi Pools annual abstraction licence to fully utilise the Emergency Storage volume	Negligable Environmental Impacts; no EMP needed										
8203	North Ceredigion	1	Increase the annual abstraction quantity from Llyn Llygad Rheidol	SW7	Drought Permit		Moderate	SSSI	Minor	Minor	brown trout, eel and brook lamprey	Benthic macroinvertebrate communities	River Jelly Lichen	Otter and Water vole
		2	Pumped abstraction from Nantymoch (a HEP reservoir operated by Statkraft) into the raw water main between Llyn Llygad Rheidol Reservoir and Bontgoch WTW	To be done	Drought Permit		Minor		Minor	Minor				
		3	Reduce the compensation release from Llyn Craig Y Pistyll by 50%	To be done	Drought Permit		Minor		Moderate	Moderate				
8206	Pembrokeshire	1	Reduce the required prescribe flow below the Crowhill Abstraction	SW3	Drought Order		Moderate	SSSI and SAC	Major	Major	Sea lamprey, Brook lamprey, River lamprey, Bullhead, Atlantic Salmon and brown/sea trout	Freshwater pearl mussel, White-clawed crayfish and benthic macroinvertebrate communities	Ranunculus fluitantis and Callitriche-Batrachion vegetation, and River Jelly Lichen	Otter

WRZ	Area	Drought Option		EMP No.	Permission Required	ER	Likelihood of use	Designation	Environmental Sensitivity	Hydrological Impact	Environmental Receptors			
											Fish	Macroinvertebrates	Macrophytes	Other
		2	Reduce the Compensation release from Preseli Reservoir by 50%	SW6	Drought Permit		Moderate	SSSI, SAC and ESA	Moderate	Minor	Brook lamprey, River lamprey, Sea lamprey, Bullhead, brown trout and coarse fish	White-clawed crayfish benthic macroinvertebrate communities	Ranunculus fluitans and Callitriche-Batrachium vegetation and River Jelly Lichen	Otter
		3	Increase the direct abstraction from Llys-y-fran reservoir and remove the 59.1 Ml/d regulation requirement and the section 158 restrictions, if applicable	To be done	Drought Order									
		4	Reduce the Prescribed flow required at the Pont Hywel abstraction	To be done	Drought Order		Moderate		Major	Major				
		5	Abstraction from the Afon Taf	SW9	Drought Order	Yes	Moderate	SSSI and SAC	Moderate	Minor				
		6	Reduction in the statutory compensation release from Llys y Fran Reservoir to the Afon Syfynwy of 7.64 Ml/d from 13.64Ml/d to 6Ml/d	SW8	Drought Order	Yes								